EISPC
EASTERN INTERCONNECTION STATES' PLANNING COUNCIL

State-by-State Existing and Potential Clean Energy Zones:

Survey of Relevant State Laws, Rules, Regulations and Orders in the Eastern Interconnection

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Clean Energy Zones Policy Project
Final Report

State-by-State Existing and Potential Clean Energy Zones -
Survey of Relevant State Laws, Rules, Regulations and Orders in the Eastern Interconnection

CESA Technical Manager: Warren Leon
Clean Energy States Alliance
50 State Street, Suite 1
Montpelier, VT 05602
Email: WLeon@cleanegroup.org
Phone: 978-317-4559

CESA Contract Manager: Maria Blais Costello
Email: Maria@cleanegroup.org
Phone: 802-223-2554 x203

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Introduction: Purpose of the Clean Energy Zones Policy Project—and of This Report

Clean Energy States Alliance (CESA)—along with its subcontractor eFormative Options (EFO)—received a contract from the National Association of Regulatory Commissioners (NARUC) to inventory publicly enacted state and regional policies, laws, regulations, and orders that either promote, encourage, or inhibit the development of clean energy technologies. The information collected through this inventory has been included as part of the Eastern Interconnection States' Planning Council (EISPC) Energy Zones Study and Mapping Tool. Users of the Mapping Tool with an interest in clean energy development in a particular area can see and learn about public policies that are relevant to clean energy development in that area.

CESA worked under the direction of the EISPC Clean Energy Zones Workgroup and coordinated its efforts closely with the team from the National Laboratories that developed the EISPC Energy Zones Mapping Tool. NARUC provided administrative oversight of the project. We are grateful for the cooperation shown us by the National Laboratory team and for the valuable direction and advice we received from the Energy Zones Workgroup and from NARUC. We especially want to thank Commissioner David Littell, chair of the Workgroup, for the active interest he has taken in our work and for his wise counsel, as well as Miles Keogh and Sharon Thomas for their guidance and help on administrative issues. The US Department of Energy (DOE) provided the necessary funding for this project, and we very much appreciate DOE's foresight in deciding that an Energy Zones policy inventory would be useful and desirable.

EISPC and NARUC determined that the inventory should include the following technologies:

- biomass
- coal with carbon capture and storage (new and retrofitted)
- geothermal
- natural gas (EISPC added this to the list of technologies in September 2012)
- nuclear
- solar (utility-scale and rooftop photovoltaic and concentrated solar thermal)
- storage (pumped-hydro and compressed-air)
- water (new and incremental hydropower, tidal, wave)
- wind (on-shore and off-shore).

The inventory includes information about the 39 states in the Eastern Interconnection, the District of Columbia, New Orleans, and the 8 Canadian provinces that are linked to the Eastern Interconnection.

In preparing the inventory, all parties assumed from the beginning that CESA would start with the existing Database of State Incentives for Renewable Energy (DSIRE), which is separately funded by DOE and managed by the North Carolina Solar Center and the Interstate Renewable Energy Council. After assessing the accuracy and completeness of the DSIRE database, and receiving feedback on its accuracy from EISPC, CESA identified and collected additional policies to include in the Energy Zones policy inventory. The final EISPC Energy Zones inventory is more than three times the size of the portion of the DSIRE database that is relevant to electricity generation in the EISPC region.

This report describes the process the CESA project team used in carrying out our research, data collection, and preparation of the policy inventory for incorporation into the EISPC Mapping Tool. It also includes tables with the key information included in the inventory, as well as suggestions for maintaining the accuracy and completeness of the inventory over time.

A. Organizing the Work

An important initial task was to ensure that CESA's work would be carried out in a way that would meet EISPC's needs and that would efficiently lead to a high-quality end product. We took a range of steps to make sure that this happened.

Coordination Protocols

Early on in the project, after consultation with the Energy Zones Workgroup (EZWG), we established the following coordination principles:

- EZWG and the EISPC as a whole were our clients, as well as the decision makers for the Energy Zones Study. It was essential for us to seek and receive approval from EZWG for all key decisions related to research approaches, inventory concepts, and projected final products.
- To make it possible for EZWG to make relevant decisions about our work, we needed to communicate with them regularly and provide them with information in a form and at a time that gave them the ability to make sound decisions.
- Because our work was one piece of a larger project, it was important that we deliver our work products on schedule. (Because of a delay in finalizing a contract for the project, it was necessary to make some adjustments to some of the initial deliverables dates.)
- To ensure that our work products fit seamlessly into the mapping tool, it was necessary for us to work closely with the team from the National Laboratories.

In applying these principles, we took the following steps:

- Participated in all EZWG Meetings.
- Met regularly (at least monthly) with representatives of the National Lab team.
- Submitted written inquiries and reports to the EISPC staff.
- Submitted any items that we wished to present to EZWG by the Monday preceding an EZWG meeting.
- Presented design options, information requests, and partial database drafts to the EZWG in manageable chunks as they were ready rather than waiting until right before deliverables deadlines to submit completed work products, when there would no longer be time for the EZWG to request changes.
- Submitted progress reports that clearly identified points and issues that required EZWG attention and action.
- Met deliverables deadlines, as updated in the executed contract.

Understanding the Assignment

Another important early task was to make sure that we understood the assignment and were organizing the work in an appropriate manner. By reading much of the material that had been produced by or for the Energy Zones Workgroup, we sought to understand the perspectives, work processes, and needs of the Workgroup. We found it to be especially helpful to participate

in the Friday meetings of the Workgroup, both to learn about current thinking about the Energy Zones project and to have an opportunity to ask questions that helped us develop and refine our research plan.

To understand the status of the National Lab team's efforts and to make sure that we were coordinating our work closely with that team, we held three meetings with James Kuiper and others at Argonne National Lab (ANL) during the early weeks of the project. It was important for us to understand the technical specifications for the EZ Mapping Tool so that we would be able to develop the policy material in a format that allows it to be included easily and seamlessly in the mapping tool.

Needs Assessment

Although we started with a clear charge for our assignment, as set out by the Request for Proposals that had been issued by NARUC and by the initial guidance we received from EZWG, we wanted to make sure that we had a more complete picture of what stakeholders might want from the policy inventory and database we would be preparing. We therefore sought to find out what information various stakeholders wanted to see in the policy database and how they thought that information should be presented on the website and in our report. In addition to asking for feedback from the Workgroup and the National Lab team, we reached out to a representative sample of more than 30 state policymakers, industry representatives, and NGO stakeholders. We asked for their feedback on the DSIRE database, as well as their desires for the new policy inventory and Mapping Tool.

Those who provided responses were all familiar with the DSIRE database and used it regularly; two felt that the DSIRE material was not kept sufficiently up-to-date. Stakeholders hoped that, by linking the Mapping Tool to the EISPC policy database, they would be able to compare energy policy and finance tools among states, especially if the various layers could be linked to data charts and tables for easy comparison. In addition, stakeholders felt that incorporating local and county incentives into the Mapping Tool would be highly beneficial to them. While not directly relevant to the policy inventory, several stakeholders suggested showing transmission queue data for various energy technologies and including costs into the database for cost analysis.

B. Information Gaps

Before beginning to collect information for the policy inventory, we had to determine what types of information we needed to collect.

Assessing the Accuracy and Completeness of DSIRE

Because the DSIRE database was an important starting point for the Energy Zones policy inventory, it was important for us to understand the full scope, strengths and limitations of the DSIRE database. We therefore carried out a full comparison of the information in DSIRE for two states (Maine and Wisconsin) with information about clean energy policies available directly from those states. Our conclusions from that exercise were:

- The information in DSIRE was generally sufficiently current for the purposes of the Energy Zones policy database. In fact, in some cases, the DSIRE database had been updated more quickly than a state's own website.

- Information in DSIRE on state policies was sufficiently accurate for the purposes of the Energy Zones policy database, or could be readily modified if inaccuracies were identified and reported.
- Information in DSIRE on policies that apply only to portions of states was not always complete enough or organized in an appropriate manner to be transferred automatically to the Energy Zones policy database.

We therefore concluded that we should attempt to include the relevant information from DSIRE electronically in the Energy Zones policy inventory and EZ Mapping Tool website. We wanted especially to ensure that ongoing updates and changes made to DSIRE entries would be reflected automatically in the Energy Zones website, because that would significantly simplify EISPC's task in updating and maintaining the policy inventory over time.

Although we found that DSIRE had a high degree of accuracy for the information on the topics it covered, as we prepared the EISPC policy inventory, we referred to the websites of the individual states to cross-check the information in DSIRE and capture relevant individual policies omitted from DSIRE. One important addition we made to DSIRE's coverage of renewable energy related to the treatment of renewable portfolio standards (RPSs). We added in export market information about all of the state RPSs for which generation in a specific location can qualify. In many cases, projects can sell their renewable energy certificates to five or more states. Because this information significantly impacts a project's potential revenue stream but is not included in DSIRE, it represents a significant added value of the EZ policy inventory.

Additional Technologies

Even though DSIRE was generally sufficiently accurate for the purposes of the Energy Zones project, it did not include all the technologies that the EISPC inventory needed to cover. We therefore identified and assessed other sources of information on those additional technologies. Among the information sources we examined were:

- Coal with carbon capture and storage: the National Carbon Sequestration Database, MIT's Carbon Capture and Sequestration Technologies website, the Carbon Sequestration Leadership Forum, and other organizations.
- Energy storage (pumped hydro and compressed air): databases of the Federal Energy Regulatory Commission (FERC), the Electricity Storage Association, US DOE, and the Coalition to Advance Renewable Energy through Bulk Storage.
- Natural gas: American Gas Association
- Nuclear: resources from the Nuclear Energy Institute, the Nuclear Regulatory Commission, and US DOE.

We ultimately determined that these information sources could point us towards some specific relevant policies to include, but there were no existing databases of the additional technologies that were sufficiently comprehensive for us to rely on. For example, the Nuclear Energy Institute website has a useful policy listing that included some policies that we might otherwise have overlooked, but it is incomplete and not kept sufficiently current. We therefore searched for policies on the additional technologies on a state-by-state basis using the legislative and regulatory agency websites of the individual states.

We also considered the existing coverage of the additional technologies in OpenEI, which is a program of US DOE and the National Renewable Energy Lab (NREL). OpenEI provides users with an easy-to-use wiki interface for contributing structured and unstructured data. It includes more policies than in DSIRE, but its "crowd sourcing" approach means that it is not always comprehensive or completely reliable. We therefore decided to search OpenEI for non-DSIRE policies that we should include, but to always go back to the state websites before including those policies in the EISPC policy inventory.

In the case of the additional technologies, we had to decide how broad a net to cast when collecting policies for possible inclusion in the inventory. In the case of natural gas, for example, it did not make sense to include all natural gas state-level policies, because some of them had little to do with electricity generation projects. Based on guidance from EZWG, we included policies related to natural gas power plants, as well as well as to drilling and pipeline siting, construction, safety, and maintenance. We excluded policies related to the regulation of natural gas utilities' relationships with their customers (e.g., energy conservation programs for home heating customers).

Other Types of Policies

Beyond additional technologies, we needed to include a wider range of policies than DSIRE in order to have the EISPC inventory be a comprehensive listing of policies that promote, encourage, or inhibit the development of clean energy technologies. In particular, we concluded we should survey and include:

Economic development policies. DSIRE had good coverage of economic development policies that are specifically aimed at renewable energy projects and businesses (e.g., Montana's Alternative Energy Investment Tax Credit and Illinois' Green Energy Loan Program), but it did not include more generic economic development policies that can, at least in some circumstances, apply to electricity generation projects. The CESA project team, after consulting with EZWG, decided to include these policies.

The best starting point for economic development incentives that can apply to businesses developing clean energy generation projects is the database of the Council for Community and Economic Research's State Business Finance and Incentives Resource Center (www.stateincentives.org). Although this database includes an extensive list of policies, it has significant limitations. For one thing, it is not updated often enough to encompass all policy developments at the state level. In addition, many of the incentives in the database cannot be used by clean energy businesses, because they are restricted to other industries. We therefore used the Resource Center's database as a tool to help identify relevant incentives, but then researched the websites of state economic development agencies to find the current status and accurate descriptions of the incentives.

Environmental regulations. Environmental regulations represent the largest category of policies that restrict the installation of clean energy generation. Those regulations cover land use, air emissions, water use and water pollution, and hazardous materials. This was the most complicated and time consuming information gap to fill, because there are no comprehensive repositories of state-level environmental regulations and many of the relevant regulations are not aimed specifically at energy projects, but are instead more general policies that impact a wide

range of development projects. We held conversations with environmental regulation experts at the US Environmental Protection Agency, at ISO-New England, at the Environmental Council of the States, and in state agencies to try to get a handle on how to tackle this information gap. We ultimately used the websites of state environmental agencies to do a state-by-state search for relevant policies.

Forestry policies. Because electricity generation facilities that rely on woody biomass can be affected by the forestry policies in the states near the facility, it was desirable to include information about those policies. But a state can have many forestry policies, some of which may change frequently. EZWG therefore advised us to summarize each state's forestry policies with a single entry in the Energy Zones policy inventory. We relied on the websites of forestry-related state agencies for information about those policies.

Climate plans. In those cases where a state climate action plan is specific enough that it could potentially drive future clean energy development, we included it in the policy inventory. We used the Center for Climate Strategies' policy tracker (www.climatestrategies.us/policy_tracker/state/index) as a starting point but then reviewed the information on state websites before preparing an entry for the policy inventory.

Canadian Provinces

In the case of Canada, we included a narrower set of policies than for US states. We focused on those policies—either national or provincial—that relate to clean energy generating facilities that could export their power to one of the EISPC states. Among the policies we included were climate action plans and energy plans for those provinces that had such documents, as well as major economic development policies. We did not include policies solely related to on-site distributed generation in the Canadian provinces.

In carrying out our research on Canada, we started with the Directory of Energy Efficiency and Alternative Energy Programs in Canada, hosted by Natural Resources Canada (NRCan). The NRCan Directory includes data on all of the technologies included in this project. We initially thought that we would be able to use that Directory in a way comparable to DSIRE for the US, and that the Energy Zones Mapping Tool would be able to electronically access relevant records.

To determine whether it made sense to rely on the NRCan Directory and to bring records electronically to the Energy Zones Mapping Tool, we compared the Directory to the records from individual provincial governments. We also held conversations with Canadian government staff who work on the Directory in order to understand its strengths and limitations. After a thorough analysis, we concluded that the NRCan Directory was a useful starting point, but it was incomplete and not always kept up to date.

We therefore needed to consult the websites of the individual provinces and in some cases public utilities for Canadian policies to include in the inventory. For Quebec, this proved somewhat challenging, as many of the policy documents and program websites are online solely in French. We used Google Chrome's ability to translate entire pages for the websites, but PDFs were not able to be easily translated.

For federal Canadian programs and policies, we first searched the NRCan Directory as a starting point and looked at individual federal departments and programs for additional potential entries.

C. Methodology and Protocols for Handling Data for the Inventory

In July 2012, we sketched out possible approaches for the design of the policy database. The options varied primarily in the amount of descriptive information that would be provided about each state's policies. From feedback we received from the Workgroup and the National Lab team, we received the following guidance:

- If possible, the finished product should include short overview general descriptions of each state's policies.
- Descriptions should be based on objective criteria and should avoid anything that appears to be opinion. For that reason, policies should not be ranked by "importance" but that significance determined by objective criteria, such as how much clean energy generation has resulted or is expected to result from the policy, could be useful to note.
- The database should be easy to maintain. It should avoid features that will be difficult to keep current. For that reason, where possible, it should incorporate electronic feeds from trusted websites and databases, including DSIRE.

Working with the National Lab team, we explored options for developing an online database and interface that would be accessible in spatial database format in the EZ Mapping Tool. We considered only options that would work both with the selected entries from DSIRE and with the new policy summaries prepared by the CESA team.

Design of the Inventory and the Online Database for Storing It

In pursuit of an efficient strategy for structuring and ultimately maintaining the policy inventory in the EZ Mapping Tool, we explored using the OpenEI wiki (mentioned above on page 6), which is separately sponsored by DOE and staffed by NREL as a "knowledge-sharing online community with an unprecedented amount of energy information and data." We assessed whether it would be feasible for the CESA team to enter and store information on all of the state policies for inclusion in the EZ inventory within OpenEI. After much careful consideration, several meetings with the OpenEI staff and consultation with Argonne and the EZ Workgroup, we concluded that this approach would be highly advantageous. We therefore moved forward in working with NREL to establish a primary storage database for the EZ policy inventory within OpenEI, and OpenEI staff worked closely with us to utilize many features of its wiki to create and facilitate review and utilization of the EZ policy data.

There are several benefits for using OpenEI to store the EZ policy information:

- OpenEI has a pre-existing, applicable database structure and an established "crowd source" process for checking, editing, and updating entries. This database interface has proven itself to be successful and user-friendly.
- The National Lab team avoided having to design a separate database for policies and setting up editing protocols for policy data within the EZ Mapping Tool.
- The DSIRE information is already in OpenEI, so the DSIRE entries selected for inclusion in the EZ policy inventory can "feed" together directly. The DSIRE entries that appear in

the EZ Mapping Tool will be up-to-date whenever DSIRE information is updated in OpenEI, and the OpenEI wiki will ease future updates of the EZ policy data.

NREL OpenEI staff helped us create a tailored data entry form, establish required database fields and protocols, and import initial entries compiled in Excel spreadsheets into a consistent format. We worked together to fine-tune the EZ and DSIRE policy data entry forms with pull-down menus, check boxes, mandatory fields, and help tips; create and adjust database fields and queries; and conduct quality control and cleanup steps. The database structure now holds more than 2,300 EZ policy summaries including about 700 entries selected from DSIRE.

We worked with ANL and OpenEI staff to establish effective access of the EZ policy database from the EZ Mapping Tool. We discussed the policy user interface for the GIS viewer, the spatial aspect of policies, and maintenance options and requirements. Representatives of ANL suggested coding a search form in the EZ Mapping Tool website that would be able to query policy data and display geographic layers within the ANL mapping tool. We worked with OpenEI staff to utilize the DSIRE schema and metadata tags to assist with building the "back end" of the EZ policy inventory database structure so that all policy summaries can be queried in consistent categories in the ANL tool.

We closely reviewed the categories used in DSIRE and determined both which selections should be flagged as "relevant for EZ Mapping Tool" and what naming adjustments were needed, shown below. We developed a name mapping key to assist with converting policy information that the CESA team compiled in Excel spreadsheet format into the OpenEI database, along with notes for naming and importing entries. The mapping key also aids with translating column headings of OpenEI CSV data exports, because the property names in OpenEI are often cryptic.

DSIRE Form Technology Description	Include in EZ Inventory?	Rename for EZ Inventory
Anaerobic Digestion	Yes	Biomass/Biogas
Biodiesel	Yes	Biomass/Biogas
Biomass	Yes	Biomass/Biogas
CHP/Cogeneration	No	
Daylighting	No	
Ethanol	Yes	Biomass/Biogas
Fuel Cells	Yes	
Fuel Cells using Renewable Fuels	Yes	Fuel Cells
Geothermal Direct Use	No	
Geothermal Electric	Yes	
Geothermal Heat Pumps	No	
Hydroelectric	Yes	
Hydrogen	Yes	Energy Storage
Landfill Gas	Yes	Biomass/Biogas
Methanol	Yes	Biomass/Biogas
Microturbines	Yes	Energy Storage
Municipal Solid Waste	Yes	Biomass/Biogas
Ocean Thermal	No	
Other Alternative Fuel Vehicles	No	

DSIRE Form Technology Description	Include in EZ Inventory?	Rename for EZ Inventory
Other Distributed Generation Technologies	No	
Passive Solar Space Heat	No	
Photovoltaics	Yes	
Refueling Stations	No	
Renewable Fuels	Yes	Biomass/Biogas
Renewable Fuel Vehicles	No	
Renewable Transportation Fuels	Yes	Biomass/Biogas
Small Hydroelectric	Yes	Hydroelectric
Small Wind	Yes	Wind Energy
Solar Pool Heating	No	
Solar Space Heat	No	
Solar Thermal Electric	Yes	Concentrating Solar Power
Solar Thermal Process Heat	No	
Solar Water Heat	No	
Tidal Energy	Yes	
Wave Energy	Yes	
Wind	Yes	Wind Energy
Unspecified technologies	Review	Include if Coal with CCS, Natural Gas, Nuclear, or Energy Storage (pumped-hydro and compressed-air)

For policies where "all" technologies are affected, we designated which states should not have tidal power selected (those without ocean shorelines), and which should not have wave power selected (those without ocean or Great Lakes shorelines).

The policy type category was somewhat more complicated in that more new fields were needed for the EZ inventory, and we wanted to group some of the DSIRE fields together to simplify selections and designate policies to flag as financial incentives. We also worked with OpenEI staff to adjust the database parameters so that more than one policy type could be selected for a single entry.

Policy Type	Database	Include in EZ Inventory?	Rename for EZ Inventory	Financial Incentive
Appliance/Equipment Efficiency Standards	DSIRE	No		
Bond Program	EZ			Yes
Building Energy Code	DSIRE	No		
Climate Policies	EZ			
Corporate Depreciation	DSIRE	Yes	Corporate Tax Incentive	Yes
Corporate Exemption	DSIRE	Yes	Corporate Tax Incentive	Yes
Corporate Tax Credit	DSIRE	Yes	Corporate Tax Incentive	Yes
Energy Efficiency Resource Standard	DSIRE	No		
Energy Standards for Public Buildings	DSIRE	No		
Enterprise Zone	EZ			
Environmental Regulations	EZ			
Equipment Certification	Both	Yes		
Equity investment	EZ			

Policy Type	Database	Include in EZ Inventory?	Rename for EZ Inventory	Financial Incentive
Federal Grant Program	DSIRE	Yes	Grant Program	Yes
Federal Loan Program	DSIRE	Yes	Loan Program	Yes
Fees	EZ			
Generating Facility Rate-Making	EZ			
Generation Disclosure	Both	Yes		
Green Building Incentive	Both	Yes		Yes
Green Power Purchasing	Both	Yes		
Industry Recruitment/Support	Both	Yes		Yes
Interconnection	Both	Yes		
Leasing Program	Both	Yes		Yes
Line Extension Analysis	Both	Yes		
Local Grant Program	Both	Yes	Grant Program	Yes
Local Loan Program	Both	Yes	Loan Program	Yes
Local Rebate Program	Both	Yes	Rebate Program	Yes
Mandatory Utility Green Power Option	Both	Yes		
Net Metering	Both	Yes		
Non-Profit Grant Program	Both	Yes	Grant Program	Yes
Non-Profit Rebate Program	Both	Yes	Rebate Program	Yes
Other Incentive	DSIRE	Review		Yes
Other Policy	DSIRE	Review		
PACE Financing	Both	Yes		Yes
Performance-Based Incentive	Both	Yes		Yes
Personal Deduction	DSIRE	Yes	Personal Tax Incentives	Yes
Personal Exemption	DSIRE	Yes	Personal Tax Incentives	Yes
Personal Tax Credit	DSIRE	Yes	Personal Tax Incentives	Yes
Property Tax Incentive	Both	Yes		Yes
Public Benefits Fund	Both	Yes		
Renewables Portfolio Standard	Both	Yes	Renewable Portfolio Standards and Goals	
Safety and Operational Guidelines	EZ			
Sales Tax Incentive	Both	Yes		Yes
Siting & Permitting	EZ			
Solar/Wind Access Policy	Both	Yes		
Solar/Wind Contractor Licensing	Both	Yes		
Solar/Wind Permitting Standards	Both	Yes	Siting & Permitting	
State Bond Program	DSIRE	Yes		Yes
State Grant Program	Both	Yes	Grant Program	Yes
State Loan Program	Both	Yes	Loan Program	Yes
State Rebate Program	DSIRE	Yes	Rebate Program	Yes
Training/Technical Assistance	EZ			
Utility Grant Program	Both	Yes	Grant Program	Yes
Utility Loan Program	Both	Yes	Loan Program	Yes
Utility Rate Discount	DSIRE	Yes		Yes
Utility Rebate Program	Both	Yes	Rebate Program	Yes
Workforce Development	EZ			

After consultation with staff from the North Carolina Solar Center, we added additional fields and properties to the DSIRE data entry forms to aid with EZ inventory queries. OpenEI staff applied our requested filters to the DSIRE entries to designate which policies are "Relevant to EZ Mapping Tool" and conducted troubleshooting to ensure only the correct technologies were selected. OpenEI staff also created a tailored EZ Inventory Map with US states and Canadian Provinces as a starting point to streamline viewing of data, with both selected DSIRE and added EZ policies "feeding" into summary tables: http://en.openei.org/wiki/EZPolicies

NREL's assistance, training, and guidance were instrumental in setting up and refining the EZ policy inventory in OpenEI. The OpenEI system remains available for ongoing updates and maintenance. Both the EZ policy data and selected DSIRE entries are able to be displayed equally and are equally searchable in the EZ Mapping Tool. We are very appreciative of NREL's and ANL's cooperation and support in utilizing OpenEI to host the EZ policy inventory database.

Need for Fine-Tuning the Interface between OpenEI and the EZ Mapping Tool

Despite the cooperation between the Mapping Tool staff at ANL and the OpenEI staff at NREL, working in conjunction with the CESA team, the interface between OpenEI and the EZ Mapping Tool required more time and attention to get it to work smoothly and efficiently. We had regular meetings between January and June 2013 to address specific issues and develop solutions for particular problems. In between meetings, the ANL and OpenEI staff did the coding necessary to implement many of the solutions identified.

Many of the issues had to do with ensuring the information displayed by the Mapping Tool was accurate and avoiding making the query interface too cumbersome. For example, ANL limited the number of policy entries that can be returned in response to a search by a Mapping Tool user to 200 and also restricted the number of filter items from the four query boxes to 10. Selecting no filters in a given query box is equivalent to selecting all categories to display, so all technologies or policy types can be reviewed within a given state.

We also fine-tuned the procedures users would do when searching the inventory, in order to make the search process intuitive and understandable.

The CESA team identified additional issues for ANL and OpenEI to address, such as translation of the text within OpenEI and the EZ Mapping Tool. Due to security concerns, remnants of HTML code in OpenEI entries, as well as items like ampersands (&), posed challenges for the display, with extraneous text reflecting the HTML coding appearing (such as "&" in the Policy Type "Siting & Permitting").

Recent efforts have focused on refining the interface and display, improving the data review and approval process, troubleshooting minor errors and faulty database/interface behaviors, and adding further functionality. Some issues such as OpenEI's query size parameter, typos, and text nuances in coding; complex queries leading to time-outs on the OpenEI server; edits made in OpenEI flowing immediately through the query before review; and a gap in edit notifications have been resolved successfully and others are still in progress. For example, ANL intended to convert the initial "Ask query" interface to a Javascript (JSON) API (Application Programming Interface) after an OpenEI upgrade was completed. This step or utilizing OpenEI's Simile

Exhibit Transport Toolkit would make the interface more stable and remove some limitations but will require further coordination between NREL and ANL as will identifying a more complete "data dictionary" explaining abbreviations used in the DSIRE database. The "last date updated or reviewed" has been added to some records but not yet to all. However, most of the technical issues identified have been addressed and the interface seems to be working effectively for users.

D. Policy Research: Populating the Inventory

The largest amount of work for this project involved collecting information on individual policies and populating the inventory with that information. Our process was to have a junior staff member produce a draft inventory for a particular state and then have it reviewed by a more experienced staff member.

By mid-November 2012, we completed draft inventories for 25 states plus the District of Columbia and the 8 Canadian provinces. Draft inventories of the remaining states, New Orleans, and Canadian national policies were completed by the end of December.

The Process for Compiling Policy Data

We used the following overall process to compile the policy data:

- CESA policy associates prepared Excel spreadsheets for each state with policies for inclusion in the inventory, with 26 columns for tracking information such as the policy/program name, policy type, affected technologies, implementing sector, applicable sectors, funding source, program budget, start date, authority, contact information, summary, and applicable jurisdiction.
- We looked for and identified policies, laws, and data that identify specific zones for clean energy development and/or areas of exclusion.
- Additional CESA team members conducted a series of cleanup steps on the spreadsheets to ensure the entries were consistent and ready for import into OpenEI.
- We created EISPC-wide spreadsheets for policies on RPS Export Markets, climate action plans, and forestry policies.
- We submitted the Excel files to NREL for import into OpenEI.
- NREL imported the spreadsheet data first into the OpenEI "development" site to test for data issues, and then copied the data to the OpenEI "production" site for population through the server and public viewing.
- Additional CESA team members reviewed the imported data on a state-by-state basis for clarity, completeness, relevance, and consistency. In particular, we ensured that each of the policy description summaries makes sense and can stand alone without the reader having to refer to some other policy entry or other document to understand them.
- The CESA team reviewers "approved" each entry in OpenEI, which established an initial status for edit suggestions by third parties.
- CESA reviewers determined whether anything was obviously missing from each state inventory, considering that the following types of policies should be included for most states:
    - Environmental regulations, including ones related to water, air, hazardous materials, solid waste, and land use
    - Policies related to natural gas (often grouped)

    - Generic economic development policies
    - Climate policies, nuclear, mining policies, and policies related to permitting may also be included.
- For Canadian policies, we created entries directly in OpenEI using our tailored data entry form: http://en.openei.org/wiki/Form:EZFeed_Policy.
- We conducted overall quality control reviews for consistency, spell-checking, and gap analysis to ensure all searchable fields are filled in – both in the EZ and DSIRE entries.

Overviews of States

For each state, we wrote a short policy overview summary of one to two pages. When an EZ Mapping Tool user requests to see the policies for a particular state, the summary appears at the top of the search results. Our goal was to provide a general introduction to the state's energy policies and a context for understanding individual policies.

Each state summary has the same format. It starts by listing how much total electricity was generated within the state in 2012 and follows that with a table that breaks down the generation by the percentage generated using different energy sources and technologies. The remainder of the summary is a series of bullets that point out key aspects of the state's energy policy landscape.

Unlike all the other policy entries, which reside in OpenEI, the state summaries are PDF documents and are stored directly on the ANL website. For technical reasons, this was a more efficient process and makes it easier to display the summary at the top of the results for the selected state when users do a policy search. In the future it may be preferable for ANL to display these as web text and be more readily editable by CESA and EISPC members while still not being as openly crowd-sourced as the detailed policy entries.

Existing Clean Energy Zones

In our efforts to identify and inventory geographic zones or areas already identified by states for clean energy generation development by legal jurisdictions, we documented the following policies and incentives within the EZ policy database which apply to specific regional zones. In addition to existing energy zones, where specific priority or incentive has been placed on the development of renewable and other energy applications, these policies include enterprise zones, where new business development is promoted through tax credits or other economic incentives, as well as regionally defined ordinances and guidelines pertaining to the development and implementation of energy projects. The list below highlights 70 such entries in the EZ policy database, located in 30 U.S. States and the District of Columbia. Complete records for the following entries are included in the Excel spreadsheet attached as Appendix 3 to this report:

- Coastal Area Management Program (Alabama)
- Enterprise Zone Program (Alabama)
- Tax Increment Financing Program (TIF) (District of Columbia)
- The Enterprise Zone Program (District of Columbia)
- Energy Economic Zone Pilot Program (Florida)
- Enterprise Zone Incentives (Florida)
- Qualified Target Industry Tax Refund (Florida)
- Coastal Management Act (Georgia)
- Enterprise Zone Program (Georgia)
- Enterprise Zone Program (Illinois)
- Sales Tax Exemption for Wind Energy Business Designated High Impact Business (Illinois)
- Economic Development Project Districts (Indiana)
- Industrial Development (Indiana)
- Redevelopment of Areas Needing Redevelopment Generally (Indiana)

- Special Improvement Districts for Redevelopment of Blighted Areas (Indiana)
- Enterprise Zones (Iowa)
- Small Wind Innovation Zone Program and Model Ordinance
- Enterprise Zone Sales Tax Exemption (Kansas)
- Kentucky Economic Opportunity Zone Program (KEOZ) (Kentucky)
- Coastal Management (Louisiana)
- Enterprise Zone Program (Louisiana)
- Expedited Permitting of Grid-Scale Wind Energy Development (Maine)
- Pine Tree Development Zones Program (Maine)
- Regulation of Tidal and Wave Energy Projects (Maine)
- Charles County - Agricultural Preservation Districts - Renewable Generation Allowed (Maryland)
- Coastal Facilities Review Act (Maryland)
- Focus Area Tax Credits (Maryland)
- Job Creation Tax Credit (Maryland)
- Maryland Enterprise Zone Tax Credits (Maryland)
- Queen Anne's County - Solar Zoning (Maryland)
- Green Communities Grant Program (Massachusetts)
- Public Waterfront Act - Chapter 91 (Massachusetts)
- Nonrefundable Business Activity Tax Credit (Michigan)
- Refundable Payroll Tax Credit (Michigan)
- Renewable Energy Renaissance Zones (Michigan)
- Job Opportunity Building Zones (JOBZ) Initiative (Minnesota)
- The Border Cities Enterprise Zone Program (Minnesota)
- Wind and Solar-Electric (PV) Systems Exemption (Minnesota)
- Enhanced Enterprise Zones (Missouri)
- Renewable Energy Generation Zone Property Tax Abatement
- Empowerment Zone Tax Credit (Montana)
- Coastal Permit Program Rules (New Jersey)
- Solar and Wind Permitting Laws (New Jersey)
- Urban Enterprise Zone Program (New Jersey)
- Wind Manufacturing Tax Credit (New Jersey)
- Rural Jobs Tax Credit (New Mexico)
- New York Sun Competitive PV Program (New York)
- RPS Customer-Sited Tier Regional Program (New York)
- Statewide Empire Zone Program (New York)
- Article 3J Tax Credits (North Carolina)
- Camden County - Wind Energy Systems Ordinance (North Carolina)
- Madison County - Wind Energy Systems Ordinance (North Carolina)
- Watauga County - Wind Energy System Ordinance (North Carolina)
- Renaissance Zones (North Dakota)
- Scotia Energy Electricity - Net Metering Program (Nova Scotia, Canada)
- Alternative Energy Zone (Ohio)
- The Ohio Enterprise Zone program (Ohio)
- Oklahoma Local Development and Enterprise Zone Incentive Leverage Act (Oklahoma)
- Opportunity and Enterprise Zones (Oklahoma)
- Small Business Linked Deposit Program (Oklahoma)
- Keystone Innovation Zone Tax Credit Program (Pennsylvania)
- Keystone Opportunity Zones (Pennsylvania)
- Model Wind Ordinance for Local Governments (Pennsylvania)
- The Enterprise Zone (Rhode Island)
- Coastal Tidelands and Wetlands (South Carolina)
- Enterprise Zone Retraining Credit Program (South Carolina)
- Brownfields Revitalization and Economic Development Program (South Dakota)
- Enterprise Zone Program (Texas)
- Refund for Economic Development (Texas)
- Reinvestment Zones (Texas)
- Vermont Village Green Program (Vermont)
- Alleghany Highlands Economic Development Authority (Virginia)
- Enterprise Zone Real Property Investment Grant (Virginia)
- Port of Virginia Economic and Infrastructure Development Zone Grant Program (Virginia)
- Technology Zones (Virginia)
- Virginia Enterprise Zone Job Creation Grant (Virginia)

E. Review Process and Feedback from States

To ensure the accuracy and appropriateness of the information in the policy inventory, it is important for representatives of states governments to review it and make edits, as necessary. We structured an elaborate, but easy-to-use, review process, involving reviewing the material in OpenEI and making edits using OpenEI's regular editing process.

To help with the review process, NREL created a tailored search form and help page.

The Reviewers

The following state officials were asked to review the policy inventory for their state:

- EISPC members
- State energy office contacts for the National Association of State Energy Officials (NASEO)
- CESA members
- Those individuals listed as contacts for any of the active policies in the DSIRE database or for the additional policies added to the EISPC policy inventory.

The sum total of names on these various lists was well more than 1,000, although there was some duplication among the lists.

Instructions for Reviewers

Here are the instructions that were sent to reviewers:

1. Go to: http://en.openei.org/wiki/EZPolicies; use this as your starting point when you want to review or edit entries

2. Create an account and then login; check "remember" to prevent system logouts

3. Select your state; this will open a table with policies for the state.
   - Both DSIRE and added policies "feed" into the table

4. Review the table for completeness and relevance, and that the policy summaries are accurate and understandable
   - Click on column headings to sort; the EZ Policy Inventory is also searchable by technology, policy type, and other fields at http://en.openei.org/wiki/EZPolicySearch
   - Ensure Active status is accurate
   - Determine whether you want to make edits to any of the entries

5. Here is how to make edits:
   - Right click on Policy name in left column (open in new tab) to view summary
   - Click "Edit with form" to make revisions
   - Hover on blue ? icons for tips
   - Enter "substantial" or estimated MW of installed/expected capacity related to policy if likely to be in state's top tier of significance for EZ study
   - If policy does not affect or influence clean energy development, select No from "Relevant for EZ Mapping Tool" pull-down menu
   - Update or add any web links, contacts, shape files, authorities as needed
   - ***Save page before closing***

6. Additional review process and editing tips can be found at http://en.openei.org/wiki/EZPolicies/Help

7. Any edits you submit will be reviewed before being posted in the completed policy inventory

8. If there are other policies that you think should be in the policy inventory, send an email to Val Stori at val@cleanegroup.org.

The Timing of the Review Process

David Littell, Warren Leon, and Heather Rhoads-Weaver gave a presentation about the review process at the EISPC meeting in Nashville on November 29, 2012. At that time, 25 states and the District of Columbia were ready for review.

We followed up with an email about the review process to the lists above on November 30th for the 25 states and DC. The recipients of the email were encouraged to submit their edits, comments, and questions by December 18th. As part of the email, we offered a webinar on the review process on December 7th for those individuals who did not attend the Nashville EISPC meeting. About 40 people attended the webinar.

Another email went out in early January to representatives of the remaining 14 EISPC states plus New Orleans. It explained that their states were ready for review and offered them an opportunity to attend an informational webinar on January 9th. They will be encouraged to submit their edits, comments, and questions by the end of January.

In response to these requests for review, we received comments and edits from about 15 states. Representatives of public utility commissions, renewable energy programs, and economic development agencies have provided valuable information for the database. Contributions have included edits and updates to entries about renewable portfolio standard programs, net metering charges, and long-term contracts for renewables. Most of the edits and suggestions received have been for the imported DSIRE entries, rather than for the environmental regulations or financial incentives that were researched and included in the inventory.

Although there are probably fewer problems with DSIRE entries than with the new information, it is not surprising that most of the edits received were for the core renewable energy entries in DSIRE. The state officials with the greatest interest in the Energy Zones project are those who work specifically on clean energy and they have the most knowledge of targeted state clean energy policies. They are less familiar with some of the generic economic development incentives and environmental regulations that have been added to the inventory.

In July 2013, we requested EISPC members to review the short state summaries. We were especially interested in having these documents reviewed to make sure that they provide an adequate and appropriate introduction to each state's policies.

Although we received some good feedback from our requests to have the inventory reviewed, we did not receive as many comments and edits as we had initially hoped for. However, we will continue to encourage users of the Mapping Tool to provide feedback and edits when they detect problems with the inventory. Because of the way the inventory is housed within OpenEI, all suggested edits get recorded and can be acted upon quickly. It is possible to make changes to the inventory at any time with those changes feeding instantly upon approval into the Mapping Tool.

Canadian Review

For Canada, we conducted more targeted outreach, contacting 48 Canadian representatives, including 4-9 officials from each province and 6 Federal contacts. Instructions for Canadian reviewers were less elaborate than for US-based reviewers, without specific instructions for editing entries within OpenEI. Edits, updates or additions for Canadian policies were requested via email correspondence. Reviewers were requested to provide any feedback by May 31, 2013.

Suggestions provided by one Canadian reviewer helped us to identify a minor glitch that not all of the text fields included in OpenEI records had been incorporated in the coding to display in the Mapping Tool Results (e.g. Canada Small Business Financing Program) and to help ensure policies that are not explicitly technology-specific are reflected appropriately.

F. First Round of Updates

Starting in May 2013, we began a systematic review and updating of all the policy entries that had been placed into the inventory by the CESA team. Because some of the entries had initially be written and added to the inventory as early as September 2012, it was necessary to see if any new laws or regulatory changes had taken place since that time. We therefore looked at the state information on all policies and laws that were potentially subject to change, and updated entries as appropriate. Several members of the CESA team undertook this work.

This review of policies was done only for those policies that had been entered into the inventory by the CESA team. We did not do it for the policies in the DSIRE database. Those policies have been periodically reviewed and kept current by the DSIRE staff.

G. Recommendations for Maintaining the Accuracy and Usefulness of the Inventory

Keeping the policy database current will be a challenge, but will be very important. The utility of the database will diminish significantly if the information is not kept current. Many people will stop using the database if they start to perceive it to be unreliable.

We suggest six strategies for keeping the inventory accurate, current, and accessible:

1. ***Continue to maintain the link between DSIRE via OpenEI and the policy database in the EZ Mapping Tool.*** One of the main reasons for using OpenEI was to establish this link. Every time an update is made by the managers of DSIRE to that database, it will flow through OpenEI into the database accessed from the Mapping Tool. This means, in effect, that the DSIRE staff through its normal activities will help to keep the EISPC inventory current.

   Part way through this project, the task of maintaining the link between DSIRE and the Mapping Tool became more complicated when DOE issued a Funding Opportunity Announcement to identify a team to modify DSIRE and overcome some of its limitations. DOE required that the new version of DSIRE include increased functionality and be more user-friendly. Even though the main organizations and

individuals who have long been responsible for DSIRE were awarded the new contract by DOE, there will still be some changes to their database structure. Once those changes are known, it will be important for EISPC to determine whether any of the changes will cause problems for the functioning of the policy inventory in the Mapping Tool. It will be essential to work with the OpenEI staff at NREL to make sure that updates to the modified DSIRE database continue to flow through OpenEI to the EZ Mapping Tool. Depending upon the nature of the changes to the DSIRE database, this could require considerable coordination among EISPC, ANL, OpenEI, and DSIRE, and some additional programming.

2. ***Encourage users to submit edits and updates.*** The EZ Mapping Tool provides an email address for policy updates or edits but could make it more clear to users of the policy database that EISPC is very interested in receiving edits and updates from any and all users. The Mapping Tool should be designed to make it easy and convenient to submit policy edits and updates. EISPC will need to give some individual or group the responsibility for reviewing and approving the edits and updates that are submitted by users. This crowd-sourcing approach can be very helpful, if it is aggressively encouraged, but it will not capture all the relevant changes to the policies in the policy inventory.

3. ***Ask EISPC representatives for information about their state.*** Perhaps two or three times a year, reminders should be made during meetings and emails should go out to the state representatives in EISPC to ask them if there have been any relevant policy changes in their state and to encourage them to submit information about those changes.

4. ***Carry out an annual systematic policy review.*** As noted above, in the summer of 2013, CESA carried out a systematic review of all the non-DSIRE policies in the policy inventory. Such a review should be carried out annually in order to maintain the accuracy of the inventory. This will be especially important for those types of policies, such as generic economic development incentives, that tend to change frequently and that are relatively unfamiliar to the most likely regular users of the EISPC policy database.

5. ***Maintain and improve the display interface within the ANL Mapping Tool.*** Stakeholder input received as part of the initial needs assessment for CESA's policy inventory work confirmed the value of integrating the policy data into the EZ Mapping Tool to be able to compare energy policy and finance tools among states, especially by linking policy data as a layer to other data charts and tables for easy comparison. In addition, displaying boundaries of sub-state policies such as local utility incentives and county-specific regulations would provide added value. The CESA team has identified several formatting improvements that would make the policy search more user friendly and the policy data more useful including allowing text searches, adding utility jurisdictions as a layer to the Mapping Tool, and polishing the results display. Ongoing maintenance to ensure the ANL policy query's functionality continues will be critical for ensuring user-friendly access of this important resource.

6. ***Promote the inventory and the Mapping Tool.*** Many of the people who would benefit from using the policy inventory are not aware of its existence, or of the existence of the Mapping Tool. It is therefore desirable to continue active efforts to promote the inventory and the Mapping Tool, and provide ongoing training sessions. For some policy-oriented audiences, the policy inventory can be the entry point that makes them aware of the Mapping Tool and stimulates them to start using it.

Appendix: The Inventory

The primary work product of this project is the policy inventory and database. It includes nearly 2,400 policy entries, 1,700 of which were prepared especially for this inventory with the remainder pulled in from DSIRE. The best way to view it is by going to the home page of the EZ Mapping Tool: http://eispctools.anl.gov. There is a prominent link to the policy inventory labeled "Policies and Regulations." Alternatively, this report as well as an MS Excel file of the inventory and database can be found on the NARUC Grants and Research page: http://naruc.org/Grants/programs.cfm?page=66

APPENDIX – The Inventory

Introduction to Alabama

Electricity Generation

In 2012, electricity generators in Alabama generated 152,664 gigawatt-hours of electricity, using the following sources:

Natural gas	36.3%
Coal	29.9%
Nuclear	26.8%
Hydroelectric	4.7%
Biomass	2.1%
Petroleum	0.1%
Other Gases	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Alabama is a net generator of electricity and produced 75% more electricity than it used in 2012.

Coal has decreased from 62% of power generated in Alabama during 2000, and natural gas has increased from 4% in 2000 to the leading power generation source.

Alabama Power, which serves about two-thirds of the electric load in the state, agreed in 2012 to buy 404 MW of wind energy generated in Oklahoma and Kansas.

According to National Renewable Energy Laboratory estimates, if Alabama utilized 1% of its total renewable potential (from solar, wind, biomass, geothermal, and hydro), it would add 22 GW of electric capacity—nearly double the installed coal generation capacity in the state.

Alabama ranked 5th in the United States in 2011 in the generation of electricity from wood, wood waste, landfill gas, and other biomass. Nonutility power producers generated most all of that electricity.

In terms of total amount of electricity generated from renewable resources, Alabama ranked 9th nationally (primarily due to hydroelectricity and biomass), but as the percentage of total electricity consumed, it ranked 27th (6.8%).

Introduction to Arkansas

Electricity Generation

In 2012, electricity generators in Arkansas generated 65,382 gigawatt-hours of electricity, using the following sources:

Coal	43.5%
Natural Gas	26.8%
Nuclear	23.7%
Hydropower	3.3%
Biomass	2.6%
Petroleum	0.1%
Hydro pumped storage	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

As an incentive to spur renewable energy development, Arkansas law and the rules of the Arkansas Public Service Commission offer net metering for residential systems up to 25 kW and non-residential systems up to 300kW. Meter aggregation is now available in investor-owned electric utility and electric cooperative territories.

The state generates nearly half its electricity from coal-fired power plants, and most of the remainder from nuclear power facilities and natural gas.

Arkansas is a net exporter of electricity. According to EIA's Electric Power Monthly, in 2011 Arkansas generated about 61,000 GWh, and had retail purchases of about 48,000 GWh.

Under Arkansas law, the Arkansas Public Service Commission requires electric and gas IOUs to offer comprehensive energy efficiency programs and to meet annual energy savings performance targets. The ECEA defines energy conservation to include energy efficiency programs, as well as renewable technologies.

The Arkansas Energy Office, a division of the Arkansas Economic Development Commission, promotes energy efficiency and emerging technologies through education, and manages federal energy funds in the state.

Arkansas is a leader in manufacturing components for the wind industry. One of the industry's major blade manufacturers is located in the state. Arkansas performed a tall-tower wind assessment based on 2011 data that identifies areas of the state where commercial wind development in the state may be feasible, using larger rotor technology. According to the American Wind Energy Association, the state's annual potential wind generation is 26,906 GWh, placing it 27th among the states in wind energy potential.

Arkansas ranks sixth in forest residue resources, and according to the EIA, has 371 MW on nameplate capacity biomass generation.

Arkansas receives an average of 5,000 watt-hours of sunlight per day.

Introduction to Connecticut

Electricity Generation

In 2012, electricity generators in Connecticut generated 35,733 gigawatt-hours of electricity, using the following sources:

Nuclear	47.8%
Natural gas	46.2%
Other Renewables	1.9%
Hydroelectric	1.3%
Petroleum	0.3%
Coal	0.3%
Other	2.2%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Connecticut encourages the development of clean energy sources through a diverse and broad range of policies, including tax credits, net metering, virtual net-metering for municipal customers, renewable portfolio standard, and a system benefit charge fund.

Connecticut has a high renewable portfolio standard target for renewable generation, but few native resources.

The Department of Energy and Environmental Protection implements a wide range of energy initiatives and programs to ensure legislative intent and equitable distribution of clean energy funds.

The Clean Energy Finance and Investment Authority (CEFIA) was the nation's first statewide clean energy finance authority, or "green bank." CEFIA uses a flexible "finance" model that encourages entrepreneurship and private sector leadership in scaling up energy projects. A ratepayer assessment charge generated just over $27 million in FY 2012 to fund a portion of CEFIA.

The CEFIA definition of clean energy includes conventional renewable technologies such as wind, solar, and biomass, among others, and resources and emerging technologies which have the potential for commercialization and which do not involve the combustion of coal, municipal solid waste or nuclear fission.

Utilities are required to enter into long-term contracts (15 years) for renewable energy credits from both zero and low emission Class I renewable energy facilities (on the customer side of the meter).

Several fuel cell companies have headquarters or other facilities in Connecticut and the state has encouraged the use of fuel cells for electricity generation.

Introduction to Delaware

Electricity Generation

In 2012, electricity generators in Delaware generated 8,808 gigawatt-hours of electricity, using the following sources:

Natural gas	78.8%
Coal	16.6%
Other gases	2.8%
Biomass	1.2%
Petroleum	0.3%
Solar	0.3%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Delaware encourages the development of clean energy sources through a diverse and broad range of policies, including net metering, community net metering, and public benefit funds.

Delaware significantly expanded its net metering policy in 2007 and again in 2010 to include all customer classes, add new eligible technologies, and allow community net-metered systems. The Delaware Public Service Commission has implemented these regulatory changes.

The Division of Energy and Climate's Green Energy Program provides grant incentives for renewable energy systems installed in Delaware through each participating electric utility company.

Delaware established a renewable portfolio standard in 2005, requiring retail electricity providers to purchase 10% of their electricity from renewable sources by 2020. The RPS was revised in 2010 to 25% by 2025, with a 3.5% target for photovoltaics. The RPS now applies to investor-owned electric utilities, municipal electric utilities, and rural electric cooperatives.

In 2010, the Delaware legislature amended its small wind law to declare that existing municipal or county zoning prohibitions or restrictions on the installation of small wind systems on single-family residential properties are not consistent with its wind access provisions codified in the 2009 law and therefore no longer in effect. The law applies only to wind energy systems that qualify for support under the state's Green Energy Fund.

Delaware participates in the Regional Greenhouse Gas Initiative (RGGI); revenue from RGGI's carbon emissions trading program funds the Greenhouse Gas Initiative Reduction Projects Fund, a grant program.

Delaware consumes 32% more electricity than it generates.

Introduction to District of Columbia

Electricity Generation

In 2012, electricity generators in District of Columbia generated 89 gigawatt-hours of electricity, using the following sources:

Natural gas	89.9%
Petroleum	10.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

The District of Columbia encourages the development of clean energy sources through a diverse and broad range of policies, including property tax exemptions, net metering, a renewable portfolio standard, and a system benefit charge fund.

D.C. imports almost all of its electricity, consuming 11,259 gigawatt-hours in 2012.

D.C. established its renewable portfolio standard (RPS) in 2005. It has since been amended several times, increasing the percentage of benchmarks utilities must meet and increasing the solar carve-out from .4% to 2.5% by 2023. Solar thermal facilities are eligible.

Net Metering is a program adopted by the D.C. Public Service Commission. The program allows residential and commercial customers to generate and sell excess electricity back to the grid; the customers receive a credit on their utility bills for the excess.

The District of Columbia's public benefits fund, known as the Sustainable Energy Trust Fund, is financed by a surcharge on the electric and natural gas bills of utility customers. The fund is administered by a third-party Sustainable Energy utility, charged with developing and promoting sustainable energy use throughout D.C.

The District Department of the Environment (DDOE) has wide-ranging responsibilities, and administers many programs related to energy conservation, environmental protection, renewable energy, and sustainability.

DDOE administers the Renewable Energy Incentive Program, which provides rebates to eligible applicants installing solar systems. The program is open to residential and non-residential customers and both solar systems and PV systems qualify for rebates.

In early 2013, Mayor Vincent Gray signed the Sustainable DC Act of 2012 into law and released Sustainable DC, a 20-year full sustainability plan with the goal of becoming the greenest, healthiest city in the Unites States. The law covers energy efficiency, renewable energy, water quality, urban agriculture, and children's health.

Introduction to Florida

Electricity Generation

In 2012, electricity generators in Florida generated 220,751 gigawatt-hours of electricity, using the following sources:

Natural gas	67.6%
Coal	20.1%
Nuclear	8.1%
Biomass	2.0%
Other	1.4%
Petroleum	0.3%
Petroleum Coke	0.3%
Hydroelectric	0.1%
Solar	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Florida does not have a renewable portfolio standard; however, Florida currently has approximately 1,400 MWs of renewable energy generation. Florida encourages the development of clean energy sources through net metering, standard offer contracts, renewable energy production tax credits, biofuels tax incentives, and renewable energy equipment sales tax exemptions. In addition, there are many local renewable energy initiatives, and the state is one of the leaders in solar and bioenergy production.

The Florida Public Service Commission adopted rules for net metering in 2008. The rules apply to customers of investor-owned utilities with systems up to 2 MW in capacity. The net excess generation (NEG) is carried forward and, at the end of 12 months, the utility pays the customer the avoided-cost rate for any remaining NEG.

Solar energy and thermal systems are exempt from Florida's sales and use tax. This exemption was made permanent upon the enactment of H.B. 805.

Florida established a renewable energy production tax credit in 2006 to encourage the development and expansion of renewable energy facilities in Florida. The credit may be used for electrical, mechanical, or thermal energy.

Gainesville, Florida, was the first municipality to create a local feed-in-tariff and offers a solar FIT for PV systems. The program is open to residential and commercial customers.

Cleantech is a fast-growing industry in Florida—the state is home to many high-tech clusters and progressive research centers conducting R&D in solar, advanced biomass, and ocean energy. In addition, leading utilities in the state have innovative solar programs.

According to a 2012 ACORE report, Renewable Energy in the 50 States, Florida leads the nation in biomass production from sugarcane, citrus, forest residues, and urban wood waste. In addition, many Florida

companies are commercializing the next generation of biofuels using algae, waste, grasses, and other cellulosic materials.

Introduction to Georgia

Electricity Generation

In 2012, electricity generators in Georgia generated 122,704 gigawatt-hours of electricity, using the following sources:

Natural Gas	34.9%
Coal	33.2%
Nuclear	27.7%
Biomass	2.7%
Hydroelectric	1.9%
Petroleum	0.1%
Pumped Hydroelectric Storage	-0.7%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Georgia encourages the development of clean energy sources through tax credits and a net metering policy. The Department of Economic Development promotes the existence of an "energy ecosystem" that lowers costs and increases competitive advantage for businesses in the solar, wind, smart grid, biofuel, battery, and fuel cell fields.

Georgia's coal consumption has declined from 54% in 2009 to 33.2% in 2012 and the percentage of Wyoming subbituminous coal used in coal plants has increased. Newly constructed natural gas power plants have reduced the overall use of coal as a fuel source.

The Georgia Energy Challenge is a statewide, all-sector, voluntary energy initiative with the goal of reducing electricity consumption 15% by 2020.

Georgia has a significant amount of commercially available and sustainable bio-power capacity based on forest biomass resources, but it has been slow to be developed.

Plant Vogtle is in the process of adding two new 1,100 MW nuclear reactors with planned opening late 2017 and 2018.

Georgia's offshore wind resource is much larger than its onshore resource. Approximately 1,126 square miles of ocean surface area with nearly 14,500 MW of offshore wind energy potential has been identified.

In November 2012, Georgia PSC approved the Georgia Power Advanced Solar Initiative – the largest voluntarily developed solar portfolio from an investor-owned utility – for which Georgia Power will use long-term contracts to acquire 210 MW of additional solar capacity. In April 2013, Georgia Power announced its acquisition of 250 MW of wind energy. In July 2013, the Georgia PSC approved Georgia Power's 2013 IRP, which directs Georgia Power to acquire 525 MW of solar resources through its Advanced Solar Initiative process in addition to the 210 MW approved in November 2012. The Georgia PSC also approved Georgia Power's request to retire approximately 2100 MW of coal and oil generating resources.

Introduction to Illinois

Electricity Generation

In 2012, electricity generators in Illinois generated 197,738 gigawatt-hours of electricity, using the following sources:

Nuclear	48.8%
Coal	40.9%
Natural Gas	5.7%
Wind	3.9%
Biomass	0.3%
Other gases	0.2%
Other	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Illinois encourages the development of clean energy sources through a diverse and broad range of policies, including tax credits, net metering, a renewable portfolio standard, and public benefits funds. The public benefits funds include the Renewable Energy Resources Trust Fund (RERTF) and the Illinois Clean Energy Community Foundation Fund. Illinois is a net exporter of electricity generating 39% more electricity than it consumes.

The Illinois Department of Commerce and Economic Opportunity (DCEO) administers the RERTF program, which is subsidized through surcharges on IOU customer electricity bills and gas bills. Program participation is voluntary for municipal utilities and electric coops. The funding mechanism for the RERTF has been extended through December 12, 2015. Approximately $5-$5.5 million is available each year for grants, loans, and other renewable energy incentives. The Illinois Clean Energy Community Foundation, established in 1999 with a $225 million endowment, works to improve energy efficiency, advance the development of renewable energy resources and protect natural areas.

The Illinois Power Agency's utility procurement plans include renewable energy resources consistent with the State's renewable portfolio standard (RPS). The RPS applies to retail electric suppliers (RES), IOUs, and alternative retail electric suppliers (ARES) which are subject to cost-effectiveness constraints. There are different targets for RES and ARES.

The Illinois Commerce Commission (ICC) adopted net metering rules in 2008 for investor-owned utilities and alternative retail suppliers. Legislation in 2011 added to the list of eligible resources. The law states that net metering facilities should be equipped with metering equipment that can measure the flow of electricity in both directions at the same rate.

The Illinois Finance Authority can issue tax-exempt bonds and credit enhancements to commercial entities, non-profits, schools and community colleges for renewable energy projects. Renewable energy storage technologies, transmission lines, and associated equipment are eligible.

According to the American Council on Renewable Energy, Illinois has some of the most extensive wind and biomass resources in the U.S. By 2013, 3568 MW of wind capacity and 137 MW of biomass energy had been installed. Illinois ranked fourth in the nation for installed wind power.

Introduction to Indiana

Electricity Generation

In 2012, electricity generators in Indiana generated 114,680 gigawatt-hours of electricity, using the following sources:

Coal	80.7%
Natural gas	12.7%
Wind	2.8%
Other gases	1.9%
Petroleum Coke	0.7%
Hydroelectric	0.4%
Biomass	0.3%
Petroleum	0.1%
Other	0.3%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Indiana encourages the development of clean energy sources through a range of policies, including tax credits, net metering, and a voluntary renewable portfolio standard.

The Indiana Utility Regulatory Commission adopted the Clean Energy Portfolio Standard (CEPS) in June 2012. The CEPS sets a voluntary goal of 10% by 2025. The program and the associated incentives for eligible projects are open only to public utilities. Clean energy technologies include coal bed methane, waste heat recovery, nuclear energy, and natural gas, and renewable energy technologies such as wind and solar.

In May 2011, the Indiana Utility Regulatory Commission approved net metering final rules, increasing the maximum net metering capacity to 1 MW and opening eligibility to all electric customers.

The Indiana Office of Energy Development implemented Hoosier Homegrown Energy, the state's first new energy plan in 20 years, in 2006. The plan has three main goals: trade current energy imports for future Indiana economic growth; produce electricity, natural gas, and transportation fuels from clean coal and bioenergy; and improve energy efficiency and infrastructure.

According to the American Wind Energy Association, Indiana has a strong wind resource as is the third-fastest growing state in wind capacity. As of January 2013, the state had 930 turbines producing 1,543.2 MW of wind power. In 2009, the wind industry supported 3000-4000 jobs in the state.

Two Indiana utilities have voluntary feed-in tariffs: Indianapolis Power & Light Company has a feed-in tariff with contracts for a total of 99,849.7 kW. Northern Indian Public Service Company also has a voluntary experimental feed-in tariff in effect through December 31, 2013, unless otherwise ordered. Northern Indiana Public Service Company has contracts for 29,710.2 kW of total capacity in its feed-in tariff program.

The state offers various tax credits for renewable energy systems, equipment manufacturing, and alternative fuel vehicle manufacturing.

Introduction to Iowa

Electricity Generation

In 2012, electricity generators in Iowa generated 56,919 gigawatt-hours of electricity, using the following sources:

Coal	62.5%
Wind	24.5%
Nuclear	7.6%
Natural gas	3.5%
Hydroelectric	1.4%
Biomass	0.3%
Petroleum	0.2%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Iowa encourages the development of clean energy sources through a range of policies, including tax credits, loans, net metering, and an obligation for the state's investor-owned utilities (IOUs) to purchase from renewable sources.

Iowa enacted the nation's first renewable generation law, called the Alternative Energy Production Law, in 1983. The law requires the state's two IOUs to own or contract for a combined total of 105 MW of renewable energy generating capacity.

All electric utilities in Iowa are required to offer voluntary Alternative Energy Purchase Program options to their customers that allow customers to contribute voluntarily to the development of alternative energy in Iowa.

The Iowa Utility Board adopted the state's net metering sub rule in 1984. Net metering is available to customers of Iowa's rate regulated utilities that generate renewable energy on their premises.

The Iowa Economic Development Authority currently administers the state's renewable energy programs, including the state energy program and the Iowa Clean Cities Coalition.

According to the American Wind Energy Association, Iowa ranks seventh in the nation in wind resources and has the second most installed wind capacity in the U.S. In 2010, the state ranked first in the U.S. for percentage of electricity derived from wind.

The state has attracted major wind industry manufacturers and has a robust supply chain. According to AWAE, over 3,200 direct manufacturing jobs in the state are attributable to the wind industry.

Iowa has a strong agricultural sector and is the country's number one producer of both ethanol and biodiesel at 27% and 17% of production respectively.

The Iowa Energy Bank, administered by the Iowa Economic Development Auhtority, offers Iowa's public facilities, schools, colleges, universities, hospitals, and local governments as low as a 1% financing option for cost-effective energy projects, including eligible renewable energy installations. A low-interest revolving loan fund created in 2011 finances Energy Bank programs.

Introduction to Kansas

Electricity Generation

In 2012, electricity generators in Kansas generated 44,782 gigawatt-hours of electricity, using the following sources:

Coal	62.5%
Nuclear	18.5%
Wind	11.4%
Natural gas	7.3%
Biomass	0.1%
Petroleum	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Kansas encourages the development of clean energy sources through several policies, including tax credits, loans, net metering, and a renewable portfolio standard.

Kansas adopted a renewable portfolio standard (RPS) in 2009, requiring investor-owned and cooperative utilities to purchase renewable energy at 10% from 2011-2015, 15% from 2016-2019, and 20% in 2020. The RPS is based on generation capacity—the gross capacity owned or leased by a utility less the auxiliary power used to operate the facility. The state met its 10% target by 2011 through installed wind generation.

The Kansas Corporation Commission's Energy Division administers the state's alternative energy and energy efficiency programs. The Facility Conservation Improvement Program is the Division's current active program.

According to the American Wind Energy Association, Kansas has vast wind resources and ranked fifth in the U.S. in 2010 for the percentage of electricity derived from wind. The state has several supply chain companies which manufacture for the wind industry.

Kansas is ranked ninth in the nation in bioethanol production capacity. One of the country's first cellulosic ethanol plants is located in Kansas and produces both fuel and electricity.

The Kansas Development Finance Authority can issue up to $5 million per wind or solar project in bond financing for eligible wind and solar manufacturers.

Introduction to Kentucky

Electricity Generation

In 2012, electricity generators in Kentucky generated 89,819 gigawatt-hours of electricity, using the following sources:

Coal	91.9%
Natural Gas	3.3%
Hydroelectric	2.6%
Petroleum Coke	1.6%
Biomass	0.4%
Petroleum	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Kentucky requires net metering and offers several tax credits to promote renewable energy development and fuels production. Kentucky enacted its net metering law in 2008 requiring investor-owned utilities and rural electric cooperatives to offer bi-directional net metering up to 30 kilowatts in capacity. TVA utilities are exempt from the net metering rules.

The state is the third largest producer of coal and has some of the lowest electricity prices in the nation. The state remains largely reliant on coal to generate electricity.

The Department for Energy Development and Independence (DEDI) is investigating cost-effective and practical technologies for reducing carbon dioxide emissions from coal power plants. DEDI's goal is to investigate and develop solutions for carbon capture, sequestration, and reuse, and to develop state policy to manage greenhouse gas emissions. Kentucky provides tax credits for clean coal facilities. Businesses that construct, retrofit, or upgrade gasification facilities may qualify to recover up to 50% of their capital investment.

DEDI provides leadership to maximize the benefits of renewable energy and has oversight in implementing the renewable energy components of Kentucky's comprehensive energy strategy.

Kentucky's 2008 comprehensive energy strategy states, "By 2025, Kentucky's renewable energy generation will triple to provide the equivalent of 1000 megawatts of clean energy while continuing to produce safe, abundant, and affordable food, feed, and fiber." The plan proposed a renewable and efficiency portfolio standard to supply 25% of Kentucky's energy needs through energy efficiency and renewable resources by 2025.

According to the American Council on Renewable Energy, the state has potential to generate over 8000 GWh from biopower. Currently, biopower is produced in facilities that use black liquor and forestry residues as feedstock, and from landfill gas. Several tax incentives are available for renewable energy facilities, including biomass generators, and biodiesel producers and blenders.

Introduction to Louisiana

Electricity Generation

In 2012, electricity generators in Louisiana generated 103,770 gigawatt-hours of electricity, using the following sources:

Natural gas	57.0%
Coal	20.6%
Nuclear	15.1%
Petroleum Coke	2.8%
Biomass	2.2%
Other gases	1.3%
Hydroelectric	0.7%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Louisiana encourages the development of clean energy sources through the following policies: net metering, tax incentives, loan programs, and a renewable portfolio standard pilot program.

Louisiana enacted legislation in June 2003 establishing net metering. Investor-owned utilities, municipal utilities, and rural electric cooperatives are required to offer net-metering to residential and commercial customers that generate electricity from qualified renewable resources. Residential systems may net meter up to 25 kW; commercial and agriculture sectors may net meter up to 300 kW.

In June 2010, the Louisiana Public Service Commission approved the Renewable Energy Pilot Program to determine whether a renewable portfolio standard is suitable for Louisiana. The pilot has a research component and a request for proposal component, which applies to investor-owned utilities and cooperative utilities.

The state is analyzing its offshore wind potential to determine the viability of offshore wind development.

The state has a strong biomass resource. According to the American Council on Renewable Energy, Louisiana biopower could produce as much as 14,873 GWh per year. Several wood pellet export facilities are under construction in Louisiana and will produce over a million tons of pellets per year.

Introduction to Maine

Electricity Generation

In 2012, electricity generators in Maine generated 15,049 gigawatt-hours of electricity, using the following sources:

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

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

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 an ambitious renewable standard. It includes a credit multiplier for community ownership of projects up to 10 MW and 40% Renewable Energy Portfolio Standard by 2017 (10% new resources added to the 30% RPS in place prior to 2007) and a statutory goal of 2,000 MW of wind energy by 2015. The goal increases to at least 8,000 MW of installed wind capacity by 2030 with 5,000 MW located in coastal waters or offshore. Natural gas is expected to remain a growing 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 transform Maine's energy markets. In 2012, it derived approximately half of its $34.2 million funding from a System Benefits Charge and from the Regional Greenhouse Gas Initiative.

Maine is a net exporter of electricity, as it generated approximately 30% more electricity than it consumed in 2012.

Due to the state's significant clean energy commitment, Maine has developed an energy technology infrastructure of energy equipment design, manufacturing, and professional services to support the growth of the clean energy sector.

Among other broad policy changes, the 2013 Omnibus Energy Bill directs the state Department of Environmental Protection and Public Utilities Commission to develop incentives for consumers to reduce greenhouse gas emissions by switching from oil and coal to alternative fuels such as natural gas, biomass, or other renewables.

Introduction to Maryland

Electricity Generation

In 2012, electricity generators in Maryland generated 37,815 gigawatt-hours of electricity, using the following sources:

Coal	42.7%
Nuclear	35.9%
Natural Gas	13.1%
Hydroelectric	4.4%
Biomass	1.4%
Wind	0.8%
Other	0.8%
Other gases	0.5%
Petroleum	0.3%
Solar	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Maryland encourages the development of clean energy sources through a range of policies, including net metering, a renewable portfolio standard (RPS), tax incentives, rebates, loans, and grants.

Maryland has a 20% by 2022 RPS target. All electricity suppliers are required to use renewable energy sources to generate this minimum portion of their retail sales. The requirement increases gradually for both Tier 1 and Tier 2 resources. In 2013, the state enacted legislation creating an offshore wind carve-out. A solar carve-out was established in 2007.

Maryland's net metering law was enacted in 1997 and has been expanded several times. It requires all utilities to offer net metering to their customers until a statewide aggregate capacity of 1500 MW is reached.

Maryland imports nearly half of its electricity, consuming 61,835 gigawatt-hours in 2012.

Maryland currently generates 6.7% of its energy from in-state renewable generation, which accounts for 33.5% of the state's informal in-state renewable generation goal.

The general Assembly passed the Offshore Wind Act of 2013. It modified the state's RPS to include a specified amount of energy derived from offshore wind energy and created an application process for proposed offshore wind farms. The Maryland Energy Administration (MEA) and the Maryland Higher Education Commission announced research grants to support Maryland's offshore wind development.

MEA advises the Governor on directions, policies, and changes in the various segments in the energy market. MEA works to reduce energy costs, reduce greenhouse gas emissions, increase energy efficiency, leverage public/private partnerships, and lower the operating expense of state and local governments.

Maryland has several waste-to-energy facilities. The largest is in Montgomery and processes an average of 1500 metric tons per day of waste. Maryland has 120 MW of wind on-line.

Introduction to Massachusetts

Electricity Generation

In 2012, electricity generators in Massachusetts generated 33,107 gigawatt-hours of electricity, using the following sources:

Natural gas	69.0%
Nuclear	16.6%
Coal	5.9%
Biomass	3.4%
Hydroelectric	2.7%
Petroleum	0.4%
Wind	0.2%
Solar	0.1%
Pumped Hydroelectric Storage	-0.9%
Other	2.5%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Massachusetts encourages the development of clean energy sources through a diverse and broad range of policies, including tax credits, net metering, neighborhood net metering, a renewable portfolio standard, and a system benefit charge fund.

The state's portfolio standard is one of the oldest in the country. It started with a Renewable Portfolio Standard, which was established in 1997 and whose first obligation was in 2003. Since then, the required annual percentage increase in new renewables has been raised, additional tiers and carve-outs have been added, as has an Alternative Energy Portfolio Standard, which includes coal gasification, combined heat and power, and other technologies.

The Massachusetts Department of Energy Resources has wide-ranging responsibilities, including administering the Renewable Portfolio Standard and Alternative Energy Portfolio Standard.

The "Massachusetts Clean Energy Center (MassCEC) is dedicated to accelerating the success of clean energy technologies, companies and projects in the Commonwealth—while creating high-quality jobs and long-term economic growth for the people of Massachusetts." MassCEC administers the Renewable Energy Trust Fund, which is funded by a system benefit charge on the electricity bills of investor-owned utilities and which generates about $23 million annually.

Through the Global Warming Solutions Act, the state has an ambitious goal of cutting emissions to 25% below 1990 levels by 2020.

Strong solar incentives and policies contributed to Massachusetts being one of the top five states in adding photovoltaic capacity in 2012.

A very large offshore wind resource has encouraged the state to implement policies and programs both to advance offshore wind and to prepare a regulatory framework for it. The opportunities for large-scale land-based wind projects are much more limited.

Introduction to Michigan

Electricity Generation

In 2012, electricity generators in Michigan generated 108,726 gigawatt-hours of electricity, using the following sources:

Coal	49.1%
Nuclear	25.8%
Natural gas	20.5%
Biomass	2.3%
Hydroelectric	1.2%
Wind	1.0%
Petroleum	0.1%
Pumped Hydroelectric Storage	-0.7%
Other	0.4%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Michigan encourages the development of clean energy sources through such policies as net metering and a renewable portfolio standard.

In 2013, the Governor's Office is using a public process to solicit input on Michigan's energy future to enable policymakers to implement new policy guidelines on the state's energy framework. The results will be used to make comprehensive recommendations in December 2013.

Michigan has experienced significant investment in renewable energy since the passage of Public Act 295 of 2008, the State's renewable energy standard. Over $1.79 billion has been invested to bring 895 MW of new renewable energy projects online in Michigan through 2012.

Michigan added 815 megawatts of new wind capacity in 2012, and now has a total of 978 megawatts from 14 operating wind farms.

The Michigan Energy Office operates as a division of the Michigan Economic Development Corporation and supports policy and program development, beneficial public-private partnerships at the local level, energy efficiency in the public and private sectors, reductions in Michigan's dependence on imported energy, the adoption of new technologies and alternative fuels in buildings, industrial processes vehicles and power generation.

The actual cost of renewable energy contracts submitted to the Michigan Public Utilities Commission to date has been cost-competitive. Contracts submitted to the Commission through 2012 total approximately 1,192 MW of renewable capacity. Almost all renewable energy contract prices have been lower than the coal guidepost rate.

As part of the Midwest Regional Carbon Sequestration Partnership, a test site in in Otsego County, Michigan, will begin injecting CO2 into a small number of oil fields within a geologic formation known as the northern Niagaran pinnacle reef trend.

Detroit Edison has filed a license application with the U.S. Nuclear Regulatory Commission to build another reactor at its Fermi site in Newport.

Introduction to Minnesota

Electricity Generation

In 2012, electricity generators in Minnesota generated 52,560 gigawatt-hours of electricity, using the following sources:

Coal	43.9%
Nuclear	22.7%
Wind	14.3%
Natural gas	13.7%
Biomass	3.3%
Hydroelectric	1.4%
Petroleum	0.1%
Other	0.8%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Minnesota encourages the development of clean energy sources through a diverse and broad range of policies, including tax credits, net metering, a renewable portfolio standard, and a system benefit charge fund.

Minnesota has an aggressive Renewable Energy Standard, requiring utilities to generate at least 25 percent of their electricity from renewable energy sources such as wind and biomass by 2025, and 30% by 2020 for Xcel Energy (altogether about 27.5% by 2025). This is roughly equivalent to 6,000 to 7,000 megawatts of renewable capacity by 2025. Under 2013 legislation, the investor-owned utilities must have 1.5% of retail sales, with some sales excluded, generated by solar by 2020. 2013 legislation also changed the net-metering threshold for investor-owned utilities from 40 kW to 1000kW, and a new Value of Solar rate option in lieu of net metering may be offered.

The Renewable Development Fund (RDF) is a utility-administered program mandated by the Legislature with oversight by the Minnesota Public Utilities Commission. The RDF receives its funding as mitigation for on-site waste fuel storage from Minnesota nuclear power plant owners. Up to $10.9 million annually must be allocated to support renewable energy production incentives through January 1, 2021.

The Minnesota Public Utilities Commission has permitted approximately 2,600 MW of operating wind energy generation, with another 300-400 MW of wind generation permitted by the County where a project is located. Minnesota now ranks 4th in the nation for generation as a percentage of its portfolio. Minnesota leads the nation in community-owned wind projects with total installed capacity of 545 MW.

Federal Energy Regulatory Commission (FERC) approval of the Midwest Independent Transmission Service Operator (MISO) Multi-Value Project (MVP) method of cost allocation for certain large transmission projects is expected to reduce transmission constraints. The MISO Transmission Expansion Plan (MTEP) portfolio of MVP projects, which spread costs across the entire MISO footprint, includes the 240-mile Brookings, SD-Twin Cities transmission line to be completed between 2013-2015.

Introduction to Mississippi

Electricity Generation

In 2012, electricity generators in Mississippi generated 54,193 gigawatt-hours of electricity, using the following sources:

Natural gas	70.6%
Nuclear	13.5%
Coal	13.3%
Renewables	2.6%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Mississippi's energy policy and initiatives touch on six broad areas: encouraging exploration and extraction of natural resources; manufacturing, processing, and conversion of energy products for added value; promoting energy efficiency; building capacity through transportation and distribution infrastructure; leveraging assets for research, development, and commercialization of new energy technologies and solutions; and developing a robust energy-sector workforce.

The Mississippi Clean Energy Initiative provides an incentive for companies that manufacture systems or components used to generate renewable energy, including biomass, solar, wind and hydro generation. Manufacturers of components used in nuclear power plants are also eligible for this incentive.

Although investor-owned utilities, along with the Tennessee Valley Authority (TVA), municipal utilities, and rural electric cooperatives generate most of the electricity (75%) in Mississippi, some electricity (25%) is generated by independent power producers and by industry on site for industrial use.

Despite being a natural-gas-producing state, much more natural gas is consumed in Mississippi than is produced. To meet demand, Mississippi purchases more than one-half of its natural gas.

Mississippi has more natural gas flowing across its borders than any other state and is fourth in miles of interstate natural gas pipelines.

Plant Ratcliffe, a 582-MW coal gasification facility in Kemper County, Mississippi, will open in 2014 and will feature a carbon capture technology to reduce carbon dioxide emissions by 65%.

Introduction to Missouri

Electricity Generation

In 2012, electricity generators in Missouri generated 91,985 gigawatt-hours of electricity, using the following sources:

Coal	79.2%
Nuclear	11.7%
Natural Gas	6.8%
Hydroelectric	0.8%
Wind	1.4%
Petroleum	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Missouri encourages the development of clean energy sources through its renewable electricity standard and net metering. In addition, it has various technology-diverse policies supporting biomass, solar, and wind through tax incentives, loans, and production incentives.

Missouri requires investor-owned utilities to generate 15% of their load from renewable resources by 2021. Two percent of this target must come from solar. Renewable resources include solar, wind, various forms of biomass, pyrolysis and thermal depolymerization of waste materials, and biogas from landfills, agricultural operations, and wastewater treatment plants.

Missouri requires all electric utilities to offer net metering to customers with renewable energy systems up to 100 kW. Net metering is available until the total rated generating capacity of net-metered systems equals 5% of a utility's single-hour peak load during the previous year.

Missouri ranks third in biodiesel capacity nationwide. According to the American Council on Renewable Energy, Missouri could generate as much as 13,986 GWh from biopower.

The Missouri Department of Natural Resources Division of Energy works to advance and promote renewable energy technologies across the state. It administers the Missouri Energy Revolving Fund Loan Program, offering loans for solar PV and thermal, wind, and biomass systems in public schools, universities, colleges, cities, and counties.

Missouri's wind resource is ranked 13th in the U.S. It is a fast growing wind market, tripling its wind installations over 2009 and 2010.

Introduction to Montana

Electricity Generation

In 2012, electricity generators in Montana generated 27,726 gigawatt-hours of electricity, using the following sources:

Coal	51.2%
Hydroelectric	40.8%
Wind	4.5%
Natural gas	0.6%
Petroleum	0.1%
Other	1.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Montana encourages the development of clean energy sources through a diverse and broad range of policies, including tax credits, net metering, a renewable portfolio standard, and a system benefit charge fund.

Montana's Renewable Portfolio Standard (RPS) currently requires regulated utilities to purchase 10% of their annual electricity supply from renewable sources and increases the standard to 15% in 2015. The RPS includes provisions for community renewable energy projects, defined as projects less than or equal to 25 MW where local owners have a controlling interest.

The Montana-Alberta Tie Line (MATL) is expected to be completed in summer 2013. MATL will be the first intertie between Montana and the Alberta Electric System Operator as well as having the distinction of being the first entirely “merchant” transmission line constructed in the Western Interconnection. The MATL represents a significant accomplishment and took over 7 years to complete from the original permit application submission to finish. So far, it has resulted in over $1 billion of investment.

During 2012, 260 MW of wind power were installed in Montana. The projects represent $546 million of private investment.

Future wind power projects will require new or upgraded transmission connections to serve out-of-state populations centers.

Recent hydroelectric dam projects include updates to existing systems that improve efficiency or capacity of the power generation.

The Big Sky Carbon Sequestration Partnership (BSCSP) will soon start an eight-year, large-scale carbon storage research project in northern Montana.

Twice as much electricity was generated in state than Montanans consumed in 2012.

Introduction to Nebraska

Electricity Generation

In 2012, electricity generators in Nebraska generated 34,645 gigawatt-hours of electricity, using the following sources:

Coal	72.5%
Nuclear	16.7%
Hydroelectric	4.3%
Wind	3.7%
Natural gas	2.5%
Biomass	0.2%
Petroleum	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Nebraska encourages the development of clean energy sources through policies such as tax credits and net metering.

Nebraska is unique in that all electric utilities in the state are public power or electric cooperatives.

Nebraska's two largest utilities, Omaha Public Power District (OPPD) and Nebraska Public Power District (NPPD), have adopted the voluntary goal of having wind power account for 10% of their electricity by 2020.

In 2010, a "wind for export" law was passed, providing a specific approval process for entities other than public power utilities to build renewable generation facilities in Nebraska. Nebraska utilities have the option of negotiating to purchase up to ten percent of the electricity from these facilities, and the remaining electricity must be sold outside the state to markets where it is needed.

The National Renewable Energy Laboratory estimates that almost 92% of land in Nebraska has suitable conditions for wind-powered electricity generation.

Almost all of the coal transported to Nebraska for electricity generation and industrial plants comes from Wyoming.

Nebraska ranks 12th in the least expensive cost of electricity and 8th in energy consumption per capita.

Introduction to New Hampshire

Electricity Generation

In 2012, electricity generators in New Hampshire generated 19,270 gigawatt-hours of electricity, using the following sources:

Nuclear	42.5%
Natural gas	36.5%
Hydroelectric	6.7%
Coal	6.6%
Biomass	5.8%
Wind	1.3%
Other	0.4%
Petroleum	0.2%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

New Hampshire encourages the development of clean energy sources through a diverse and broad range of policies, including net metering, a system benefit charge to fund energy efficiency, local property tax relief for residential renewable energy systems, and a renewable portfolio standard (RPS).

New Hampshire generates 77% more electricity than it consumes.

New Hampshire's RPS requires the state's electricity providers (except for municipal utilities) to acquire renewable energy certificates. There are four classes of energy resources, and utilities must meet the standard according to a compliance schedule that varies by class.

The New Hampshire Office of Energy and Planning operates several energy programs, including low-income fuel assistance and efficiency and promotes energy conservation and renewable resource use.

New Hampshire adopted the Regional Greenhouse Gas Initiative (RGGI) in 2008 to reduce GHG emissions from electric generation.

The state Public Utilities Commission (PUC) oversees regulated utilities to ensure that customers receive safe, adequate, and reliable service at reasonable rates. In 2008, the Sustainable Energy Division was created to assist the PUC in implementing renewable energy legislative directives and promoting renewable energy and energy efficiency throughout the state.

The PUC administers the Renewable Energy Fund (REF), created in 2007 as part of the RPS. Electric service providers who cannot obtain sufficient numbers of renewable energy certificates are required to make Alternative Compliance Payments; these payments feed the REF and are used to support electric and thermal renewable energy initiatives. The PUC administers rebate programs and competitive grant solicitations through the REF.

In 2009, former Governor John Lynch's Climate Change Policy Task Force developed the state's Climate Action Plan which recommends a long-term reduction in GHG emissions of 80% by 2050. The Plan recommends 67 measures to achieve substantial reductions and provide the greatest economic opportunity to the state. While some measures have been implemented, full implementation will require authorizing legislation.

Introduction to New Jersey

Electricity Generation

In 2012, electricity generators in New Jersey generated 64,092 gigawatt-hours of electricity, using the following sources:

Nuclear	51.7%
Natural gas	42.5%
Coal	3.0%
Biomass	1.4%
Solar	0.5%
Petroleum	0.1%
Pumped Hydroelectric Storage	-0.3%
Other	0.8%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

New Jersey encourages the development of clean energy sources through a diverse and broad range of policies, including property tax exemptions, net metering, a renewable portfolio standard, and a societal benefit charge fund.

The State's Renewable Portfolio Standard (RPS) requires that 22.5% of retail electricity sold in the state come from renewable energy sources by 2021, with 3.47% from solar energy.

The RPS contains provision for the nation's first offshore wind renewable energy standard, designed to accommodate at least 1,100 megawatts by 2021. The Offshore Wind Economic Development Act requires the RPS to include a carve-out for Offshore Renewable Energy Certificates (ORECS).

New Jersey's robust and mature Solar Renewable Energy Certificate (SREC) market and various types of long-term contracts have helped make project financing possible for solar developers. Since January 2010, growth in the development of solar capacity in New Jersey has increased nearly sevenfold. Approximately 881 MWs of the state's 1,114 MWdc of total installed solar capacity, or approximately 87%, was installed in just over three years.

The Oyster Creek nuclear reactor, which began operation in 1969, is the oldest operating nuclear power plant in the United States.

New Jersey averaged the 9th highest electricity prices in the nation in 2012.

The New Jersey Clean Energy Program provides financial and other incentives to the State's residential customers, businesses, and schools that install high-efficiency or renewable energy technologies. The program is authorized and overseen by the New Jersey Board of Public Utilities.

The New Jersey Global Warming Response Act mandates the statewide reduction of greenhouse gas emissions to 1990 levels by 2020, followed by a further reduction of emissions to 80% below 2006 levels by 2050.

Introduction to New Mexico

Electricity Generation

In 2012, electricity generators in New Mexico generated 36,574 gigawatt-hours of electricity, using the following sources:

Coal	68.3%
Natural Gas	23.9%
Wind	6.1%
Solar	0.9%
Hydropower	0.5%
Petroleum	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

New Mexico encourages the development of clean energy sources through its renewable electricity standard (RPS), net metering, and various tax incentives.

In 2007, New Mexico required investor-owned utilities (IOUs) to generate 20% of total retail sales from renewable resources by 2020; it also established a 10% by 2020 target for rural electric cooperatives. In 2012, the New Mexico Public Regulation Commission made significant changes to the RPS, which amongst other things increased the wind carve-out from 20% to 30%.

IOUs and electric cooperatives must offer net metering to customers with renewable systems up to 80 MW in capacity. Combined heat and power systems are eligible for net metering.

New Mexico has vast solar resources. It has enough solar resources to produce 6.5 to 7 kWh per square meter, or 16 million GWh annually. The Cimarron Solar project is among the nation’s largest PV plants and a 5MW concentrating photovoltaic plant in Hatch is also one of the largest in the U.S. Solar projects are supported through various state tax incentives.

The Energy Conservation and Management Division (ECMD) develops and implements effective clean energy programs to promote environmental and economic sustainability. ECMD’s programs and initiatives involve both distributed-scale and utility-scale generation

The Renewable Energy Production Tax Credit supports utility-scale wind, biomass, and solar projects.

The state is ranked tenth in the nation for wind resource.

Introduction to New York

Electricity Generation

In 2012, electricity generators in New York generated 136,966 gigawatt-hours of electricity, using the following sources:

Natural gas	43.8%
Nuclear	29.8%
Hydroelectric	18.3%
Coal	3.3%
Wind	2.2%
Biomass	1.5%
Other	0.7%
Petroleum	0.4%
Pumped Hydroelectric Storage	-0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

New York encourages the development of clean energy sources through a diverse and broad range of policies, including a renewable portfolio standard (RPS), net metering, tax incentives, production incentives, grants, loans, and a system benefits charge.

The New York Public Service Commission adopted an RPS in 2004, further expanding the target to 30% by 2015 in January 2010. The RPS has several tiers to encourage new renewable resource generations. Unlike most state RPSs, the New York RPS uses a central procurement model. The New York State Energy Research and Development Authority (NYSERDA) procures roughly 78% of the eligible new resources and manages an RPS fund derived from a surcharge on each kWh sold by the state's IOUs.

NYSERDA is a public-benefit corporation tasked with developing and promoting innovative technologies to improve the state's energy, economic, and environmental well being. NYSERDA administers the emissions allowance auctions of the Regional Greenhouse Gas Initiative (RGGI).

Long Island Power Authority (LIPA) is a corporate municipal instrumentality and political subdivision of the state, serving Nassau and Suffolk counties and the Rockaway Peninsula in Queens, New York. LIPA, with 1.1 million retail electricity customers, has installed over 52 MW of photovoltaic generation in the past four years bringing total PV installed capacity to over 100 MW. LIPA has also fully subscribed its first 50 MW FIT program and a 280 MW renewable procurement by year-end 2013 and offers clean energy programs as authorized by its Board of Trustees.

New York ranks among the top ten states for solar PV capacity due to its strong solar incentives. It is also one of the nation's top generators of electricity from hydropower, landfill gas, and municipal solid waste, according to the American Council on Renewable Energy. Hydropower supplies nearly 17% of the state's total electricity demand.

The state mandates that IOUs offer net metering for various renewable technologies.

According to the American Wind Energy Association, New York ranks twelfth in the nation in total wind capacity installed.

Introduction to North Carolina

Electricity Generation

In 2012, electricity generators in North Carolina generated 116,024 gigawatt-hours of electricity, using the following sources:

Coal	44.0%
Nuclear	33.9%
Natural gas	16.7%
Hydroelectric	3.0%
Biomass	2.0%
Petroleum	0.2%
Other	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

North Carolina encourages the development of clean energy sources through a range of policies, including renewable energy tax credits, net metering, and a renewable portfolio standard.

The state's Renewable Energy and Energy Efficiency Portfolio Standard (REPS) contains carve-outs for solar, poultry and swine waste.

The State Energy Office, now in the North Carolina Department of Environment and Natural Resources, operates energy efficiency and renewable energy programs in various sectors including buildings, transportation, and energy assurance. A public buildings energy efficiency program is very active with energy goals for state agencies, universities, and community colleges.

The U.S. Bureau of Ocean Energy Management announced on December 12, 2012, the release of the Call for Information and Nominations for potential wind leasing areas offshore from North Carolina. The call covers large offshore areas in the Atlantic Ocean known as Call Area Kitty Hawk, Call Area Wilmington East, and Call Area Wilmington West.

Currently ranked fifth in the nation for photovoltaic capacity, North Carolina has a well-developed network of solar developers that install utility scale projects.

North Carolina ranked fifth in the U.S. in net electricity generation from nuclear power in 2011, producing 5.1 percent of the nation's total.

The coal for North Carolina's coal-fired power plants primarily arrives by rail and truck from West Virginia and Kentucky.

Introduction to North Dakota

Electricity Generation

In 2012, electricity generators in North Dakota generated 36,179 gigawatt-hours of electricity, using the following sources:

Coal	78.0%
Wind	14.7%
Hydroelectric	6.8%
Petroleum	0.1%
Natural gas	0.1%
Other gases	0.1%
Other	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

North Dakota encourages the development of clean energy sources through a number of policies, including tax credits, a renewable portfolio standard, and a net metering policy.

In March 2007, North Dakota enacted legislation establishing an objective that 10% of all retail electricity sold in the state be obtained from renewable energy and recycled energy by 2015. The program is voluntary and there are no sanctions or penalties.

North Dakota is a significant net exporter of electricity, as it generated approximately 2½ times as much electricity as it consumed in 2012.

The Great Plains Synfuels Plant is the only commercial-scale coal gasification plant in the U.S. manufacturing natural gas. Average daily production is about 153 million cubic feet, the majority of which is used in the eastern United States. The Synfuels Plant—where between 2.5 and 3 million metric tons of carbon dioxide is captured per year—supplies carbon dioxide to the world's largest carbon capture and storage project in the world in Saskatchewan, Canada, for use in enhanced oil recovery.

Research and development funding from the Coal Trust Fund is used to investigate new ways to beneficially use carbon dioxide and to understand the intricacies of carbon capture and storage.

There are 16 natural gas processing facilities in western North Dakota and industry investment of $3 billion in natural gas infrastructure will allow four more facilities to come online in 2013, a 389% increase in natural gas processing capacity.

Through its Oil and Gas Research Council and their private partners, North Dakota has invested more than $2 million in new technologies to capture and use natural gas at well sites.

Since 2010, the North Dakota Public Service Commission has approved wind projects with total investments estimated at $930 million. In total, it has permitted 2,900 megawatts of wind generation and ranks third in the U.S. for wind generation as a percentage of its portfolio.

Through its network of higher education and private investment, North Dakota has invested in research for hydrogen, solar, and geothermal applications.

Introduction to Ohio

Electricity Generation

In 2012, electricity generators in Ohio generated 129,307 gigawatt-hours of electricity, using the following sources:

Coal	66.5%
Natural gas	17.5%
Nuclear	13.2%
Petroleum coke	0.8%
Wind	0.8%
Biomass	0.5%
Hydroelectric	0.3%
Other gases	0.2%
Petroleum	0.2%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Ohio encourages clean energy development through a range of policies, including a renewable portfolio standard (called the Alternative Energy Portfolio Standard), net metering, tax incentives, loans, and grants.

Ohio enacted the Alternative Energy Portfolio Standard in 2008 requiring investor-owned utilities and retail electric suppliers to provide 25% of their retail electric supply from alternative resources by 2025. The statute classifies eligible technologies as advanced or renewable resources. Half the standard can be met with any new, retrofitted, refueled, or repowered generating facility located in Ohio, including fossil fuels. The Standard's 12.5% renewables portion includes a 0.5% solar carve-out.

Ohio enacted its original net metering law in 1999; it was last amended in 2008 and currently has neither a project nor aggregate capacity limit. The law limits net metering systems to those which offset part or all of the customer-generator's requirements for electricity.

The Ohio Development Services Agency (ODSA) issues competitive solicitations to increase jobs, reduce energy use, and reduce greenhouse gas emissions through the adoption of renewable energy and energy efficiency technologies.

Ohio's Advanced Energy Fund was created in 1999 through electric restructuring legislation. It is administered by ODSA and provides grants and loans for renewable energy and energy efficiency projects. It was initially funded by a small surcharge on investor-owned utility customers' electricity bills. Additional income may be distributed to the Fund from alternative compliance payments.

The Energy Loan Fund, whose funding is provided by the Advanced Energy Fund and the State Energy Program, provides low-cost financing to small businesses, manufacturers, and public institutions for energy efficiency and renewable energy systems.

In March 2012, Governor John Kasich released a proposed comprehensive state energy plan, which included 10 pillars for energy reform. The plan includes support for waste heat recovery, fracking regulations, and funding for coal carbon capture and sequestration.

Ohio has strong on and offshore wind resources and a strong wind manufacturing base. According to the American Wind Energy Association, over 50 companies currently manufacture wind energy components in Ohio. The state ranks fourth in the U.S. in wind industry employment.

Introduction to Oklahoma

Electricity Generation

In 2012, electricity generators in Oklahoma generated 78,267 gigawatt-hours of electricity, using the following sources:

Natural Gas	50.4%
Coal	37.4%
Wind	10.5%
Hydroelectric	1.5%
Biomass	0.4%
Hydro pumped storage	-0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Oklahoma has vast potential for renewable energy development. The state ranks eighth in the nation for most installed wind capacity and sixth for solar power potential.

Oklahoma has a large wind industry that continues to expand, and which is supported by new transmission lines to export wind-generated electricity. The state's renewable development is further supported by net metering, various tax incentives, and a renewable portfolio goal.

Oklahoma established a voluntary renewable energy goal in 2010 to achieve 15% renewable generation capacity by 2015. Energy efficiency may be used to meet up to 25% of the overall goal. The Oklahoma Corporation Commission (OCC) administers the program and approves eligible renewable energy resources.

The OCC adopted net metering rules in 1988, requiring investor-owned utilities and electric cooperatives under its jurisdiction to make net metering available to all customer classes. Renewable energy systems and combined heat-and-power facilities up to 100 kW in capacity are eligible.

The State Energy Office, under the Oklahoma Department of Commerce, promotes the development of renewable energy and looks at energy efficiency as a tool for economic development.

According to the American Wind Energy Association, Oklahoma added the fifth most new wind capacity in 2011. The state offers various tax incentives for certain wind manufacturers and wind power generators.

Tax credits are also available for zero-emission facilities that generate renewable power for third parties and for eligible biodiesel and ethanol production facilities.

The Oklahoma Department of Commerce operates a revolving loan fund that distributes loans up to $150,000 for local governments to install certain renewable energy systems.

Introduction to Pennsylvania

Electricity Generation

In 2012, electricity generators in Pennsylvania generated 224,714 gigawatt-hours of electricity, using the following sources:

Coal	39.2%
Nuclear	33.5%
Natural gas	23.6%
Biomass	1.1%
Hydroelectric	1.0%
Wind	1.0%
Other energy sources	0.4%
Other gases	0.3%
Petroleum	0.1%
Hydro pumped storage	-0.2%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Pennsylvania has an alternative energy portfolio standard and requires investor-owned utilities (IOUs) to offer net metering. Although there are also other policies supporting clean energy development, exhaustion of state funding and program revisions have limited the number of incentives, grants, and loans available.

The state is a net exporter of electricity; it generates 56% more electricity than it consumes.

Pennsylvania enacted its Alternative Energy Portfolio Standard (AEPS) in 2004, requiring each electric distribution company and electric generation supplier to supply 18% of its electricity using alternative energy sources by 2020. The AEPS includes two tiers: one tier is primarily for new and existing renewable sources, and the other for alternative energy resources. The AEPS also has a solar carve-out, mandating that a certain percentage of electricity be generated by solar PV. Alternative energy sources include waste coal and coal gasification, coal-mine methane, and coal gasification. All facilities located within PJM Interconnection meeting the definition of an alternative energy source qualify.

Pennsylvania requires IOUs to offer net metering to residential customers up to 50kW in capacity, non-residential systems up to 3 MW, and emergency and micro-grid systems between 3 and 5 MW. In 2012, the Pennsylvania Public Utilities Commission approved the use of third-party ownership models in conjunction with net metering, subject to a restriction that the system is not designed to produce more than 110% of the on-site electricity needs.

Pennsylvania has been successful at attracting wind and solar manufacturers to the state. According to the American Wind Energy Association, Pennsylvania is home to at least 22 facilities manufacturing components for the wind industry. Gamesa, a global wind turbine manufacturer, has its U.S. hub in Pennsylvania.

The Pennsylvania Sunshine program offers rebates to residences and small commercial facilities that install Solar PV and solar thermal systems. The program is administered by the Pennsylvania Department of Environmental Protection.

Introduction to Rhode Island

Electricity Generation

In 2012, electricity generators in Rhode Island generated 8,370 gigawatt-hours of electricity, using the following sources:

Natural gas	98.2%
Biomass	1.5%
Petroleum	0.2%
Other	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Rhode Island encourages the development of clean energy sources through a diverse and broad range of policies, including tax credits, net metering, a renewable energy standard, and the nation's first public benefits fund.

Rhode Island established its Renewable Energy Standard (RES) in 2004, requiring the state's retail electricity providers to supply 16% of their retail sales from renewable energy resources by 2019. In 2006, the state increased the goal to 20% by 2014.

The Rhode Island Office of Energy Resources (OER) is the principal agency authorized to integrate and coordinate the state's renewable energy policies.

The Rhode Island Public Utilities Commission manages the electric distribution companies' charges and has jurisdiction over the state's Renewable Energy Standard (RES). Alternative Compliance Payments made to comply with the RES mandate are paid to the Rhode Island Renewable Energy Fund (RIREF). RIREF "is dedicated to increasing the role of renewable energy with business development and energy supply in Rhode Island's electric grid." The Rhode Island Economic Development Corporation (RIEDC), which administers RIREF, supports projects in the following areas: municipal renewable energy programs, pre-development consultant and feasibility studies, non-profit housing renewable energy investment programs, and renewable energy development. RIEDC uses funds from the systems benefit charge on electric bills and Alternative Compliance payments to fund renewable energy programs.

The Office of Energy Resources manages, administers, and oversees efforts to transform the state's energy system by promoting energy efficiency, renewable energy, and alternative energy assurance.

The Office of Energy Resources notes that the state "has made significant investments in offshore wind development," including zoning the Oceanic Special Area Management Plan for offshore wind activities.

Introduction to South Carolina

Electricity Generation

In 2012, electricity generators in South Carolina generated 96,510 gigawatt-hours of electricity, using the following sources:

Nuclear	53.0%
Coal	29.5%
Natural Gas	14.6%
Biomass	2.1%
Petroleum	0.1%
Other	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

South Carolina provides tax incentives for the installation of certain renewable energy systems.

In 2009, the South Carolina Public Service Commission issued an order mandating net metering by the state's investor-owned utilities. 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.

The South Carolina Energy Office promotes the use of renewable energy throughout the state. It manages the ConserFund, a low-interest revolving loan program for energy efficiency upgrades in public buildings and private non-profit organizations.

South Carolina offers a corporate Biomass Energy Tax Credit that can be applied to an individual's income taxes. A limited liability company utilizing the biomass tax credit is allowed to pass through the credit to the shareholders of an S Corporation. Eligible resources include landfill gas, biomass, CHP/cogeneration, and anaerobic digestion.

The state has significant potential to develop renewable energy from its biomass resources, with the potential to generate over 8000 GWh annually from biopower. One quarter of the state's biomass resource comes from mill waste.

The state's wind resources are located primarily offshore and could support the installation of 133 GW.

There are at least 17 facilities in South Carolina that manufacture components for the wind energy industry, including GE, a leading wind turbine manufacturer in the U.S.

South Carolina is a net exporter of electricity. It generates 25% more electricity than it consumes.

Introduction to South Dakota

Electricity Generation

In 2012, electricity generators in South Dakota generated 12,168 gigawatt-hours of electricity, using the following sources:

Hydroelectric	49.0%
Coal	24.4%
Wind	23.9%
Natural gas	2.6%
Petroleum	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

South Dakota encourages the development of clean energy sources through a range of policies, including tax incentives and a voluntary renewable energy objective.

Recent enacted legislation titled Building South Dakota contains provisions for sales tax rebates to developers of projects over $20M.

Most of South Dakota's wind farms only sell to local utilities or pay fees to use Midwest Independent Transmission Operator's (MISO) transmission lines. Most of the state is not part of MISO. Wind farms on MISO's grid can sell power to any customer in the MISO area, which covers much of the Upper Midwest and will soon extend south to Arkansas and Louisiana.

South Dakota is among the states with the highest percentage of electricity generation from renewable resources.

In 2011, South Dakota became the first U.S. state to have at least 20% of its electricity generation come from wind power.

The National Renewable Energy Laboratory estimates that 88% of South Dakota's land area has high wind power potential.

Retail electricity costs in South Dakota are among the lowest in the United States.

Introduction to Tennessee

Electricity Generation

In 2012, electricity generators in Tennessee generated 77,449 gigawatt-hours of electricity, using the following sources:

Coal	46.0%
Nuclear	32.4%
Hydropower	10.3%
Natural Gas	9.9%
Biomass	1.3%
Petroleum	0.2%
Wind	0.1%
Pumped Hydro Storage	-0.2%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Tennessee offers several tax incentives to spur the development of the green economy, including supply chain manufacturers.

The Tennessee Department of Environment and Conservation is the lead state agency developing and managing the Clean Tennessee Energy Grant Program. The program provides financial assistance to municipal and county governments, utility districts, and other entities created by statute to purchase, install and construct energy projects in three categories: 1) Cleaner Alternative Energy (solar, wind, biomass, geothermal); 2) Energy Conservation; and 3) Air Quality Improvement.

Tennessee is a net importer of electricity, consuming 25% more electricity than it generates.

Tennessee has vast biomass resources and is home to the Oak Ridge National Laboratory and several other research centers developing pilot biomass, biofuel, and bioenergy projects.

A 2012 National Renewable Energy Lab report estimates that Tennessee's total solar potential would amount to 2,295,918 GWh annually.

The Tennessee Energy Education Initiative (TEEI), in conjunction with Pathway Lending and other statewide energy resource providers, provides in-depth training and educational tools to support the implementation of energy efficiency, renewable energy, and energy management projects.

The Tennessee Energy Efficiency Loan Program (TNEELP), in collaboration with the state, TVA, and Pinnacle Bank, TNEELP operates a $50 million revolving loan fund to provide low-interest financing for energy efficiency and renewable energy projects.

In partnership with the Tennessee Energy Education Initiative, the Tennessee Advanced Energy Business Council (TAEBC) produced a 40-page report outlining the State's advanced energy assets, including clean energy manufacturers, program and technologies, research institutions and installation service providers.

The report is accessible at http://tnenergy.org/wp-content/uploads/2013/09/TAEBC-Energy-Asset-Inventory.pdf.

Introduction to Texas

Electricity Generation

In 2012, electricity generators in Texas generated 431,017 gigawatt-hours of electricity, using the following sources:

Natural gas	50.0%
Coal	32.0%
Nuclear	8.9%
Wind	7.4%
Biomass	0.4%
Hydroelectric	0.1%
Other	0.2%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Texas encourages the development of clean energy sources through a diverse and broad range of policies, including tax credits, net metering, and a mix of state, utility and local renewable portfolio standards.

Texas accounted for 28% of U.S. marketed natural gas production in 2011, making it the leading natural gas producer among the states.

Texas is the 5th largest coal producer in the nation, accounting for 4% of U.S. coal production.

The Texas Clean Energy Project (TCEP), a $2.5 billion, 400 MW integrated coal gasification combined-cycle (IGCC) plant at Penwell, Texas, is scheduled to begin construction in mid-2013. It will incorporate carbon capture and sequestration (CCS) technology. It will be the first coal-fired power facility in the U.S. to combine both IGCC and CCS.

Texas leads all states in the net generation of electricity from burning coal.

To attract new generation, the Texas Public Utilities Commission adopted a policy to raise the price caps on generators offering into the wholesale market. The cap was raised 50% effective August 1, 2012 to $4,500 per MWh and an additional 100% (to $9,000 per MWh) effective 2015.

Texas is the national leader in overall wind installations and was the first state to reach 10,000 MW of wind energy installations. Wind resource areas in the Texas Panhandle, along the Gulf Coast south of Galveston, and in the mountain passes and ridgetops of the Trans-Pecos offer Texas some of the greatest wind power potential in the United States.

In early 2012, a five-phase, 400 MW solar PV installation was announced for the San Antonio area. Developed via a public-private partnership, it is expected to be one of the largest solar projects in the nation.

Transmission lines tailored to renewable energy sources continue to be an area of focus in Texas. Investment in the state's Competitive Renewable Energy Zones (CREZ) grew to $7 billion in 2012, and will allow an even greater amount of electricity to flow from rural wind generation sites to high-demand urban sites.

Introduction to Vermont

Electricity Generation

In 2012, electricity generators in Vermont generated 6,708 gigawatt-hours of electricity, using the following sources:

Nuclear	74.4%
Hydroelectric	17.8%
Biomass	6.0%
Wind	1.6%
Other	0.1%
Petroleum	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Vermont encourages the development of clean energy sources through a range of policies, including tax credits, net metering, group net metering, state incentives, a feed-in-tariff, and the Sustainably Priced Energy Enterprise Development (SPEED) Program, which requires utilities to enter into contracts with renewable energy generators.

The SPEED Program has some similarities to a renewable portfolio goal or standard (RPS), but is unique to Vermont. It was enacted in 2005 to promote the development of in-state renewable energy and to ensure that economic benefits of those resources flow to the Vermont economy and the state's ratepayers. SPEED set out several goals with the most significant being that the state's utilities enter into sufficient contracts to supply 20% of Vermont's load with new SPEED resources by 2017, and that each retail electricity provider's portfolio consist of 55% renewable energy by 2017 increasing by 4% each year until reaching 75% in 2032 as Total Renewables Targets. A Standard Offer program added in 2009 covers projects 2.2 megawatts and smaller and provides approved projects with fixed-price payments for every megawatt-hour of electricity they produce. The price is determined through a competitive solicitation undertaken once each year. Unlike an RPS, the SPEED program does not require the utilities to retain or retire the renewable electricity certificates associated with the generation.

Net metering is available for qualified renewable energy systems up to 500 kW in capacity and for combined heat and power systems up to 20 kW. Group net metering is also available in Vermont.

The Clean Energy Development Fund (CEDF), managed by the Vermont Public Service Department, promotes the development and deployment of renewable energy through grants and other incentives.

The Renewable Energy Resource Center administers the Vermont Small Scale Renewable Energy Incentive Program, a solar and wind incentive program established by the Legislature in 2003 and funded by CEDF.

According to Biomass Energy Resource Center, Vermont has vast biomass resources and is capable of producing 894,000 tons of biomass.

119 MW of wind power were on-line in the state as of August 2013, according to the Vermont Public Service Department.

Introduction to Virginia

Electricity Generation

In 2012, electricity generators in Virginia generated 70,895 gigawatt-hours of electricity, using the following sources:

Nuclear	40.5%
Natural Gas	35.4%
Coal	20.2%
Biomass	3.2%
Hydropower	1.4%
Other	0.7%
Petroleum	0.5%
Hydro pumped storage	-1.9%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Virginia offers an array of incentives and policies supporting clean energy, including a voluntary renewable energy portfolio goal, net metering, loans, grants, a public benefits fund, and tax incentives.

Virginia established a voluntary renewable energy portfolio goal in 2007 for investor-owned utilities (IOUs) to procure 15% of the power they sell in Virginia from renewable sources by 2025. The goal, which has been expanded several times, allows IOUs to meet up to 20% of the goal through certificated research and development activity expenses related to renewable and alternative energy sources. IOUs may recover the costs of new systems. Onshore wind and solar power receive double credit, and offshore wind receives triple credit, towards the goal.

Virginia requires IOUs and electric cooperatives to offer net metering to residential customers with renewable energy systems up to 20 kW in capacity and to non-residential customers with systems up to 500 kW.

The Department of Mines, Minerals, and Energy is the primary state energy responsible for the development and regulation of energy resources. It administers the 2010 Virginia Energy Plan, which recommends growing both traditional and alternative energy production, jobs, and investment. The state's primary energy sources include natural gas, oil, biomass, coal, and nuclear, but the greatest potential for renewable electric generation comes from onshore and offshore wind, and waste- or biomass-to-energy facilities.

Virginia created the Clean Energy Manufacturing Incentive Program in 2011 to replace two other grant incentive programs which will be phased out. The incentive program is open to biofuel producers, renewable energy manufacturers, nuclear equipment and product manufacturers, or products used for energy conservation, storage or grid efficiency. The program is administered by the Virginia Economic Development Partnership Authority.

The American Wind Energy Association estimates the offshore state wind resource potential to be 94,448 MW.

Virginia is a net importer of energy, consuming 51% more electricity than it generates.

Introduction to West Virginia

Electricity Generation

In 2012, electricity generators in West Virginia generated 73,326 gigawatt-hours of electricity, using the following sources:

Coal	95.9%
Hydroelectric	1.8%
Wind	1.8%
Natural gas	0.3%
Petroleum	0.2%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

West Virginia encourages the development of clean energy sources through a range of policies, including tax credits, net metering, and an Alternative and Renewable Energy Portfolio Standard.

The state accounts for nearly one-third of U.S. coal production east of the Mississippi River and over one-tenth of total U.S. coal production. West Virginia has more estimated recoverable coal reserves at producing mines than any other state except Wyoming.

West Virginia is a significant net exporter of electricity, as it generated approximately 2½ times more electricity than it consumed in 2012.

The Marcellus Shale formation has attracted increasing development interest in leasing land or acquiring acreage with shallow natural gas wells for the purpose of expanding natural gas production.

The even deeper Utica Shale has the potential to produce even more natural gas than Marcellus. It is thicker than the Marcellus, geographically larger, and has proven its ability to support commercial production.

American Electric Power canceled a carbon capture and sequestration project at its Mountaineer coal plant in 2011 due to concerns about recovering project costs.

It is estimated that landholding companies own over half of the land in West Virginia.

Introduction to Wisconsin

Electricity Generation

In 2012, electricity generators in Wisconsin generated 64,484 gigawatt-hours of electricity, using the following sources:

Coal	50.8%
Nuclear	22.2%
Natural gas	18.3%
Hydroelectric	3.1%
Biomass	2.6%
Wind	2.4%
Petroleum	0.1%
Other	0.1%

Note: These numbers represent ***generation***, not consumption, of electricity. They do not include behind-the-meter generation. The data comes from the US Energy Information Administration's *Electric Power Monthly* (www.eia.gov/electricity/monthly).

Policy Context for Clean Energy

Wisconsin encourages the development of clean energy sources through a diverse and broad range of policies, including tax credits, grants, net metering, a renewable portfolio standard, and a system benefit charge fund.

Utilities' renewable portion reached 8.88% by the end of 2011, before Wisconsin's largest wind project commenced operations in 2012. Wisconsin's Renewable Portfolio Standard (RPS) requires utilities to obtain 10% of their electricity from renewable energy by 2015. The standard was amended in 2011 to allow utilities to count generation from large Canadian hydroelectric sources toward their renewable requirements.

The Wisconsin Public Service Commission's utility-funded Focus on Energy, the statewide energy efficiency and renewable energy program, has enabled more distributed installation activity than in other Midwest states. Annual renewable resource incentive funding for each of 2013 and 2014 makes 75% of the renewable resource incentives available for biomass, biogas, and geothermal technologies, and 25% available for solar thermal, photovoltaic, and wind technologies.

Dominion Resources, a Virginia-based utility holding company, will shut down and decommission the 560 MW Kewaunee Nuclear Power Plant near Green Bay, Wisconsin, in 2013.

Biomass facilities located in Wisconsin produce electricity through landfill gas power, gasification, anaerobic digestion, and incineration. They use municipal solid waste, forestry residue, manure, organic waste and other feedstocks for power.