

## **INFORMATION FOR ENERGY STUDY—PART I**

**This article is the first of three that will provide League members with information needed for consensus on the League of Women Voters of Delaware’s Energy Study. The April Voter will contain questions, approved by the State Board in March, which will help us arrive at consensus at the New Castle County (NCC) Unit meeting in April. We suggest that all members save this Voter material for use at the April consensus meeting and at subsequent unit meeting in Kent and Sussex Counties. In 2009 at the State League Convention, the Energy Committee suggested a continuation of this broad study and added “including changes in land use and transportation patterns. The Transportation/Land Use Committee of NCC will be presenting information relating to land use and transportation at the May meeting in NCC with meetings scheduled later for Kent and Sussex Leagues.**

### **LWVUS ENERGY POSITIONS**







**The National League of Women Voters over the years has reached consensus of its members and developed positions used by local and state Leagues for action purposes. The LWVUS supports:**

- energy goals and policies that acknowledge the United States as a responsible member of the world community;**
- reduction of energy growth rates;**
- use of a variety of energy sources, with emphasis on conserving energy and using energy-efficient technologies;**
- the environmentally sound use of energy resources, with consideration of the entire cycle of energy production;**
- predominant reliance on renewable resources;**
- policies that limit reliance on nuclear fission;**
- action by appropriate levels of government to encourage the use of renewable resources and energy conservation through funding for research and development, financial incentives, rate-setting policies and mandatory standards;**
- mandatory energy-conservation measures, including thermal standards for building efficiency, new appliance standards and standards for new automobiles with no relaxation of auto emission control requirements;**
- policies to reduce energy demand and minimize the need for new generating capacity through techniques such as marginal cost or peak-load pricing or demand-management programs;**
- maintaining deregulation of oil and natural gas prices;**
- assistance for low-income individuals when energy policies bear unduly on the poor.**

**LWVUS Policy Statement: Support an adoption by the U.S. of a firm, verifiable cap on greenhouse gas emissions at least 25% below 1990 levels by 2020 and 80-95% below 1990 levels by 2050.**

### **ENERGY COMMITTEE ACTIONS**

**The Energy Study was approved at the 2007 State Convention, and an Energy Committee was subsequently formed. Members of this Committee have met on a regular basis and taken the following steps to develop information as a basis for consensus and action, to educate members and the public, and to respond appropriately to ongoing legislative and regulatory actions.**

-  Sponsored a speakers meeting in NCC on renewable resources**
-  Hosted 2008 League Day in Dover – Speakers on updating the 2003 Delaware Energy Plan**
-  Completed a thorough review of the 2003 Delaware Energy Plan and identified areas for study**
-  Participated in all 5 workshop groups and provided input to 2009 Delaware Energy Plan**
-  Held Unit meetings in NCC and Sussex on 2009 Delaware Energy Plan workgroups**
-  Co-sponsored Climate Change speaker program on Mitigation and Adaptation**

- ✚ Monitored Governor’s Energy Advisory Council meetings, Public Service Commission meetings, Sen. McDowell’s renewable energy hearings, Sustainable Energy Utility meetings, and Delmarva Power’s Integrated Resource Planning workshops.
- ✚ Made numerous statements at public hearings and legislative committee meetings, met with officials and lobbied for and sometimes against federal and state energy related bills.

**FOCUS OF 2007 LWVD ENERGY STUDY: An energy plan for Delaware minimizing climate change including changes in land use and transportation patterns.**

**In 2009 League members voted to extend this study for another two years. Although the Energy Committee will be able to provide sufficient information to achieve consensus in several areas by the spring of 2010, more time is required to complete the entire study.**

**COMMITTEE’S CHALLENGES (Key Areas of Study):**

1. Define, exactly, with hard data, what progress has been made in energy reduction since the 2003 DE Energy Plan. Incorporate updated projections of energy usage and identify what assumptions have been made with respect to energy conservation.

**The DE Energy Plan 2003 was based on 1999 information; the 2009 Energy Plan was based on 2005-6 data. Much of the information was obtained from Andrea Kreiner, consultant for the Governor’s Energy Advisory Council, Phil Cherry, Planner, DNREC; and Charlie Smission, Director of the DE Energy Office with their presentations at our League Day in Dover in 2008. Additional data are from the 2009 DE Energy Plan and 2007 data published in 2009 by the U.S. Department of Energy.**

**Factors considered for Delaware included energy consumption patterns, energy resources used and pollutant emissions resulting from energy consumption.**

**The League’s definition of energy for this study includes residential, commercial, industrial and transportation sectors in Delaware.**

**Delaware Energy Consumption, Million BTUs**

	<u>1999</u>	<u>2005</u>	<u>2007</u>
<b>Total</b>	<b>280,000</b>	<b>313,000</b>	<b>302,000</b>
<b>Per Capita</b>	<b>357</b>	<b>372</b>	<b>350</b>

**In 2007, Delaware ranked 24<sup>th</sup> in the U.S. in energy consumption per capita, higher than the surrounding states and slightly higher than the U.S. average. The most efficient states were Rhode Island, New York and California which consumed 207, 209 and 233 million BTUs per capita, respectively. Part of the reason for high Delaware consumption is the relatively high rate of industrial use for its small population. With the recession and continuing loss of heavy industry in Delaware, the consumption per capita would be expected to decrease. However, compared to the most efficient states, there is still significant room for improvement.**

**Delaware Energy Consumption Percentage by Sector**

<u>Sector</u>	<u>1999</u>	<u>2005</u>	<u>2007</u>
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<b>Residential</b>	<b>20%</b>	<b>23%</b>	<b>22%</b>
<b>Commercial</b>	<b>16</b>	<b>19</b>	<b>19</b>
<b>Industrial</b>	<b>39</b>	<b>35</b>	<b>34</b>
<b>Transportation</b>	<b>25</b>	<b>23</b>	<b>25</b>

### Projections

The 2003 Energy Report predicted an 18.5% growth in electricity and 8.8% growth in natural gas consumption by 2010. That has not happened. As the U.S. Dept. of Energy data indicate, statewide sales of electricity from 2003 to 2007 increased only 1% while the number of customers and consumption in the residential sector grew by 8%. In the commercial sector, the number of customers grew by 12% while consumption increased by 15%. Industrial sales fell by 20%. The 2009 Energy Report projects a 7% increase of electricity sales in the residential and commercial sectors by 2012 with industrial sales holding constant. Natural gas sales fell 8% between 2003 and 2007. The 2009 Energy Plan projects an increase of 10% between 2007 and 2012.

Delaware Dept. of Transportation's data from gasoline purchases shows steady growth in vehicle miles traveled (VMT) from 2000 to 2007. VMT increased 45% from 1990 to 2005 and is projected to increase by another 35% by 2020.

### Delaware Sources of Total Energy Consumption by Percentage

	<u>1999</u>	<u>2005</u>	<u>2007</u>
<b>Coal</b>	<b>13%</b>	<b>18%</b>	<b>21%</b>
<b>Natural Gas</b>	<b>21</b>	<b>16</b>	<b>16</b>
<b>Total Petroleum</b>	<b>50</b>	<b>47</b>	<b>45</b>
<b>Imported Electricity</b>	<b>15</b>	<b>18</b>	<b>17</b>
<b>Other (biomass &amp; solar)</b>	<b>1</b>	<b>1</b>	<b>1</b>

Coal is primarily used for in-state power; natural gas for power, heating homes and industry. Imported electricity is a combination of nuclear, coal and gas. Petroleum is primarily for gasoline, but also includes #2 heating oil, diesel fuel and heavy residual oil used for power or industry. Note the shift from petroleum-based energy to coal. The decrease in total petroleum is due primarily to a decrease in the use of residual fuel oil while at the same time the use of gasoline increased by about 20%. The decrease in natural gas occurred because of a decreased industrial consumption; commercial and residential use has increased.

### **DATA RELATING TO DELAWARE EMISSIONS FROM ITS ENERGY SOURCES**

Delaware's 2007 annual air quality report states that only two pollutants - ozone and fine particles (PM2.5) - exceed or are close to the National Ambient Air Quality Standards. Other pollutants monitored in Delaware, - SO2, NO2, CO(carbon monoxide) and more coarse particles (PM10) - are well below the national standards. Since 1990 the emissions of SO2 and NOx have continually decreased each year from Delaware's electric generating units. It is predicted that this decrease will continue into the future because of regulations. Mercury emissions charted from 1999 have also dropped with a substantial decrease between 2005 and 2009.

Recently, EPA has designated carbon dioxide (CO2) as a pollutant. CO2 emissions are closely related to energy use because fossil fuels, which currently provide nearly all our energy, produce CO2 when

burned. In the table below, point sources include emissions from utilities and other power generation systems serving the commercial, industrial and residential sectors. The majority of CO2 emissions in Delaware are from point sources including electric generation which accounted for 35% of our CO2 emissions in the 2005 Air Quality Management Report released on Sept. 15, 2008. Coal-fired generation units represent 2/3 of this sector or 23%; while natural gas makes up the majority of the 12% remaining. Other industrial sites are included in point sources. Other sources of CO2 emissions include On-road (cars, buses, trucks) and Off-road (farm, rail, shipping and construction vehicles, etc.), both from transportation sources. Area includes residential, commercial, institutional and other miscellaneous emissions.

**2005 Emissions of CO2 Equivalentents in Delaware by Percentage** – The word Equivalentents is used when including other greenhouse gases in addition to CO2.

Point	58%
On-road	21
Off-road	3
Area	18

## **DELAWARE ENERGY AND CLIMATE CHANGE LEGISLATION**

Bills marked with an asterisk (\*) came from recommendations of the 2003 Energy Plan.

**Enacted in 1999:** Created the Environmental Incentive Fund as a product of Electricity Restructuring which became the Green Energy Fund in 2003. This fund provided residential and commercial grants for weatherization and the use renewable sources, demonstration projects, and Research and Development programs.

### **Enacted in 2004**

**HB434:** Created the Governor's Energy Advisory Council.\*

**SB435:** Required State agencies to purchase Energy Star products when feasible.\*

**SB306:** Updated Building Code requirements for energy efficiency to 2000 Air Conditioning Engineers/Illuminating Engineering Society of No. America (ASHRAE/IESNA) Standards.\*

**SB307:** Contracting agencies mandated use life cycle cost analysis for public works contracts.\*

### **Enacted in 2005**

**SB84:** Created Renewable Portfolio Standards (RPS)\* which required suppliers to buy 10% of electricity from renewable sources by 2019.

**SB73:** Authorized State agencies to enter into performance contracts to finance energy efficiency upgrades.\*

**SB44:** Eligibility for biodiesel manufacturing facilities added to Green Energy Fund.

**SB127:** Regulated energy efficient outdoor lighting when state funds involved in construction.

**HB78:** Assessment increased to enable public utilities to recover the cost of new regulation.

### **Enacted in 2006**

**HJR22:** Suggested a business summit be held to assist businesses facing substantial increases in electricity rates.

**SB281:** Energy Efficiency Financial Incentives Act – appropriated \$8 million –became the Energy Answers program which provided rebates for energy-saving appliances.

**HB6:** Amended Electric Restructuring Act of 1999 to include provisions to stabilize pricing. Required

**Integrated Resource Planning to reduce or shift electric consumption by customers. Required DelMarva Power to issue a competitive Request for Proposals for new in-state generating capacity, culminating in a long-term Power Purchase Agreement with Bluewater Wind for offshore wind power. SB280: Created and appropriated \$2 million for the Delaware Energy Assistance Program. SB242: Appropriated \$5 million to the Dept of Education for additional energy costs to school districts. SS1 for SJR3: Required hiring an independent consultant to study utility re-regulation—Brockway Report.**

#### **Enacted in 2007**

**SS1 for SB8: Increased in Net Metering Standards. Allows net-metering customers to carry over excess energy credits monthly during a 12 mo. period.**  
**SS1 for SB18: Created the Sustainable Energy Utility (SEU) to deliver cost-effective end-use energy services.**  
**SB19: Increased the RPS from 10% to 20% (2% solar, 18% other renewables by 2019).**  
**SB35: Increased the system benefit charge doubling the Green Energy Fund for residential customers.**

#### **Enacted in 2008**

**SB 228 and SB276: Amended the SEU to make the SEU a non-profit entity. Created a new board and made it subject to FOIA.**  
**SB263: Regional Greenhouse Gas Initiative(RGGI) & Carbon Dioxide Trading – granted legal authority for DE to participate in a 10 state regional cap and trade program for CO2 emissions from power plants. All proceeds from the sale of RGGI allowances be used for public benefit purposes and directed 65% of revenues to the SEU for promotion of energy efficiency and distributed renewable energy technologies.**  
**SB328: Promoted off-shore wind power and encouraged DelMarva Power to enter into purchase agreements for its residential and small business customers.**

#### **Enacted in 2009**

**SS1 for SB49: Enabled the use of rooftop solar systems by limiting the use of covenants.**  
**SB59: Updated building code requirements for energy efficiency to meet the most recent ASHRAE standards.**  
**SB85: Eliminated forfeitures of excess electric generation by customer-sited distributed renewables.**  
**SB106: Increased Energy Efficiency Resource Standards (EERS); set goals of reducing electricity by 15% and gas use by 10% by 2015.**  
**SB153: Prepared Delaware for Vehicle to Grid (V2G) grid-integrated electric vehicles.**  
**SB173: Updated and clarified the SEU.**  
**HS1 for HB70: Banned the use of covenants or other restrictions to prohibit the installation of wind systems.**

#### **Pending Legislation in 2010**

**SB119: Would require increasing the RPS from 20% to 30% by 2023.**

#### **NATIONAL ENERGY AND CLIMATE CHANGE LEGISLATION**

**H.R. 2454: The American Clean Energy and Security Act passed the House in June 2009. It called for a national cap-and-trade system to limit CO2 emissions from all sources by 17% relative to what they were in 2005 and by over 80% by 2050. Action is still pending in the Senate.**

If you wish to read more about the information the Energy Committee has compiled, we suggest the following websites:

[www.dnrec.delaware.gov/Pages/default.aspx](http://www.dnrec.delaware.gov/Pages/default.aspx). On the left hand side click onto Publications and Reports, then click onto Petroleum fuels and Energy in Delaware for many different reports.

Also click on to Climate Change for several more reports.

[www.dnrec.delaware.gov/energy/Pages/default.aspx](http://www.dnrec.delaware.gov/energy/Pages/default.aspx). On the left hand side, click on Delaware Energy Plan which leads you to the Delaware Energy Plan 2003, the Delaware Energy Plan 2009-2014 and the Workgroup Reports.

[www.lwv.org/AM/Template.cfm?Section=Global\\_Climate\\_Change&TEMPLATE.CM/ContentDisplay.cfm&CONTENTID=13387](http://www.lwv.org/AM/Template.cfm?Section=Global_Climate_Change&TEMPLATE.CM/ContentDisplay.cfm&CONTENTID=13387) for LWVUS Climate Change information.

## **INFORMATION FOR ENERGY STUDY—PART II**

This article is the second of three which will appear in the January, February and March Voters that will provide League members with information needed for consensus on the League of Women Voters of Delaware's Energy Study. The April Voter will contain questions, approved by the State Board in March, which will help us arrive at consensus at the New Castle County (NCC) Unit meeting in April. We suggest that all members save this Voter material for use at the April consensus meeting in New Castle County and at subsequent unit meeting in Kent and Sussex Counties.

### **DELAWARE BUILDING CODE STATUS**

Until the second quarter of 2009, Delaware's building codes lagged significantly behind U.S. national norms. Momentum was underway to move Delaware to adopt the most recent revision of building codes - the 2009 International Energy Conservation Code (2009 IECC). The requirement that states meet the latest available standards to qualify for their full share of Federal Stimulus dollars provided the push to get Senate Bill 59 with Senate Amendment 3 passed in June 2009. As a result, the state's building codes will be updated to the most recent code improvements as of 7/1/10. Thereafter, the codes will be updated by the Delaware Energy Office (DEO) every 3 years or as new codes are issued. Action is no longer needed by the Legislature to update codes.

The Delaware Energy Office (DEO) is also charged with publishing procedures for certification of compliance with the latest codes, and for developing training programs for builders, code officials, architects, engineers and other interested parties. The bill further decreed that DEO in consultation with the Green Building Council of Home Builders Association of Delaware, will establish programs to promote the construction of zero net energy homes. A zero net energy home combines state-of-the-art energy efficient construction techniques and equipment with renewable energy systems to enable it to produce and return as much energy to the grid as it uses on an annual basis.

DEO has contracted with the Building Code Assistance Project (BCAP) to design and provide building code training in Delaware. Dates will be publicized soon for workshops to be held in each county in Spring 2010. DEO does not have enforcement authority; local jurisdictions (county and municipal

building code inspectors) are charged with monitoring and enforcement of building codes in their areas.

What role should the League play with respect to the implementation of energy efficiency building codes promulgated by DEO under SB 59?

### **ECONOMIC ENERGY DEVELOPMENT**

The following recommendations were made by the Energy Economic Development Workshop and then supported by the Governor's Energy Advisory Council in the Delaware Energy Plan 2009-14.

1. The State should provide a comprehensive clean energy business development initiative. A position should be established in the Governor's Office directing the State toward the use of renewable energy, conservation and energy efficiency. This position will coordinate both Department of Natural Resources and Environmental Control (DNREC) and Delaware Economic Development Office's (DEDO) efforts in accomplishing this initiative.

Governor Markell has asked the Secretary of DNREC, Collin O'Mara, to direct the above energy efforts. He will be working with the Alan Levin, Director of DEDO.

2. The State should develop and implement a comprehensive energy workforce training strategy to meet the above initiative including vocational/technical schools, technology and community colleges and universities.
3. The State, along with Delaware industries/businesses and universities which have **POTENTIAL ENERGY GROWTH FOR THE FUTURE OF THE STATE** will:
  1. Develop a favorable climate for a primary wind industry and ancillary support businesses.
  2. Develop a favorable climate for a solar industry
  3. Develop a favorable climate for an energy storage industry
  4. Develop a favorable climate for a weatherization industry
  5. Develop a favorable climate for conversion of the combustion engine to electric power
  6. Facilitate vehicle-to-grid (V2G) development for fleet use such as utility trucks (power and telecommunication), postal trucks, etc.
  7. Have the research capacity to explore new developments in the renewable energy sector.
  8. Develop a favorable climate for a zero waste industry.

### **QUESTION**

1. Do you believe a position should be established in the Governor's office to promote a clean energy business development initiative?
2. What is your response to the above strategies?
3. What do you see as the role of the League?

**Role of League – Lobby for above. Continue monitoring and playing a watchdog role. Develop more contacts with the leadership/task members with the legislators and councils and the SEU. Present educational programs for the above.**

### **QUESTION FOR EDUCATION**

**✚ Should Delaware adopt a comprehensive plan for education of the public from kindergarten to senior citizens so that they have the knowledge and skills necessary to modify their personal behavior, to support the transition to a sustainable economy and to find employment in it?**

**1. Pros and Cons**

**League of Women Voters of Delaware**

**INFORMATION FOR ENERGY STUDY – PART III**

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**Renewable Energy Portfolio Standards**

In response to growing environmental concerns, a number of states have enacted Renewable Energy Portfolio Standards (RPS) legislation. These laws require electricity providers to obtain a portion of the energy produced from fossil fuels with cleaner, renewable sources within a certain date. As of September 2009, 29 States (including Delaware), and the District of Columbia had enacted RPS laws, while five additional states had adopted Renewable Energy Portfolio Goals (RPG), similar but non-binding.

Although the underlying principles of RPS policies are similar, there is wide variation with respect to the specifics, including amounts, dates, and eligibility of various types of renewable energy fuels. Most states' RPS requirements are in the range of 15%-20% by 2020-2025. More aggressive standards include California (20% by 2010), New York (24% by 2013), and Hawaii (40% by 2030).

Delaware's law requires that by 2019, 20% of retail electricity sales must be generated from a prescribed list of renewable fuels. Of the total 20%, at least 2% must come from solar photovoltaic (solar panels) sources.

However, it is important to understand that Delaware's RPS requirement does not apply to all electricity sold in the state. Its largest impact will fall on Delmarva Power, Delaware's largest retailer and on a handful of smaller competitors, such as Washington Gas & Electric. Municipal electric companies and rural electric cooperatives existing at the time the law was passed were exempted. Both the Delaware Municipal Electric Corporation (DEMEC) and the Delaware Electric Cooperative (DEC) chose to opt out of the standard. These two companies are required to offer their individual customers the option of purchasing renewable energy at additional cost. They are free to develop their own plans for incorporating renewable energy into their respective portfolios, but are under no legal obligation to do so.

Second, the law also excludes industrial users with peak demands of more than 1,500 kilowatts, thereby exempting a substantial portion of the State's major electricity consumers.

Since the exemptions constitute about one-third of Delaware's total electric use, only about two-thirds is subject to the RPS law. What this means is that, according to current law, by 2019 only about 13%-14% of the State's total electricity sales will be required to come from renewable sources.

Demonstrating compliance with Delaware's RPS is the responsibility of retail sellers of electricity (as opposed to electricity generators). The sellers must acquire the requisite number of Renewable Energy Certificates, or Credits (RECs). These are uniquely numbered tradable instruments, in which one REC represents one megawatt-hour of renewable power. One REC is awarded to each renewable energy generator for each megawatt-hour of electricity



produced. The energy might be generated, for instance, by a commercial wind farm or an individual homeowner with solar panels on the roof.

These RECs, in turn, are tracked through a computer system managed by PJM Interconnection, the regional transmission organization responsible for coordinating the flow of wholesale electricity in our area. The Delaware Public Service Commission (PSC) is responsible for assuring that electricity retail sellers (e.g., Delmarva Power) have obtained sufficient valid RECs to be in compliance with the law.

#### **References:**

1. Delaware Code: Title 26, Chapter 1, Subchapter III-A. Renewable Energy Portfolio Standards. <http://delcode.delaware.gov/title26/c001/sc03a/index.shtml>
2. Delaware Public Service Commission "Rules and Procedures to Implement the Renewable Energy Portfolio Standard." February 10, 2009. Available on the Delaware Public Service Commission web site. [http://depssc.delaware.gov/electric/rpsrules\\_fin021009.pdf](http://depssc.delaware.gov/electric/rpsrules_fin021009.pdf)
3. Map of state renewable portfolio standards - [www.dsireusa.org](http://www.dsireusa.org)

**RPS article submitted by Brian Kramer, Lisa Pertzoff and John Sykes**

## **TRANSMISSION AND DISTRIBUTION**

### **TRANSMISSION HISTORY**

There is a window of opportunity for Delaware to impact the design and build-out of the country's future high-speed transmission grid. The convergence of a severe economic downturn, with the reinvigorated focus on energy efficiency and conservation plus strong incentives and investment in distributed energy and renewable sources, produced a downward bend in the electricity consumption curve. The January 24th News Journal's Business section lead story was titled: "Lower energy projections put the brakes on power lines."

1. Transmission issues have historically been dominated by Regional Transmission Operators (RTOs), generators and utilities. These RTOs are regulated by FERC, the Federal Energy Regulatory Commission, an agency of the U.S. Department of Energy. PJM is the RTO for Delaware and a 13-state area plus the District of Columbia and manages the regional movement of wholesale electricity, all transmission planning and marketing functions, future growth of the system, new generation connections, and approves new construction and transmission expansions.

Based on the results of a study of electricity grid congestion the U.S. Secretary of Energy in 2007 announced that the networks of high-voltage power lines in two regions --the Southwest and mid-Atlantic--were so inadequate fixing them was a national priority. As a result, he named both areas, 'national interest electric transmission corridors' (NIETC), which meant if state officials denied or delayed proposed transmission lines within these two wide N-S corridors, companies could appeal to FERC, which would have the power to overrule the states and issue the permit. FERC's assumed authority was challenged by a large number of regional and national environmental groups and states (Delaware filed a supporting brief). In 2009 the 4<sup>th</sup> Circuit Court of Appeals overturned FERC's expansive interpretation of the law and further ordered the agency to consult with the Council on Environmental Quality and to prepare an Environmental Impact Statement before issuing a permit; an appeal by FERC was denied.

2. Research from the University of Delaware's College of Earth, Ocean and Environment quantified the potential offshore wind power generation from North Carolina to Maine as sufficient to meet the needs of most or all of the entire East Coast, which contains over 50% of the U.S. population. Until recently the east has been viewed as having very little electricity generation potential. Offshore wind potential in the shallow waters of the mid-Atlantic region is 64+ GW (NREL 2005).

3. In May, 2009, the Governors of Maine, Massachusetts, New Hampshire, Vermont, Rhode Island, New York, New Jersey, Delaware, Maryland, and Virginia wrote to the U.S. House of Representatives and Senate leadership developing the energy and climate change bill forcefully warning of disincentive to investment in the vast renewable East Coast offshore wind resource, should the NIET corridor approval get fast-tracked before their planned wind farms are financed and operational. They also urged no curtailment of states' prerogatives in transmission line siting.

4. The existing design of the national grid creates a significant advantage for nuclear and fossil fuel generated energy to be quickly flooded from the Midwest to East Coast markets. Fifty-six percent of Midwest produced electricity comes from coal-fired plants. Regulated Return on Investment due to a rate-payer subsidized federal transmission grid would increase greenhouse gas emissions.

5. Although national transmission grids can be designed to carry renewable energy to the west, the difference in start-up time for the investment and development of the East Coast, offshore wind farms would advantage the already existing supply of cheap, subsidized, and polluting energy from the Midwest to the East.

6. With economists predicting lower consumption trends, PJM is now 'dialing back' its projections for future energy use, and renewable energy use is growing faster than anticipated. There is a window of opportunity to strongly advocate for incentives and investment to continue the upward trend in conservation, energy efficiency, and the use of renewable energy (in Delaware mainly solar/PV and offshore wind) to accelerate this healthy downward trend in electricity consumption.

7. In January 2010, the AWEA, American Wind Energy Association, highlighted the release of the Department of Energy National Renewable Energy Laboratory's (NREL) wind integration study validating that large amounts of wind energy--20%-30%-- can be reliably integrated into the nation's electricity grid at competitive cost assuming all human health and environmental costs, termed externalities, are included in the cost analysis. This ground-breaking study demonstrates the major role wind energy can fulfill across the Eastern U.S., reducing and stabilizing electricity rates while protecting the environment. It also shows the urgency to reform transmission planning for both onshore and offshore wind development, because any delay will mean that the transmission lines will not be available to tap these cost-effective domestic renewable resources. The NREL study highlights the following points:

- The integration of 20%-30% wind energy is technically feasible but will require significant expansion of the transmission infrastructure and system operational changes.
- Lack of transmission enhancements would cause substantial curtailment of wind generation potential. In parts of the U.S. wind energy has already outgrown the available transmission.
- Drawing wind energy from a larger geographic area makes it both less expensive and a more reliable energy source. Increasing the geographic diversity of wind power projects in a given operating pool makes the aggregated wind power more predictable and less variable.
- As more wind energy comes on line, less energy from fossil fuel burning plants is required, significantly reducing greenhouse gas emissions.

AWEA's recent findings challenge the existing assumption that coal-fired and nuclear generation will continue to supply the electricity base load, with wind energy and other renewable energy being a variable or secondary resource for electricity production. NREL's findings demonstrate the reliability of interconnected wind farms over a wide geographic area to produce predictable wind energy for the grid. This means clean, renewable sources of electricity have the potential to become the base load supplier, with coal, gas, and nuclear providing the supplementary energy for the East Coast.

**Transmission article submitted by Mary Anne Edwards and Lorraine Fleming**