HB 441

Department of Legislative Services

Maryland General Assembly
2012 Session

FISCAL AND POLICY NOTE
Revised

House Bill 441 (The Speaker, *et al.*) (By Request - Administration)
Economic Matters Finance

Maryland Offshore Wind Energy Act of 2012

This Administration bill creates a "carve-out" for energy derived from offshore wind in the State Renewable Energy Portfolio Standard (RPS), beginning in 2017, and extending beyond 2022. The bill establishes an application and review process for proposed offshore wind projects by the Public Service Commission (PSC). The bill also specifies a window of maximum rate impacts for both residential and nonresidential electric customers due to the bill. The bill establishes a Maryland Offshore Wind Business Development Fund and Advisory Committee in the Department of Business and Economic Development (DBED) to promote emerging businesses related to offshore wind; the bill establishes specified funding sources including transfers from the Strategic Energy Investment Fund (SEIF) and developer payments. PSC may implement specified special assessments on eligible electricity suppliers to implement the bill. The bill also makes changes to the requirement to obtain a certificate of public convenience and necessity (CPCN) for specified persons.

The bill takes effect June 1, 2012.

Fiscal Summary

State Effect: Net special fund revenues increase by $1.6 million in FY 2013, $6.6 million in FY 2014, $3.1 million in FY 2015, $2.1 million in FY 2016, and $81,500 in FY 2017 as a result of transfers and payments to the new fund and transfers and assessments to PSC. *Supplemental Budget No. 1* includes $1.5 million in SEIF special funds for the Maryland Offshore Wind Business Development Fund in FY 2013, contingent upon enactment of this bill. Net special fund expenditures increase correspondingly over the five-year period for DBED and PSC, except that $1.5 million less is spent in special funds in FY 2014 and $1.5 million more is spent in FY 2015. Under one set of assumptions, State expenditures (all funds) increase minimally beginning in FY 2013 and significantly beginning in FY 2017 due to higher electricity prices.

(in dollars)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
SF Revenue	$1,556,300	$6,569,900	$3,074,500	$2,077,900	$81,500
SF Expenditure	$1,556,300	$5,069,900	$4,574,500	$2,077,900	$81,500
GF/SF/FF Exp.	-	-	-	-	$2,380,000
Net Effect	$0	$1,500,000	($1,500,000)	$0	($2,380,000)

Note:() = decrease; GF = general funds; FF = federal funds; SF = special funds; - = indeterminate effect

Local Effect: Local expenditures increase minimally beginning in FY 2013 as electricity suppliers pass on the cost of assessments to all customer classes. Local expenditures increase significantly beginning in FY 2017 due to higher electricity prices. Revenues are not directly affected.

Small Business Effect: The Administration has determined that this bill has a meaningful impact on small business (attached). Legislative Services concurs with this assessment. (The attached assessment does not reflect amendments to the bill.)

Analysis

Bill Summary: A "qualified offshore wind project" means a wind turbine electricity generation facility, including the associated transmission-related interconnection facilities and equipment, that:

- is located on the outer continental shelf of the Atlantic Ocean in an area that is designated for leasing by the U.S. Department of the Interior after coordination and consultation with the State in accordance with the Energy Policy Act of 2005 and between 10 and 30 miles off the coast of the State (*See* background for additional information);

- interconnects to the Pennsylvania, New Jersey, Maryland Interconnection, Inc. (PJM), interconnection grid at a point located on the Delmarva peninsula; and

- is approved by PSC, subject to specified requirements.

RPS Changes

Under the State RPS, in 2017 and for every following year, State electricity sales must include an amount derived from offshore wind energy. The amount is set by PSC each year, based on the projected annual creation of "offshore wind renewable energy credits" (ORECs) by qualified offshore wind projects, and may not exceed 2.5% of total retail sales. The portion of RPS that represents offshore wind energy may not apply to electricity sales at retail by any electricity supplier in excess of 75,000 megawatt-hours

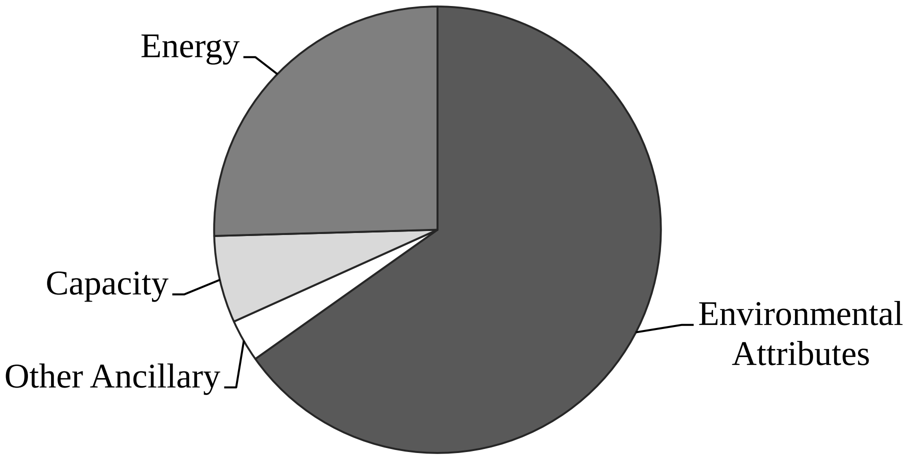
(MWh) of *industrial* process load to a single customer in a year, or beyond the first 3,000 kilowatt-hours (kWh) of electricity in a month for a customer who is a specified owner of agricultural land.

The Tier 1 alternative compliance payment (ACP) schedule does not apply to the portion of RPS that is to be derived from offshore wind energy. For any year in which an OREC obligation exists, ACP for industrial process load declines by 50% to $0.01 per MWh (in 2017 and after, the industrial ACP is $0.02 per MWh under current law). Additionally, for any year in which the net OREC rate impact (the incremental increase in rates due to the OREC obligation) exceeds $1.65 per MWh, the industrial ACP is reduced to zero.

Offshore Wind Renewable Energy Credits

OREC means a renewable energy credit equal to the generation attributes of one MWh of electricity that is derived from offshore wind energy. Legislative Services notes that this is different from other Tier 1 renewable energy credits (RECs) in that the "generation attributes" of a Tier 1 nonsolar REC in Maryland generally only include the environmental attributes (*i.e.*, not the energy). ORECs are "bundled" with the energy, capacity, ancillary services, and environmental attributes, whereas other Tier 1 nonsolar RECs are generally "unbundled," meaning the energy, capacity, and ancillary services are not included in the price of the REC. In general, most Tier 1 RECs used for State RPS compliance are traded in a market established by PJM, unbundled from the physical energy. **Exhibit 1** is a representation of a $190 OREC and its components. Legislative Services notes that, though ancillary services are a component of ORECs in the bill, it is unclear if an offshore wind project could sell ancillary services and, therefore, both PSC and Legislative Services exclude them from their ratepayer impact analyses.

Exhibit 1
Component Portions of a $190/MWh OREC



PJM Market Data
2010

Energy Components	$/MWh	% of Total
Energy	$48.34	73.1%
Capacity	11.97	18.1%
Other Ancillary	5.84	8.8%
Total	**$66.15**	**100.0%**

Source: Maryland Energy Administration for PJM Market Data

PSC Special Assessments and Transfers

PSC may implement a special assessment on eligible electric companies and electricity suppliers of up to $3.0 million total, less all amounts transferred to PSC on receipt of an application for approval for a qualified offshore wind project from SEIF or from the newly created Maryland Offshore Wind Business Development Fund from money derived from the recent Exelon-Constellation merger as specified in the bill, in order to employ consultants and experts as necessary to carry out the bill's provisions. The amount required to be transferred from SEIF under the bill is the lesser of $3.0 million or the available balance in the fund for the development of renewable and clean energy programs. PSC may also implement a special assessment during any fiscal year in which an OREC obligation exists in order to employ staff and recover administrative costs necessary to carry out the bill's provisions. Neither assessment is subject to the cumulative cost-recovery limit established in statute for PSC's annual assessment.

Approval Process through PSC

In addition to specified siting and interconnection requirements, a proposed offshore wind project must submit an application to PSC for approval to be a qualified offshore wind project, which will also determine the OREC pricing schedule. The approval process begins with an initial application process which may begin after PSC adopts implementing regulations by July 1, 2013. Upon receipt of all applications submitted under the bill, PSC must open an evidentiary proceeding to allow open and transparent evaluation. PSC must set the closing date for the application period and may provide additional application periods at its discretion. PSC must approve, conditionally approve, or deny an application within 180 days, unless the period is extended by mutual consent of both parties.

An application must include a detailed description and financial analysis of the project, the proposed method of financing the project, including documentation demonstrating that the applicant has applied for all current State and federal grants and other forms of cost offsets or tax advantages. The application must also contain a cost-benefit analysis, which must include, at a minimum:

- a detailed input-output analysis of the impact of the project on income, employment, wages, and taxes in the State, with an emphasis on in-state manufacturing employment;
- detailed information concerning assumed employment impacts in the State, including expected duration of employment and salaries;
- an analysis of the anticipated environmental benefits, health benefits, and environmental impacts of the project to the citizens of the State;
- an analysis of any impact on residential, commercial, and industrial ratepayers over the life of the project;
- an analysis of any long-term effect on energy and capacity markets as a result of the project; and
- other benefits, such as increased in-state construction, operations, maintenance, and equipment purchase.

The application also must include a proposed OREC pricing schedule for the project, which must set a price for the generation attributes of the offshore wind energy, including the energy, capacity, ancillary services, and environmental attributes. Further, the application must include a decommissioning plan for the project, a plan for engaging small businesses, a commitment to abide by specified minority business requirements through June 30, 2016, and a commitment to deposit at least $6.0 million into the Maryland Offshore Wind Business Development Fund over about two years. Further, the applicant must commit to use best efforts to apply for all current State and federal grants and other forms of cost offsets or tax advantages, and to pass on to ratepayers, without subsequent PSC approval, 80% of the value of any future State and federal grants and other benefits received that are not included in the application. Finally, PSC may require any other additional information.

PSC must evaluate the project on the following criteria:

- lowest cost impact on ratepayers of the price set under a proposed OREC pricing schedule;
- potential reductions in transmission congestion prices within the State and locational marginal pricing;
- potential changes in capacity prices within the State;
- the extent to which the cost-benefit analysis submitted by the applicant demonstrates positive net economic, environmental, and health benefits to the State;
- the extent to which an applicant's plans for engaging small businesses meets specified goals as established in statute;
- the extent to which an applicant's plan provides for (1) the use of skilled labor; (2) an agreement designed to ensure the use of skilled labor; and (3) compensation to its workers consistent with State prevailing wage laws;
- siting and project feasibility;
- estimated ability to assist in meeting the State's RPS; and
- any other criteria that PSC determines to be appropriate.

PSC may not approve an application unless (1) the proposed project demonstrates positive net economic, environmental, and health benefits to the State; (2) the projected net rate impact, combined with the rate impact of other qualified projects, does not exceed $1.50 per month for an average residential customer (1,000 kWh per month) in 2012 dollars, *and* does not exceed 1.5% of nonresidential customers' total annual electric bills, over the duration of the proposed OREC pricing schedule; and (3) the price set in the proposed OREC pricing schedule does not exceed $190 per MWh in 2012 dollars.

In addition, PSC may not approve an application until DBED, in consultation with the Governor's Office of Minority Affairs, the Office of the Attorney General, and the applicant, has established a clear plan for setting minority business goals and related procedures.

PSC must contract the services of independent consultants and experts when calculating the net benefits to the State and in evaluating and comparing applicants' proposed projects, and PSC must apply the same net OREC cost per MWh to residential and nonresidential customers.

An order issued by PSC approving a proposed project must (1) specify the OREC price schedule, which may not authorize an OREC price greater than $190 per MWh in 2012 dollars; (2) specify the duration of the OREC pricing schedule, which cannot exceed 20 years; (3) specify the amount of ORECs the project may sell each year; and (4) provide that payment may not be made for an OREC until electricity supply is generated by the project, and that ratepayers and the State are held harmless for any cost overruns associated with the project. The order vests the owner of the qualified project with the right to receive payments for ORECs according to the terms established in the order.

In addition, the bill establishes conditions and procedures for PSC approval of an extension of the original OREC pricing schedule in increments of five years.

PSC must adopt implementing regulations by July 1, 2013.

Maryland Offshore Wind Business Development Fund and Advisory Committee

The bill establishes a Maryland Offshore Wind Business Development Fund and a Maryland Offshore Wind Business Development Advisory Committee within DBED. The stated purposes of the fund are to provide financial and business development assistance to emerging businesses in the State, including minority-owned businesses, and to encourage emerging businesses in the State to participate in the emerging offshore wind industry. DBED is authorized to use the fund to provide financial and business development assistance to emerging businesses in the State and to pay the costs of implementing the bill. The fund consists of money appropriated by the State, money paid by a qualified offshore wind project, money from federal programs or private contributions, loan repayments, specified proceeds, investment earnings, and any other sources. The bill specifies that the fund receives $1.5 million from SEIF in fiscal 2013 and 2014, and $1.0 million in fiscal 2015. The fund will also receive $6.0 million, spread over about two years, from each approved offshore wind project. DBED may contract with specified entities to carry out the purposes of the fund, which is not subject to specified State procurement laws.

The advisory committee, which is staffed by DBED, must provide written recommendations by December 31, 2012, and by December 31, 2014, to DBED on the most effective use of the money in the fund, and must include specified information relating to emerging businesses and business activities in the State. Members of the advisory committee may not receive compensation but are entitled to reimbursement under the standard State travel regulations. The advisory committee terminates upon submission of the updated recommendations required by December 31, 2014.

Compliance Process with RPS

PSC must adopt regulations to establish an escrow account to ensure the transparent transfer of ORECs and revenues between an offshore wind generator and electric suppliers. The process established by the bill is as follows:

- The offshore wind generator delivers ORECs to an escrow agent associated with the actual output of the facility and is paid the established OREC price for the number of ORECs in the pricing schedule.
- Electricity suppliers buy ORECs from the escrow agent to meet their offshore wind RPS obligation. The OREC cost is recovered through customer energy charges.
- The offshore wind generator sells all of the energy, capacity, and ancillary services associated with the creation of ORECs directly into PJM markets.
- The offshore wind generator delivers to the escrow agent all revenues associated with energy, capacity, and ancillary service sales.
- The escrow agent refunds the revenue associated with the offshore wind generator's sale of its energy, capacity, and ancillary services to the electric companies, who in turn refund the revenue through a credit to ratepayers subject to RPS.
- The electricity suppliers apply the ORECs toward their annual RPS compliance, as established by PSC.

PSC must establish regulations regarding the transfer and expiration of ORECs created in excess of the OREC pricing schedule.

Certificate of Public Convenience and Necessity

Any person constructing a qualified submerged renewable energy line must obtain a CPCN. A "qualified submerged renewable energy line" means a line (1) carrying electricity supply and connecting a qualified offshore wind generator to the transmission system; and (2) in which the portions of the line crossing any submerged lands or any part of a beach erosion control district are buried or submerged. The Maryland Energy Administration (MEA) is added to the list of State agencies PSC must provide notice to in the event of a CPCN application.

Atlantic Coastal Beaches and Environmental Review

Qualified submerged renewable energy lines are exempt from the existing prohibition on building permanent structures within the Beach Erosion Control District as long as the project does not result in significant permanent environmental damage as determined by the Department of Natural Resources (DNR). An application for a CPCN to construct a submerged renewable energy line is subject to environmental review by DNR and the Maryland Department of the Environment (MDE). PSC may not approve an application for a qualified submerged renewable energy line to be constructed or installed within the Assateague National Seashore Park or the Assateague State Park.

Current Law:

Maryland's Renewable Energy Portfolio Standard

Maryland's RPS requires that renewable sources generate specified percentages of Maryland's electricity supply each year, increasing to 20%, including 2% from solar power, by 2022. Electricity suppliers must submit RECs equal to the percentage mandated by statute each year, or pay an ACP equivalent to the supplier's shortfall. RECs are classified as Tier 1, Tier 1 Solar, or Tier 2. Examples of Tier 1 sources include solar; wind; qualifying biomass; methane from anaerobic decomposition of organic materials in a landfill or wastewater treatment plant; geothermal; ocean, including energy from waves, tides, currents, and thermal differences; a fuel cell that produces electricity from a Tier 1 renewable source; a small hydroelectric plant of less than 30 megawatts (MW); poultry litter-to-energy; and waste-to-energy. Examples of Tier 2 sources include a hydroelectric plant of greater than 30 MW. Solar RECs may be generated from photovoltaic cells and residential solar hot water heating systems commissioned in fiscal 2012 or later.

CPCN Requirement

State law specifies that an individual must be granted a CPCN from PSC before beginning construction of an overhead transmission line that is designed to carry a voltage in excess of 69,000 volts, or exercise a right of condemnation with the construction. A person that seeks to construct or modify a generating facility with at least 70 MW must also obtain a CPCN from PSC.

An application for CPCN is reviewed before a hearing examiner in a formal adjudicatory process that includes written and oral testimony, cross examination, and the opportunity for full public participation. The CPCN process constitutes permission to construct the facility and incorporates several required permits, including air quality and water appropriation. The CPCN licensing process provides an opportunity for the State to examine all the significant aspects and impacts of a proposed generation facility or transmission line, including the interrelations between various impacts and cumulative effects.

After receiving an application for CPCN, PSC must send notice to all interested persons, including DNR, MDE, the Maryland Department of Agriculture, DBED, the Maryland Department of Transportation, and the Maryland Department of Planning.

PSC – Assessments

The costs and expenses of PSC and the Office of People's Counsel (OPC) are paid by the public service companies (electric companies, gas companies, and others) that are subject to PSC jurisdiction through an annual assessment. Each public service company is charged an assessment based on the ratio of the annual gross operating revenues for the public service company derived from intrastate utility and electricity supplier services and the annual gross operating revenues of all public service companies for those services. Expenses of PSC must be approved through the annual budget process. Any unspent funds must be deducted from the appropriation for the next fiscal year before PSC determines the amount to be paid by each public service company for the next fiscal year. The total assessment charged to a public service company in a fiscal year may not exceed 0.17% of the company's gross operating revenues derived from intrastate utility and electricity supplier operations for expenses incurred by PSC and 0.05% for expenses incurred by OPC.

Atlantic Coastal Beaches

For the purposes of maintaining the Atlantic Coast beaches of the State and the Beach Erosion Control District, permanent structures within the Beach Erosion Control District are prohibited. Certain purposes, such as the placement of public utility pipelines carrying treated sewage effluent, are exempt from this prohibition.

Background:

PSC – New Generation Planning

In September 2011, at the end of a process that started with Case Number 9214, which was initiated by PSC to investigate whether it should exercise its authority to order electric companies to enter into long-term contracts to create new generation in the State, PSC required each investor-owned electric company to issue a request-for-proposals (RFP) inviting interested persons to submit proposals to PSC to construct new generation facilities that would produce and sell electricity to the investor-owned electric companies. The RFP requires that a proposal for new generation facilities (1) must include the sale of capacity and energy; (2) must be for a new natural gas-fired unit, not exceeding 1,500 MW in nameplate capacity (the maximum rated output of a generator under ideal conditions); and (3) must be located inside the Southwestern Mid-Atlantic Area Council (SWMAAC) Locational Deliverability Area. SWMAAC includes the PJM BGE Zone and PJM PEPCO Zone. Further, the RFP requires responses to include a description of other reliability, economic, socioeconomic, and environmental benefits that are likely to be realized in the State as a result of the new generation facility.

Offshore Wind Development

Recent changes in federal regulations established the U.S. Department of the Interior's Bureau of Ocean Energy Management (BOEM) as the federal agency responsible for overseeing the safe and environmentally responsible development of energy and mineral resources on the Outer Continental Shelf (OCS). BOEM has relied on intergovernmental task forces in several states, including Maryland, to prepare for granting leases, easements, and rights-of-way for offshore renewable energy development activities, such as the siting and construction of wind generation facilities on OCS. MEA is the lead agency for Maryland's State/Federal Offshore Wind Task Force. On February 2, 2012, BOEM designated 80,000 acres of water off the coast of Maryland as suitable for wind farms, and issued a lease form to streamline the issuance of leases off much of the east coast.

In response to the BOEM request for interest, in January 2011, nine indications of interest were received from eight parties wishing to obtain a commercial lease for wind energy projects in the Maryland portion of OCS. The area off of Maryland is made up of 29 whole OCS blocks and 4 partial OCS blocks. The western edge is approximately 10 nautical miles from the Ocean City, Maryland coast, and the eastern edge is approximately 27 nautical miles from the Ocean City, Maryland coast. The entire area is approximately 207 square nautical miles.

New Jersey's Offshore Wind Carve-out

In 2010, New Jersey became the first state to establish an OREC carve-out in its RPS. The carve-out is for at least 1,100 MW of capacity, which is significantly more than what this bill would support, given its cost-containment measures. The program allows for tax credits and financial assistance to qualified offshore wind projects and related manufacturing and assembling facilities. The New Jersey Board of Public Utilities adopted regulations for the program in February 2011, and announced it was seeking applications for offshore wind projects in May 2011. As of June 2011, 11 offshore wind energy developers have expressed interest with BOEM in leasing federal land off the coast of New Jersey.

The Economics of Offshore Wind

Offshore wind generating facilities have a higher installation cost per unit of generating capacity than onshore wind facilities. Costs for offshore facilities are higher due to turbine upgrades needed for operation at sea; turbine foundations; and nonturbine components, including interconnection and installation. The resulting lifecycle costs of an offshore generator cause energy produced by such a generator to be more expensive than conventional power sources. In an October 2010 report, the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) estimated future installed project costs for offshore wind at $4,250 per kilowatt (kW) based on energy market surveys. Legislative Services notes that NREL has since updated their data on their website, and now reports a weighted-average capital cost of approximately $5,000 per kW. Operating and maintenance costs of offshore facilities are also higher, though because the industry is still in its early stages, forecasts of these life-cycle costs remain difficult; however, the Maryland Long-Term Electricity Report (LTER), prepared for the Maryland Department of Natural Resources, estimate is $73.88 annually per kW.

Legislative Services further notes that projected installed project costs for offshore wind projects in the United States show significant variation, ranging from under $3,000 per kW to over $6,000 per kW, and that these cost uncertainties underline the need for the thorough project analysis as required by the bill. For example, the installed project cost for the 400-MW Cape Wind project in Massachusetts has been estimated at $6,500 per kW, though exact costs have not been released to the public. Further, capital costs for proposed offshore wind projects are over 50% higher than capital costs for projects installed between 1991 and 2006, due to increased demand for turbines, supply chain bottlenecks, increased project complexity, and higher commodity prices.

Power Purchase Agreement

The OREC model is just one way for a state to develop offshore wind energy generation. A previously more prevalent model, and the proposed model in the Maryland Offshore Wind Energy Act of 2011 (SB 861/HB 1054), is the long-term power purchase agreement (PPA). Under that legislation, State investor-owned utilities would have been contractually obligated to pay for the energy, capacity, ancillary services, and environmental attributes generated from a qualified offshore wind project. The investor-owned utilities would then have been required to sell the energy and other products into the available markets. PSC would have established a nonbypassable charge or other mechanism to ensure that any costs or savings associated with the obligation to purchase energy or other products from a qualifying offshore wind generator were shared among all customers and distribution territories.

As of March 2012, two U.S. offshore wind generators have PPAs with utilities. **Exhibit 2** shows the prices and terms of these PPAs, which include the electricity and environmental attributes. Legislative Services notes that the developer NRG Bluewater Wind put active development of the Mid-Atlantic Wind Park off the coast of Delaware on hold, citing Bluewater's inability to find an investment partner. Bluewater cancelled its PPA with Delmarva Power & Light in December 2011.

Exhibit 2
Announced PPA Prices for U.S. Projects under Development

Project Name	Developer Name	Power Purchaser	Capacity Contracted (MW)	PPA Price (¢ per kWh)	PPA Base Year	Escalator (%)	Term (Years)
Cape Wind	Cape Wind Associates	National Grid	234	18.70	2013	3.5	15
Block Island Wind Farm	Deepwater Wind	National Grid	28.8	23.75	2010	3.5	20

Source: U.S. Department of Energy, National Renewable Energy Laboratory

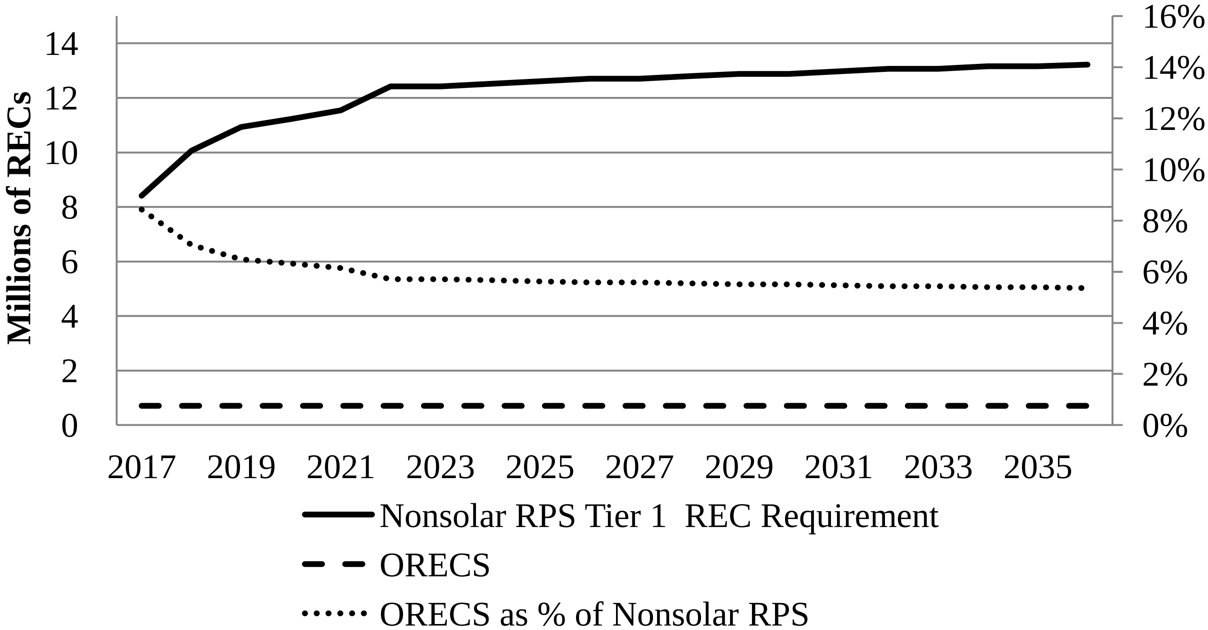
Federal Tax Credits

Two important federal tax credits available for wind energy generation facilities are the federal Investment Tax Credit (ITC) and the federal Production Tax Credit (PTC). The American Recovery and Reinvestment Act of 2009 allows facilities eligible to take the ITC or PTC to instead receive a grant from the U.S. Treasury Department. (Only one credit or grant may be taken). The ITC for wind energy is equal to 30% of the basis of the property (*i.e.*, the cost), while the PTC is a $22 per-MWh tax credit for qualifying renewable energy technologies which applies for the first 10 years of a generation facility's operation. Both credits will expire at the end of 2012 without an extension from the federal government, and there remains significant uncertainty as to whether or not either credit will continue. The credits allow renewable energy generation facilities to sell electricity below their production costs and therefore compete with traditional energy sources. Therefore, the credits remain important determinants to the decision to construct a proposed wind farm. For example, one of Bluewater's cited reasons for halting development off the coast of Delaware was the uncertainty of the continuation of federal incentives.

Maryland's Renewable Energy Portfolio Standard

To date, electricity suppliers generally have been able to meet their nonsolar RPS obligations through the submission of RECs, with little reliance on ACPs. However, Legislative Services notes that nearly all of the Tier 1 RECs generated in the State are from black liquor (a byproduct of paper manufacturing), landfill gas, and hydroelectric at 61.9%, 24.5%, and 11.9%, respectively. An offshore wind generator of a size consistent with the rate-cost caps in the bill has the potential to produce between 5% and 8.5% of the Tier 1 RECs necessary for compliance. **Exhibit 3** shows the nonsolar RPS requirement, the potential generation from a 206-MW offshore wind generator (the maximum size of a project as determined by a PSC analysis under baseline conditions), and the percentage of the Tier 1 nonsolar RPS requirement the ORECs would satisfy.

Exhibit 3
Annual Tier 1 Nonsolar RPS Requirement Versus
Annual ORECs from 206-MW Offshore Wind Generator



Source: Public Service Commission, Annual Energy Outlook Data

Exelon-Constellation Merger

PSC conditionally approved the merger of Exelon Corporation and Constellation Energy Group in Order No. 84698 on February 17, 2012. The Federal Energy Regulatory Commission approved the merger in early March, and the merger was completed on March 12, 2012. One condition of the merger requires Exelon, within 90 days of the close of the merger, to contribute $30.0 million for use by the State in efforts to realize an offshore wind project, including the development of a construction and operations plan. The condition does not specify how those funds would specifically be used or where in the State budget the funds would be appropriated. In testimony before the Senate Finance Committee on February 14, 2012, it was indicated that MEA would receive those funds. *Supplemental Budget No. 1* includes $1.5 million (of the $30.0 million discussed above) in SEIF special funds for the new fund in DBED in fiscal 2013, contingent upon the enactment of this bill or SB 237. *Supplemental Budget No. 1* also includes $4.5 million of the $30.0 million from the merger for SEIF, but that funding is not contingent upon the enactment of this bill.

State Fiscal Effect:

Strategic Energy Investment Fund

Assuming MEA's SEIF receives additional funding from the Exelon-Constellation merger as discussed above, and that MEA would otherwise spend the money required to be transferred under the bill, overall SEIF finances are not affected. However, under the bill, $1.5 million is transferred from SEIF in both fiscal 2013 and 2014 and $1.0 million is transferred from SEIF in fiscal 2015 to the Maryland Offshore Wind Business Development Fund, as required by the bill. As noted above, *Supplemental Budget No. 1* includes $1.5 million (of the $30.0 million discussed above) in SEIF special funds for the new fund in DBED in fiscal 2013, contingent upon the enactment of this bill or SB 237. This fulfills the required fiscal 2013 transfer under the bill.

Assuming PSC receives an application for approval of a qualified offshore wind project in fiscal 2014, up to $3.0 million is also required to be transferred from SEIF to the Public Utility Regulation Fund (PURF) in fiscal 2014. If less than $3.0 million remains in SEIF's available balance for the development of renewable and clean energy programs when PSC receives an application, however, the amount transferred will be lower.

The bill's reduction of industrial process ACP is not expected to affect SEIF revenue from ACPs.

Maryland Offshore Wind Business Development Fund

Special fund revenues to the new fund in DBED increase by at least $1.5 million in fiscal 2013, $3.5 million in fiscal 2014, and $3.0 million in fiscal 2015, from required SEIF transfers and contributions from an approved offshore wind project. Specifically, the fund receives $1.5 million from SEIF in fiscal 2013 and 2014, and $1.0 million in fiscal 2015, as discussed above. Again, *Supplemental Budget No. 1* effectuates the fiscal 2013 transfer. The fund also receives $2.0 million annually in fiscal 2014 through 2016 from a qualified offshore wind project; this assumes that a project is approved in late fiscal 2014. Special fund revenues may increase further from appropriations in the State budget or any other sources.

Special fund expenditures increase correspondingly as DBED, in consultation with the Maryland Offshore Wind Business Development Advisory Committee, uses the money to provide financial and business development assistance to specified emerging businesses in the State. Also, special fund expenditures from the new fund to PURF may increase in any or all fiscal years, as provided for in the bill, but the amount cannot be reliably estimated at this time.

Public Utility Regulation Fund

Assuming PSC receives an application for approval of a qualified offshore wind project in fiscal 2014, special fund revenues to PURF increase by up to $3.0 million in fiscal 2014 from the SEIF transfer required by the bill to offset the cost of independent consultants hired by PSC. To the extent that SEIF does not transfer $3.0 million and PURF does not receive money from the Maryland Offshore Wind Business Development Fund, special fund revenues increase from the special assessment authorized under the bill for PSC to cover the costs of independent consultants, up to $3.0 million. In addition, special fund revenues increase by a total of $359,935 from fiscal 2013 through 2017 from an increase in the annual assessment issued by PSC in order to cover PSC's administrative costs to implement the bill.

Special fund expenditures from PURF increase by $56,254 in fiscal 2013, which accounts for a 120-day start-up delay. This estimate reflects the cost of hiring one accountant *half time* and one regulatory economist *half time* within PSC to design and implement the regulations associated with ORECs, establish OREC requirements, and reconcile account balances. It includes salaries, fringe benefits, one-time start-up costs, and ongoing operating expenses.

Positions	1
Salaries and Fringe Benefits	49,631
Equipment and Operating Expenses	6,623
Total FY 2013 PSC Expenditures	**$56,254**

Future year expenditures reflect full salaries with annual increases and employee turnover as well as annual increases in ongoing operating expenses. Fiscal 2014 and 2015 expenditures also reflect $1.5 million per year for independent consultants to review the cost-benefit analysis and ratepayer impact calculations included within offshore wind developer applications.

State Electricity Expenditures

The incremental cost associated with an offshore wind energy carve-out will be absorbed by all electric customers and allocated to different rate classes by PSC. As an electric customer, State agencies and the University System of Maryland (USM) used approximately 1.5 million MWh of electricity in fiscal 2010. One baseline estimate by PSC shows a rate increase of $.001442/kWh in 2017, in 2012 dollars, which yields a total annual increase of $2.4 million across all State agencies and USM in fiscal 2017.

State expenditures on electricity also increase minimally beginning in fiscal 2013, as PSC administrative costs ($359,935 over a five-year period) are recovered through assessments charged to electric companies and gas companies, which are passed on to electric customers, including the State.

Local Fiscal Effect: Counties and municipalities use electricity for street lighting, wastewater treatment plants, office facilities, and recreational facilities. Local school systems are also large consumers of electricity. Thus, local government expenditures on electricity also increase minimally beginning in fiscal 2013, due to PSC assessments charged to electric companies and gas companies. Local government expenditures for electricity increase significantly beginning in fiscal 2017.

Additional Comments: PSC advises, and Legislative Services concurs, that it is very difficult to estimate the amount of energy that would be excluded under the bill's annual cost-allocation maximum of 75,000 MWh per industrial customer, and that the effect will depend in particular on the definition of "customer," as opposed to the usual definition of "account." However, it would be unlikely to increase rate and bill impacts by more than 1% or 2%.

PSC Impact Calculations

Appendix A summarizes some of the factors that influence estimates of the costs of an offshore wind generation facility. PSC has calculated many potential residential and commercial and industrial (C&I) rate impacts, using energy forecasts from the U.S. Energy Information Administration's Annual Energy Outlook (AEO), and others, such as LTER. Legislative Services notes that the AEO projections stipulate a smaller maximum project size than the LTER forecast. **Exhibit 4** shows the findings for the baseline AEO. The maximum size for a project under baseline assumptions is 206 MW.

Exhibit 4
Ratepayer Impacts – $190/MWh OREC
AEO Baseline Scenario – 20-year Project Life
(In 2012 Dollars)

Baseline Energy Forecast	**AEO**
Project Nameplate Capacity (MW)	206
Base Case Market Values	
Total Payments to Wind Project:	$2,652,008,311
Total Market Value of Wind Production:	$863,553,815
Total Net Cost for Wind Project To Be Recovered From Ratepayers:	$1,788,454,496
Average Rate Impact (Over Life of Wind Project) to All Customers (C&I and Residential) cents/kWh:	0.117
C&I First Year Bill Impact%:	1.50%
C&I Maximum Bill Impact %:	1.50%
C&I Average Bill Impact %:	1.28%
Residential Average Bill Impact %:	0.92%
Residential First Year Monthly Bill Impact $/Bill:	$1.44
Residential Maximum Monthly Bill Impact $/Bill:	$1.44
Residential Average Monthly Bill Impact $/Bill:	$1.27

Source: Public Service Commission

Legislative Services Sensitivity Analysis of Rate Impacts

For illustrative purposes only, as shown in **Exhibits 5** and **6**, Legislative Services has calculated the potential residential and C&I impacts, by nameplate capacity of an offshore wind generation facility, and the incremental cost between a $190 OREC and conventional electricity and capacity. Similarly, **Exhibits 7** and **8** calculate the potential residential and C&I impacts by capacity factor and total State energy sales. For consistency, Legislative Services assumes the same generation, prices, capacity factor, number of residential ratepayers, and energy consumption profiles as PSC in its "AEO Baseline $190 OREC Scenario" in year 2017. A detailed breakdown of the various costs under PSC assumptions, calculated by Legislative Services, is included in **Appendix B** for the years 2017 and 2030. Legislative Services notes that the primary drivers of ratepayer impacts are the size of the project, the incremental cost per OREC, and total State energy sales.

Exhibit 5
Monthly Household Bill Increase by Nameplate Capacity and Incremental Cost Per OREC ($/MWh) – 2017
(In 2012 Dollars)

Incremental Cost Per OREC ($/MWh)	Nameplate Capacity (MW) 175	200	225	250	275
90	$0.81	$0.92	$1.04	$1.16	$1.27
95	0.85	0.98	1.10	1.22	1.34
100	0.90	1.03	1.16	1.28	1.41
105	0.94	1.08	1.21	1.35	1.48
110	0.99	1.13	1.27	1.41	1.55
115	1.03	1.18	1.33	1.48	1.62
120	1.08	1.23	1.39	1.54	1.70
125	1.12	1.28	1.44	1.61	1.77
130	1.17	1.34	1.51	1.67	1.84
135	1.21	1.39	1.56	1.73	1.91
140	1.26	1.44	1.62	1.80	1.98

Note: Shaded areas represent ratepayer impacts in excess of those authorized by the bill.
Source: Department of Legislative Services

Exhibit 6
Percentage Increase in C&I Rates by Nameplate Capacity and Incremental Cost Per OREC ($/MWh) – 2017

Incremental Cost Per OREC ($/MWh)	Nameplate Capacity (MW) 175	200	225	250	275
90	0.84%	0.96%	1.08%	1.20%	1.32%
95	0.89%	1.02%	1.14%	1.27%	1.40%
100	0.94%	1.07%	1.20%	1.34%	1.47%
105	0.98%	1.12%	1.26%	1.40%	1.54%
110	1.03%	1.18%	1.32%	1.47%	1.62%
115	1.08%	1.23%	1.38%	1.54%	1.69%
120	1.12%	1.28%	1.44%	1.61%	1.77%
125	1.17%	1.34%	1.51%	1.67%	1.84%
130	1.22%	1.39%	1.56%	1.74%	1.91%
135	1.26%	1.44%	1.63%	1.81%	1.99%
140	1.31%	1.50%	1.69%	1.87%	2.06%

Note: Shaded areas represent ratepayer impacts in excess of those authorized by the bill.
Source: Department of Legislative Services

Exhibit 7
Monthly Household Bill Increase by Nameplate Capacity and Total State Energy Sales – 2017
(In 2012 Dollars)

Total MD Energy Sales (Gwh)	Nameplate Capacity (MW)				
	175	**200**	**225**	**250**	**275**
80,000	$1.03	$1.17	$1.32	$1.47	$1.61
78,000	1.05	1.20	1.35	1.50	1.65
76,000	1.08	1.23	1.39	1.54	1.70
74,000	1.11	1.27	1.43	1.58	1.74
72,000	1.14	1.30	1.47	1.63	1.79
70,000	1.17	1.34	1.51	1.68	1.84
68,000	1.21	1.38	1.55	1.72	1.90
66,000	1.24	1.42	1.60	1.78	1.95
64,000	1.28	1.47	1.65	1.83	2.02
62,000	1.32	1.51	1.70	1.89	2.08
60,000	1.37	1.56	1.76	1.95	2.15

Note: Shaded areas represent ratepayer impacts in excess of those authorized by the bill.
Source: Department of Legislative Services

Exhibit 8
Percentage Increase in C&I Rates by Nameplate Capacity and Total State Energy Sales – 2017

Total MD Energy Sales (Gwh)	Nameplate Capacity (MW)				
	175	**200**	**225**	**250**	**275**
80,000	1.07%	1.22%	1.37%	1.53%	1.68%
78,000	1.10%	1.25%	1.41%	1.57%	1.72%
76,000	1.12%	1.29%	1.45%	1.61%	1.77%
74,000	1.16%	1.32%	1.49%	1.65%	1.82%
72,000	1.19%	1.36%	1.53%	1.70%	1.87%
70,000	1.22%	1.40%	1.57%	1.74%	1.92%
68,000	1.26%	1.44%	1.62%	1.80%	1.98%
66,000	1.30%	1.48%	1.67%	1.85%	2.04%
64,000	1.34%	1.53%	1.72%	1.91%	2.10%
62,000	1.38%	1.58%	1.77%	1.97%	2.17%
60,000	1.42%	1.63%	1.83%	2.04%	2.24%

Note: Shaded areas represent ratepayer impacts in excess of those authorized by the bill.
Source: Department of Legislative Services

OREC Obligation Exclusions

The bill limits the exposure to the OREC obligation for large industrial customers by reducing ACPs, and for agricultural customers by limiting the OREC obligation to the first 3,000 kWh per month. PSC advises that the majority of RPS compliance is met with RECs, including industrial process load. It is unlikely that either of these provisions will materially affect State or local finances. Legislative Services notes that the total annual obligation that must be borne by ratepayers remains unchanged, and that therefore the net OREC rate impact must increase slightly for all customers, though the amount is anticipated to be minimal, and therefore rate impacts do not reflect these exclusions.

Other Considerations

Finally, Legislative Services advises that the above scenarios are provided as an example of how the underlying assumptions used to evaluate a potential offshore wind project can affect the estimated impacts. Actual impacts may vary significantly depending on the bids submitted and ultimately approved. Total costs will also be impacted by any additional federal or State subsidies made available to offshore wind developers.

Additional Information

Prior Introductions: A similar bill, SB 861 of 2011, was heard by the Senate Finance Committee. Its cross file, HB 1054, was heard by the House Economic Matters Committee. No further action was taken on either bill.

Cross File: SB 237 (The President, *et al.*) (By Request - Administration) - Finance.

Information Source(s): New Jersey Board of Public Utilities; U.S. Department of Energy; Energy Information Administration; Bureau of Ocean Energy Management, Regulation, and Enforcement; 2010 Wind Technologies Market Report; National Renewable Energy Laboratory; Department of Natural Resources; Maryland Department of the Environment; Maryland Energy Administration; Public Service Commission; Department of Legislative Services

Fiscal Note History: First Reader - February 13, 2012
mlm/lgc Revised - House Third Reader/Clarification/Updated Information/Updated Budget Information/Correction - April 4, 2012

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Appendix A
Key Variables in the Cost of Offshore Wind Generation

Total Project Costs – The total cost of an offshore wind project includes the cost of turbines, foundations, integration, maintenance, financing, and other inputs. Total costs may be estimated in a variety of ways, such as averaging the costs of existing facilities. They may also be estimated based on the experience of specific PPAs or other purchase agreements. Legislative Services notes that actual project costs are generally proprietary information. Therefore, project costs may vary greatly depending on project size, siting characteristics, and financing methods.

Discount Rate – The discount rate reflects the cost of capital, comparable to the interest rate, for installing a major wind project. The discount rate EIA uses for its levelized cost of energy estimates is 7.4%, which is what PSC uses as well. However, in some analyses where projects are financed by equity investments, the true cost of capital and, therefore, the discount rate, may exceed 20%. With a hard cap existing in this bill of $190 per OREC, the discount rate is unlikely to affect ratepayers (Legislative Services believes any project will likely apply for the maximum OREC price), but certainly impacts the financial viability of a proposed offshore wind project.

Capacity Factor – A wind generating station does not generate electricity at 100% of its nameplate capacity. The expected generation from a wind turbine is calculated by applying a capacity factor to the nameplate capacity (expected generation = nameplate capacity *x* hours in a year *x* capacity factor). Depending on wind conditions and facility location, the capacity factor of offshore wind facilities is estimated to be between 30% and 40%. Most U.S. estimates are close to 38%, although since no offshore facilities are operating on the Atlantic Coast, this assumption has not been tested. PSC, MEA, and Legislative Services use 39.3% as the baseline capacity factor in these analyses.

Other Market Factors – Installing an offshore wind facility of sufficient size could have a significant impact on capacity markets, locational marginal prices, the value of existing RECs, and market clearing prices.

Cost for Conventional Resources – To calculate the increased cost of energy purchased from an offshore wind generating facility, a baseline of projected energy prices is needed. The assumptions made to project the baseline prices have a significant impact on the calculation of increased costs. If an estimate assumes that the cost of conventional electricity increases over time, the incremental cost of an offshore wind generator is decreased. If an estimate assumes that the cost of conventional electricity decreases over time, the incremental cost of an offshore wind generator is increased. Additionally, when considering options for new generation, costs may be compared between projects, instead of against a baseline.

Appendix B
Detailed Breakdown – Costs Associated with a $190/MWh OREC – AEO Baseline
(In 2012 Dollars)

Total Compliance Cost	2017	2030
Nameplate Capacity (MW)	206	206
Capacity Factor	0.393	0.393
Annual Generation (MWh)	709,192	709,192
Incremental Cost Per OREC ($/MWh)	$136	$122
Total Annual Compliance Cost (Res. + C&I)	**$96,637,000**	**$86,606,000**
Rate Increase – All Categories ($/kWh)	**$0.001442**	**$0.00121**
Residential Impact		
Total Maryland Usage (GWh)	67,012	71,581
Residential Usage (GWh)	28,681	30,637
Residential Share	42.8%	42.8%
Annual Total Residential Cost ($)	$41,360,600	$37,067,400
Annual Residential Impact	$17.31	$14.52
Monthly Residential Impact ($)	**$1.44**	**$1.21**
Maximum Industrial Monthly Impact (75,000 MWh Annual Cap) ($)	**$9,012**	**$7,562**
Maximum Agriculture Impact (3,000 kWh/Month Cap) ($)	**$4.32**	**$3.63**
C&I Residential Impact		
Annual C&I Usage (GWh)	38,331	40,944
C&I Share	57.2%	57.2%
Annual Total C&I Cost ($)	$55,276,300	$49,538,600
EIA C&I Retail Rate ($/MWh)	$96.02	$99.78
Annual C&I Cost of Conventional Energy ($)	$3,680,530,000	$4,085,328,426
Annual C&I Cost Percentage Increase	**1.50%**	**1.21%**

Source: Public Service Commission; Department of Legislative Services

ANALYSIS OF ECONOMIC IMPACT ON SMALL BUSINESSES

TITLE OF BILL: Maryland Offshore Wind Energy Act of 2012

BILL NUMBER: HB 441

PREPARED BY: MEA

PART A. ECONOMIC IMPACT RATING

This agency estimates that the proposed bill:

__ __ WILL HAVE MINIMAL OR NO ECONOMIC IMPACT ON MARYLAND SMALL BUSINESS

OR

__X__ WILL HAVE MEANINGFUL ECONOMIC IMPACT ON MARYLAND SMALL BUSINESSES

PART B. ECONOMIC IMPACT ANALYSIS

These bills requires electricity suppliers to include electricity from offshore wind generation within the renewable portfolio standard in the year 2017 and beyond. To the extent that electricity suppliers increase electricity prices as a result, small businesses in Maryland will be impacted. Under this bill, the Public Service Commission will reject any proposals which it projects will increase non-residential rates by more than 2.5%. As non-residential ratepayers, small businesses will be protected by this threshold test.

The bill may also have beneficial effects on small businesses in Maryland. It requires that the Public Service Commission, before approving a proposal for certification of Offshore Wind Renewable Energy Credits (ORECs), find that the proposal demonstrates positive net benefits based on enumerated criteria, including (1) the project's effect on "income, employment, wages and taxes in the state" as well as (2) "jobs to be created by the offshore wind project." Also, offshore wind project proposals will compete for eligibility to generate ORECs based on certain criteria, including the extent to which the applicant's "plan for engaging small businesses meets the goals specified in Title 14, Subtitle 3 of the State Finance and Procurement Article."