BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF DELAWARE

IN THE MATTER OF THE APPLICATION OF DELMARVA POWER & LIGHT COPMANY FOR APPROVAL OF LAND-BASED WIND CONTRACTS AS A SUPPLY SOURCE FOR STANDARD OFFER SERVICE CUSTOMERS (FILED JULY 28, 2008)	))))))	PSC DOCKET NO. 08-205

FINDINGS, OPINION, AND ORDER NO. 7462

BEFORE: ARNETTA McRAE, Chair
JAYMES B. LESTER, Commissioner
JOANN T. CONAWAY, Commissioner
J. DALLAS WINSLOW, Commissioner
JEFFREY J. CLARK, Commissioner

APPEARANCES:

For the Staff of the Delaware Public Service Commission:

JAMES McC. GEDDES, ESQUIRE
BROOKE E. LEACH, ESQUIRE
Ashby & Geddes
Rate Counsel

BRUCE H. BURCAT, EXECUTIVE DIRECTOR
KAREN J. NICKERSON, SECRETARY

For the Division of the Public Advocate:

G. ARTHUR PADMORE, ESQUIRE
MICHAEL SHEEHY

For Delmarva Power & Light Company:

TODD L. GOODMAN, ESQUIRE, Associate General Counsel
GARY STOCKBRIDGE, President
MARK FINFROCK, Director of Risk Management
WILLIAM MOORE, JR.
GARY B. COHEN
MARIA SCHELLER

Intervenors:

JEREMY FIRESTONE

I. THE PROCEDURAL BACKGROUND.

1. In March 2006, the Delaware General Assembly introduced House Bill No. 6[1] ("the EURCSA") in response to extensive consumer outrage occasioned by the announcement of imminent and significant rate increases resulting from the higher cost of fuel used to generate electricity and the shift to PJM market-based prices. The cumulative effect of these increases was felt by Delmarva Power & Light Company's ("Delmarva" or "the Company") customers at one time due to the expiration of rate freezes established with deregulation of Delaware's electric supply industry. The purpose of the EURCSA was to spread out the impact of the rate increases and enable state agencies to explore alternative options of Standard Offer Service ("SOS")[2] procurement at reasonable and stable prices. The legislation specifically required Delmarva to develop an Integrated Resource Plan ("IRP") and "investigate all possible opportunities for a more diverse supply at the lowest reasonable cost." See 26 *Del. C.* § 1007(c)(1)b. Although Delmarva currently procures its entire SOS supply from the regional wholesale market, the IRP provides that Delmarva may use a mix of resources to meet its supply obligations where at least 30% of the resource mix is from the market. On or before August 1, 2006, as part of its IRP, Delmarva was required to file a proposal to obtain long-term contracts, including a proposed Request For Proposal ("RFP") for

[1]House Bill No. 6 is codified in the "Electric Utility Retail Customer Supply Act of 2006" ("the EURCSA"), 26 *Del. C.* §§ 1001-1019.

[2]SOS refers to Delmarva customers who do not receive their energy supply from a third-party electric provider. See *26 Del. C.* § 1001(18).

the construction of new generation resources within Delaware to serve its SOS customers.

2. On August 8, 2006, the Delaware Public Service Commission ("the Commission") opened PSC Docket No. 06-241 to perform its oversight and review tasks as set forth in the EURCSA. (PSC Order No.7003.)[3] Following a long and arduous bid evaluation process, the State Agencies[4] directed Delmarva – over its objection – to negotiate a long-term PPA ("Purchased Power Agreement") for the purchase of 200-300 MW of energy, RECs, and capacity credits from the off-shore wind facility proposed by Bluewater Wind LLC ("Bluewater"). (PSC Order No. 7328 (Dec. 4, 2007).) On December 18, 2007, the State Agencies unanimously voted to table a proposed PPA - providing that Delmarva would purchase the first 300 MW each hour, around the clock, of energy and RECs produced from 450 MW of installed capacity from a wind facility to be constructed by Bluewater off the coast of Rehoboth beach – because there was not a consensus to approve that PPA in its then-present form. (See December 18, 2007 Tr. at 2308-2310.)

3. In early 2008, the Delaware Senate Energy and Transit Committee announced a series of hearings to investigate the merits of the tabled PPA. On January 22, 2008, Delmarva issued a press release announcing its intent to solicit bids from regional wind power

[3]For a detailed discussion of the procedural history of this docket, see pages 2-9 of PSC Order No. 7328 (Dec. 4, 2007).

[4] The EURCSA conferred authority on the Commission, the Delaware Energy Office, the Director of the Office of Management and Budget, and the Controller General to approve one or more generation bid proposals that result in the greatest long-term system benefits in the most cost effective manner. See 26 *Del. C.* § 1007(d)(3).

developers to "obtain competitively priced renewable energy for its Delaware customers."[5] On March 25, 2008, Delmarva announced that Delaware Electric Cooperative ("DEC") and Old Dominion Electric Cooperative ("ODEC") had joined Delmarva's wind power procurement effort and stated that it had received over 35 price bids that were substantially lower than the pricing of the tabled Bluewater PPA.

4. On May 30, 2008, Delmarva executed a 20-year PPA with Synergics Roth Rock Wind Energy, LLC ("Synergics-RR") for the purchase of energy and RECs from a 40 MW facility planned for Garret County, Maryland. (Finfrock Direct Testimony at 13.) On the same date, Delmarva also entered into a second 20-year PPA with Synergics Eastern Wind Energy, LLC ("Synergics-EE") for the purchase of the energy and RECs from a planned 60 MW wind project in the same county, where the Seller has the option of reducing the project size to 30 MW. *Id.* Pricing for both contracts is $81/MWh (2009 dollars), with an annual escalation rate at the lower of 50% of the increase in the consumer price index or 2.5%. *Id.*

5. On June 6, 2008, Delmarva executed a 15-year PPA with AES Aremenia Mountain Wind, LLC ("AES") to purchase up to 50 MW of the energy output from a planned 100.5 MW on-shore wind facility located in Tioga and Bradford Counties, Pennsylvania. *Id.* The AES PPA provided the right to expand the project to 139.5 MW with the mutual agreement of the parties, where Delmarva would purchase 50 percent of the energy and RECs, a 20 MW increase in its purchase entitlement from

[5] "Delmarva Power Seeks Onshore Wind Energy Bids," *available at* http://www.delmarva.com/welcome/news/releases/archives/2008/article.aspx?cid=918.

50 MW to 70 MW. *Id.* The bundled rate for energy and RECs for the expansion option under the AES PPA is $94/MWh without any escalation factor. *Id.* at 14. Delmarva and AES agreed to the expansion option. Delmarva stated that it preferred the larger purchase because the RECs from the additional 20 MW help to satisfy the Delaware Renewable Portfolio Standard ("RPS") requirement. *Id.*

6. During May and June of 2008, Delmarva and Bluewater engaged in renewed negotiations. On June 23, 2008, Bluewater and Delmarva executed a negotiated PPA ("the Bluewater PPA") pursuant to which Delmarva would purchase energy, capacity, and a specified quantity of RECs and other "environmental attributes" produced by 200 MW of installed capacity from a facility to be constructed off the coast of Rehoboth Beach – a reduction in contract size from the December 18, 2007 Form PPA of approximately fifty percent. By Order No. 7440 (Sept. 3, 2008), the State Agencies unanimously approved the Bluewater PPA.

7. On July 28, 2008, Delmarva filed an application with the Commission, pursuant to 26 *Del. C*. § 1007(b)(1), for approval of three power purchase agreements for the procurement of on-shore wind power from regional developers to serve the Company's SOS customers. The PPAs provide for Delmarva's purchase of the energy and Renewable Energy Credits produced by up to 170 MW of nameplate capacity from three different land-based wind ("LBW") facilities located in Pennsylvania and Maryland. Delmarva provided that the underlying purpose of the Application was to establish a portfolio of wind energy

generation in accordance with the EURCSA and RPS at the lowest cost available for its SOS customers. (Application at 3.)

8. By Order No. 7426 (Aug. 19, 2008), the Commission opened this Docket to determine whether Delmarva's § 1007(b) request for approval of three LBW PPAs is in the public interest. In connection with the expedited procedural schedule approved by the Commission, Staff retained New Energy Opportunities, Inc. and its subcontractors ("the IC") to assist in the evaluation of Delmarva's Application.

9. On September 18, 2008, the IC issued the "Report on Delmarva Power's Request for Approval of Land-based Wind Power Purchase Agreements" ("the IC Report") in which it recommended that the Commission approve the Application subject to its recommended conditions, as described *infra*. On October 2, 2008, the parties filed comments in response to the IC Report regarding the merits of the proposed land-based wind PPAs.

10. On October 7, 2008, the Commission convened to hear oral argument and deliberate in open session on the IC Report and the parties' positions on the merits of the LBW PPAs. This is the Findings, Opinion and Order of the Commission in this matter.

II. Delmarva's Application.

The RFP Process

11. According to Delmarva, it prepared the LBW RFP and a form PPA that "reflected industry standards and market provisions and contained an appropriate balance of responsibility and risk between Delmarva and bidders." (Finfrock Direct Testimony at 11.) Delmarva intended for the bidders to accept the form PPA with minimal

modification and negotiation to decrease the risk of an incomplete transaction with a high-valued proposal. *Id.*

12. The LBW RFP solicited proposals for a 5-25 year long-term PPA for up to 300 MW of nameplate capacity at wind facilities that would commence service between June 1, 2009 and June 1, 2014. (*See* Finfrock Direct Testimony at 8, MWF-1.) The LBW RFP required bids to comply with the EURCSA and the RPS that has a gradual phase-in requiring Delmarva to utilize renewable resources for a minimum of 3% of its 2008 energy demand, scaling up to 20% in 2019. (Scheller Direct Testimony at 7; MWF-1.) However, the LBW RFP provided bidders the option of providing RECs from sources other than the designated facility that could be administered through the PJM Generator Availability Tracing System ("GATS") and satisfied Delmarva's RPS obligations. (*See* Finfrock Direct Testimony at 8, MWF-1.)

13. The LBW RFP required bidders to provide any comments regarding the form PPA with submission of their final bids, and conferred on Delmarva the authority to adjust the overall bid evaluations to account for the impact of any reasonable requested changes to the form PPA. *Id.* at 10. According to Delmarva, the form PPA was tailored to satisfy the EURCSA's mandate of the lowest cost available to maximize price stability. *Id.* Delmarva further testified that the form PPA was developed, in part, based on Delmarva's standard form Full Requirements Service Agreement. *Id.* at 11.

14. The form PPA allocated the risk associated with a negative locational marginal price ("LMP") to the Seller – *i.e.* it required the

Seller to deduct the amount of negative LMP from its energy price. (MWF-2 at §§ 4.3, 8.1.) The form PPA further allocated the responsibility for scheduling energy with PJM to the Seller. (MWF-2 at § 5.2). Section 2.2(b) of the form PPA provided the Seller with termination rights if Congress does not extend application of the federal production tax credit ("PTC") to projects that will be in service after December 31, 2008. (MWF-2 at § 2.2) Under Section 2.2(b), the Seller may terminate the PPA with 60 days notice after the expiration or unfavorable amendment of the existing PTC law. *Id.* Delmarva may enforce the contract, despite the Seller's exercise of this termination right, by providing a written statement within 20 days that it will compensate the Seller on an after-tax basis for the lost PTC revenue resulting from the change in existing PTC law. *Id.* In the event of termination resulting from a default by the other party, the form PPA provides damages based on the difference between contract value and market value of the PPA employing a 20% capacity factor. (RWG-2 at § 12.5.)

15. In February 2008, Delmarva publicized the LBW RFP through a press release and contacted several wind developers directly and through notice in two industry publications - North American Wind Power and Renewable Energy Weekly. (Scheller Direct Testimony at 6.) In response to the LBW RFP, Delmarva received bids from 10 developers with over 31 price proposals from 15 different proposed facilities for approximately 1,700 MW of capacity – six times the amount requested in

the RFP.[6] (Finfrock Direct Testimony at 11; Scheller Direct Testimony at 8.)

16. Following publication of the RFP, DEC indicated its interest in joining the RFP along with its overall cooperative, ODEC. According to Delmarva, the addition of ODEC could broaden the opportunity for bidders and likely improve the quality of bids. *Id.* at 12. While Delmarva has executed three LBW PPAs, ODEC has executed one and continues to analyze other potential wind power opportunities. *Id.*

Evaluation of the Land-Based Wind Bid Proposals

17. At the March 3, 2008 pre-bid meeting, Delmarva presented a number of key features of the LBW RFP including the legislative and regulatory background; the planned evaluation factors and process; and the planned procedural schedule. (Scheller Direct Testimony at 12.) Delmarva retained ICF International, Inc. ("ICF") to evaluate the bids received based on the following scoring criteria: (a) price offer; (b) non-price factors including an assessment of the ability of a project to come online; and (c) reasonableness of amendments to the form PPA terms requested by individual bidders. *Id.* The relative weight of the price and non-price factors was 80/20 in favor of price. *Id.* at 16.

[6]According to Delmarva, it anticipated the significant interest in the LBW RFP based on the increase in the wind development industry's market share from 2% in 2004 to 50% in 2008; PJM's report of applications for over 37,000 MW of wind capacity in its queue; and procurement of approximately 280 MW of installed capacity from land-based wind facilities for the period 2008-2011 in the RPM auction. (Scheller Direct Testimony at 8-9.)

18. ICF evaluated the price responses of the bids utilizing the project's mark-to-market value that includes imputed debt, balancing costs, and transmission value.[7] *Id.* at 13. On a price basis, ICF ranked the bids of AES and Synergics as fourth and fifth, respectively. ICF further evaluated the bids based on the following non-price factors: (a) project development plan; (b) financeability; (c) location in Delaware; (d) experience and staffing; and (e) site control. *Id.* at 23. However, the non-price scoring did not affect the overall ranking of the AES and Synergics bid proposals. *Id.* at 22. Following the evaluation, AES ranked second and Synergics ranked fourth. Delmarva reasoned that selection of the second and fourth ranked bidders was appropriate because those bidders were able to agree on PPA terms including expected impact on the form PPA mark-up, the size of the bids relative to the total amount of energy Delmarva wished to purchase, and allocation of bid options to ODEC. *Id.* at 22.

19. ICF calculated the projected impact of the LBW PPAs on the monthly bill of Delmarva's SOS customers assuming average usage of 1000 KWh per month. (Scheller Direct Testimony at 31.) Relative to ICF's Expected Market Case, ICF determined that the LBW PPAs were expected to cost customers $0.24/MWh[8] in the best case scenario and $0.62/MWh in the worst case scenario – *i.e.* $2.88-$7.44 per year. *Id.*

[7]For a detailed discussion of the methodology utilized by ICF in the price evaluation, see pp. 13-20 of the Prefiled Direct Testimony of Maria F. Scheller.

[8]Price values are expressed in real levelized 2007 dollars, unless otherwise noted.

Under the High Gas/Carbon Case, the expected range in customer cost declined to a savings of $0.37/MWh in the best case scenario and a cost of $0.01/MWh in the worst case scenario. *Id.* at 32. ICF observed that its cost impact figures did not reflect the implications of stranded costs associated with the contracts, price stability benefits of fuel diversity, and reliability improvements. *Id.* at 32-34.

Relationship of the Land-Based Wind PPAs to Delmarva's Managed Portfolio

20. Delmarva retained the Brattle Group to assess the impact of the addition of wind resources to Delmarva's managed portfolio as proposed in its May 15, 2008 IRP supplement. Delmarva's managed portfolio would procure energy for its SOS customers from the following sources: (a) 100 MW base load energy contract with a fixed price for 12 months; (b) installment purchases of peak monthly energy forward contracts beginning one-year in advance of delivery; (c) spot purchases for about 10% of peak demand and 60% of off-peak energy demand; (d) RECs as needed to satisfy the RPS; and (e) PJM capacity contracts and ancillary services contracts. (Graves Direct Testimony at 4.)

21. The Brattle Group concluded that both the LBW and BW PPAs would have only a modest impact on the average cost of Delmarva's managed portfolio.[9] *Id.* at 3. Assuming that 70% and 34% of the cost

[9]For a detailed explanation of the modeling employed by the Brattle Group, please see pp. 10-14 of the Pre-filed Direct Testimony of Frank C. Graves.

of the LBW and BW PPAs, respectively, would be incurred by Residential and Small Commercial ("RSCI") SOS customers, the Brattle Group determined the wind PPAs collectively raise the managed portfolio cost by nearly 7%. *Id.* The Brattle Group determined that the net increase in customer rates with the addition of the LBW and BW PPAs is 2% and 4%, respectively. *Id.* at 13-14.

22. The Brattle Group further concluded that both LBW and BW PPAs cause some reduction in the width of the annual managed portfolio cost distribution primarily because wind projects produce most of their energy in off-peak periods when the range of hourly LMPs is fairly narrow. (Graves Direct Testimony at 15.) Although wind resources reduce fuel or spot power risk, the Brattle Group concluded that these resources do not provide a material economic advantage. *Id.* at 16. The Brattle Group observed that less costly methods of reducing that risk are available by changing the composition of the managed portfolio itself such as procuring energy further in advance of delivery and executing hedge contracts. *Id.*

IV. The IC REPORT AND THE STATE AGENCIES' DISCUSSION AND FINDINGS.

A. The IC Report.

23. In its Report, the IC evaluated the merits of all three LBW PPAs to determine whether any or all of the contracts are in the public interest. Following its economic assessment of the LBW PPAs, the IC determined that all three contracts are projected to be below market providing Delmarva SOS customers a savings of $0.64/MWh,

$0.14/MWh, and $0.22/MWh for the AES, Synergics-RR, and Synergics-EE PPAs, respectively.[10] (IC Report at 24.)

24. The IC observed that the commercial terms of the LBW PPAs are substantially similar to the form PPA, and thus, were generally reasonable. (IC Report at 33.) However, the IC expressed concern with contractual provisions regarding the origination of RECs[11] and special termination rights pertaining to the PTC. First, the IC observed that standard industry practice in unit-contingent PPAs is to require RECs associated with renewable energy production to be sold to the buyer so that a seller does not have the option of providing RECS with a lower value than those produced under the PPA. *Id.* Accordingly, the IC recommended that the Commission amend Section 4.5 of the PPAs to require the Sellers to sell RECs to Delmarva that are associated with the PPA and not from any other source, unless the Seller can demonstrate that those RECs would have the same value and regulatory compliance features under the RPS as RECs produced by the PPAs' facilities. *Id.* at 34, 46.

25. The IC found the LBW PPAs' provision of termination rights with the expiration or unfavorable modification of the PTC problematic for two primary reasons. First, the provision places an undue burden on the Sellers to assume the risk that the PTC is not extended in it current form or exercise its right to terminate the PPA by March 2,

[10]For a detailed explanation of the economic modeling employed by the IC and further analysis, see pp. 25-32 of the IC Report.

[11]The IC also requested that Delmarva and Synergics confirm that Delmarva is required to purchase solely energy produced by the facilities and delivered to the delivery point to resolve the conflict in Sections 4.1, 4.2, and 5.1 of Synergics' PPAs. (IC Report at 35.)

2009 – just a few months after potential regulatory approval of the PPA. (IC Report at 36.) Second, the 20-day time period provided for Delmarva to choose to overcome the Sellers' termination right by compensating them for lost PTC benefits is an insufficient amount of time to obtain regulatory approval for exercising this right that would have a significant financial impact on its ratepayers. *Id.* Based on Maryland and Pennsylvania state tax rates, the IC estimated that Delmarva would have to pay the Sellers approximately $36/MWh in 2010, with an estimated 2.5% escalation for ten years if Congress does not renew the PTC. *Id.* To address its concerns, the IC recommended that the Commission decline to approve Delmarva's right to negate a Seller's termination right due to non-extension or unfavorable modification of the PTC, unless the parties amend Section 2.2(b) to provide adequate time for regulatory review. *Id.* at 37, 46.

26. The IC further sought clarification of two additional provisions. Under Section 2.2(c) of the AES PPA, AES has the option to terminate the PPA if it has not executed a PPA for the remainder of the project nameplate rating by June 30, 2008. To assure that AES is committed to the PPA, the IC recommended that the Commission require AES to provide a written statement that the condition set forth in Section 2.2(c) is satisfied or AES waives its rights under this provision. (IC Report at 37.) Section 3.2 of all three LBW PPAs, provides Delmarva termination rights in the event that its auditors determine that it must consolidate a Seller on its financial statements as a result of the PPA. *Id.* The IC asserted that in its informal conversations with Delmarva, Delmarva stated that its

internal review indicated that consolidation would not be an issue. *Id.* Accordingly, the IC recommended that the Commission require Delmarva to waive its Section 3.2 termination right to terminate to avoid any obstacle to performance under the LBW PPAs. *Id.* at 38.

27. Finally, the IC addressed the issue of allocation of the LBW PPAs' energy products to various classes of SOS customers. In PSC Docket No. 06-241, Delmarva argued that long-term PPAs should be solicited, if at all, for RSCI SOS customers who are relatively stable and not inclined to migrate to competitive service. (IC Report at 38.) Delmarva's IRP filings also reflect this approach. However, in the Application, Delmarva takes the opposite position that energy and RECs produced under the LBW PPAs should be procured for the entire SOS customer base, including larger customers who procure SOS under annual requirements contracts and hourly purchases. *Id.* The need for banking of over-procured non-solar RECs and potential migration of larger SOS customers presents an asymmetrical risk – but minimal cost impact - to RSCI SOS customers who are less prone to migration. *Id.* at 39-45. In light of the foregoing, the IC recommended that the Commission scrutinize the migration rate, if it allocates the cost and benefits of the LBW PPAs to all SOS customers, and utilize its authority under the EURCSA to implement a non-bypassable surcharge if significant SOS customer migration occurs. On the other hand, if the Commission allocates the cost and benefits of the LBW PPAs exclusively to RSCI SOS customers, it should approve, solely, the AES and Synergics-RR PPAs to reduce the potential for over-procurement for RSCI SOS customers.

B. Comments Regarding the IC Report and the Merits of the Proposed PPAs.

1. Delmarva

28. On October 2, 2008, Delmarva reported in its comments responding to the IC Report that it had executed amendments to the LBW PPAs with both Synergics and AES to address the concerns raised by Staff regarding the origination of RECs, special termination rights pertaining to the PTC, and Section 2.2(c) of the AES PPA. (Delmarva Comments at 3.) However, Delmarva argued that the Commission should not adopt the IC's recommendation that Delmarva waive the LBW PPAs' contractual provisions regarding Financial Accounting Standards Board Interpretation No. 46 ("FIN 46"). *Id.* at 6. FIN 46 requires a utility to consolidate an entity on its balance sheet if the utility is bearing the entire risk of a transaction, but the transaction is not identified on its financial statements. *Id.* Delmarva urged the Commission to protect Delmarva's ratepayers – as it did in the Bluewater PPA - from the detrimental effects of a potential FIN 46 consolidation that include credit downgrading, financial reporting and disclosure, and Sarbanes-Oxley compliance. *Id.* at 7.

29. With regard to the IC's recommended amendment to the Synergics PPAs to trace the energy from its facility to the delivery point, Delmarva argued that it could not confirm that energy is directly sourced to a specific facility due to the technical structure of the PJM transmission grid. *Id.* at 7-8. However, Delmarva asserted the IC's concern is addressed with Delmarva's confirmation that it will only pay for the precise amount of energy produced by the

Synergics facilities and delivered into the PJM power grid at the delivery point. *Id.*

2. The Division of the Public Advocate

30. In its comments, the Division of the Public Advocate ("the DPA") recommended that the Commission approve the LBW PPAs as in the public interest, if the Commission adopts its proposed solutions to address the origination of RECs and PTC issues. (DPA Comments at 4.) The DPA echoed the IC's concerns regarding both the Seller's ability to choose the source from which to deliver RECs and Delmarva's ability to overrule a Seller's termination rights in the event that the PTC is not renewed with a compensatory payment of lost PTC revenue. *Id.* at 2-3. With regard to the origination of RECs, the DPA argued that it would support the approval of the LBW PPAs with an amendment to the contractual provisions dealing with the origination or RECs that would require the Seller to deliver all RECs that are associated with the energy produced by the facility to Delmarva. *Id.* at 3. Similarly, the DPA argued that the Commission's approval of Delmarva's ability to either agree to compensate Sellers for lost PTC revenues or to terminate the PPAs is not in the public interest. Accordingly, the DPA argued that this provision in Section 2.2(b) of the PPAs should be eliminated. *Id.*

31. With the foregoing modifications, the DPA believed that the LBW PPAs are in the public interest for two primary reasons. First, as detailed in the IC Report, the DPA determined that the LBW PPAs are economically attractive resulting in price stability and a cost savings for Delmarva's SOS ratepayers. (DPA Comments at 5.)

Moreover, the DPA observed that the PPAs advance the portfolio approach to energy planning with a reasonable balance of risk and reward. *Id.* While the Bluewater PPA represents a single investment in wind energy, the DPA asserted that the addition of the LBW PPAs provides diversification of the risk of future energy prices, environmental standards, and other cost risk. For instance, the DPA observed that the LBW PPAs would provide hedges against adverse developments associated with price, geography, operational characteristics, technology, length of the term of the investment, intermittency of any single wind resource, and contract provisions. *Id.* at 6. Accordingly, the DPA concluded that a diverse portfolio of generation assets is the most reasonable approach for risk management of energy procurement in Delaware. *Id.* at 7.

3. Jeremy Firestone.

32. Dr. Firestone criticized both Staff's and Delmarva's evaluation of the merits of the LBW PPAs because neither compared the cost-benefit analysis of implementation of the LBW PPAs with an increase of Delmarva's purchase obligation under the Bluewater PPA by 170 MW. (Firestone Comments at 2, 4-8). Dr. Firestone argued that DPL should procure more offshore wind power in lieu of executing the land- based wind PPAs. *Id.* He asserted that Delmarva's decision not to execute a larger PPA with Bluewater was contradicted by Frank Graves' testimony that there was no material difference in cost impact of the LBW and Bluewater PPAs. *Id.* Dr. Firestone found amplification of the Bluewater PPA more attractive than approval of Delmarva's Application because of the lower capacity rates in Delaware and the

additional price stability offered under the Bluewater PPA's longer contract term. *Id.*

C. Discussion of the Commission's Decision.

33. The Commission determines that Delmarva's application for approval of three PPAs for the procurement of land-based wind power provide the lowest reasonable cost to SOS customers as required under the EURCSA and in the public interest. The Commission observes that Delmarva's consultant reported that the pricing provisions of the LBW PPAs result in a minimal price impact on a customer's monthly electric bill, and the IC concluded that all three PPAs provide cost savings to Delmarva's SOS customers. The Commission further determines that the LBW PPAs adhere to the EURCSA's goals set forth in 26 *Del. C.* § 1007(c) by utilizing new and innovative technology along with existing transmission infrastructure; providing environmental and health benefits; promoting fuel diversity; and providing price stability.

34. The Commission agrees with the majority of the IC's concerns regarding commercial terms in the LBW PPAs. However, the Commission does not adopt four of the IC's recommendations. First, the Commission finds that the live testimony of Wayne Rogers resolves the conflict among Sections 4.1, 4.2, and 5.1 of the Synergics PPAs and the IC's concern regarding the source of the energy delivered to Delmarva. Accordingly, the Commission will not require Synergics to provide written confirmation that the energy delivered to Delmarva pursuant to the Synergics PPAs is sourced specifically from its land-based wind facilities. Second, the Commission determines that

Delmarva shall retain its termination right under Section 3.2 of the LBW PPAs in the event of a FIN 46 consolidation until November 14, 2008. The Commission directs Delmarva to report to the Commission, by November 17, 2008, the results of its assessment regarding the potential consolidation of the land-based wind developers on its financial statements. Third, the Commission does not accept the IC's recommendation regarding Delmarva's ability to overcome a LBW providers' special termination rights in the event that the PTC is not renewed or is amended unfavorably. Following the issuance of the IC Report, the parties agreed that the IC's concerns regarding Section 2.2(b) of the PPAs is alleviated by the extension of the PTC until December 31, 2009 as well as amendments to the Synergics-EE PPA and EAS PPA. Finally, the Commission determines that the IC's concerns regarding the source of RECs provided pursuant to the LBW PPAs are sufficiently addressed by the amendments executed between Delmarva and the LBW developers. With implementation of the amendments executed between Delmarva and the land-based wind providers and adoption of the IC's recommendations, the Commission finds that Delmarva's Application is in the public interest. Accordingly, the Commission unanimously approves the AES, Synergics-RR, and Synergics-EE PPAs for the collective procurement of 170 MW of land-based wind power.

35. With regard to allocation of the costs and benefits of the LBW PPAs, the Commission determines that allocation to Delmarva's entire SOS customer base was appropriate. To alleviate the IC's concerns, the Commission directs Staff to report to the Commission quarterly regarding customer migration away from Delmarva's SOS class.

The Commission finally reserves its right to implement a non-bypassable surcharge, pursuant to 26 *Del. C.* § 1010, in the event that any of the LBW PPAs carry above-market costs and the SOS class experiences significant migration.

Now, therefore, this 23rd day of October, 2008, **IT IS ORDERED**:

1. That, the IC Report (attached to the original hereto as Exhibit "A") is hereby adopted and approved except as specifically addressed to the contrary above.

2. That the Commission reserves the jurisdiction and authority to enter such further Orders in this matter as may be deemed necessary or proper.

BY ORDER OF THE COMMISSION:

/s/ Arnetta McRae
Chair

/s/ Joann T. Conaway
Commissioner

/s/ Jaymes B. Lester
Commissioner

/s/ Dallas Winslow
Commissioner

/s/ Jeffrey J. Clark
Commissioner

ATTEST:

/s/ Karen J. Nickerson
Secretary

BEFORE THE PUBLIC SERVICE COMMISSION OF THE STATE OF DELAWARE

IN THE MATTER OF THE APPLICATION OF DELMARVA POWER & LIGHT COMPANY FOR APPROVAL OF LAND-BASED WIND CONTRACTS AS A SUPPLY SOURCE FOR STANDARD OFFER SERVICE CUSTOMERS
(FILED JULY 28, 2008)

PSC DOCKET NO. 08-205

REPORT ON DELMARVA POWER'S REQUEST FOR APPROVAL OF LAND-BASED WIND POWER PURCHASE AGREEMENTS

PREPARED FOR:

Delaware Public Service Commission Staff

PREPARED BY:

New Energy Opportunities, Inc.

La Capra Associates, Inc.

September 18, 2008

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I. INTRODUCTION

A. Background

On July 28, 2008, Delmarva Power & Light Company ("Delmarva," "Company" or "DP&L") filed an application with the Delaware Public Service Commission ("Commission"), pursuant to 26 Del. C. §1007(b), for approval of three power purchase agreements ("PPAs") with developers of planned land-based wind projects to serve the Company's standard offer service ("SOS") customers. Under these PPAs, Delmarva would purchase the electric energy and Renewable Energy Credits ("RECs") produced by up to 170 MW of nameplate capacity from three different wind projects located in Pennsylvania and Maryland.

In its application, Delmarva states that it conducted a request for proposals ("RFP") in February 2008 to solicit proposals from regional wind energy projects to serve its SOS customers pursuant to the Electric Utility Retail Customer Supply Act of 2006 ("EURCSA") and in accordance with the Commission's Order No. 7199 in PSC Docket No. 06-241, which, according to Delmarva, provides that the Company should utilize a portfolio approach to meeting its SOS supply obligation. Delmarva states that it conducted this Wind-Only RFP to procure energy and RECs to establish a portfolio of renewable energy generation in accordance with EURCSA and to meet the Company's obligations under the Delaware Renewable Energy Portfolio Standards Act, as amended, 26 Del. C. §§ 351-363 (2008) ("RPS"). The Company states that it sought to do so "at the lowest reasonable cost and under a payment structure that provides price stability for its customers."[1]

Currently, Delmarva provides SOS service to various classes of customers through full requirements agreements with wholesale energy suppliers that include the amounts of RECs necessary for Delmarva to satisfy its RPS obligations. Delmarva procures requirements service through a competitive bidding process that is undertaken in the fourth calendar year quarter for service to be provided beginning in June of the following year. Separately, Delmarva has sought, and obtained, approval in PSC Docket No. 04-391 to modify its contracts with wholesale energy suppliers providing requirements SOS service to the extent that Delmarva's RPS obligations are satisfied by transactions entered into by Delmarva.[2] Delmarva states that the PPAs for which it is seeking approval in this proceeding are expected to contribute to meeting the non-solar component of the RPS obligation for SOS service as early as 2009. Consequently, in order to coordinate approval of the PPAs with the SOS procurement process, Delmarva sought an expedited schedule in this proceeding.[3]

On August 19, 2008, the Commission issued Order No. 7426 initiating this docket. The Commission noted:

[1] Application at 3.
[2] Order No. 7432 (August 19, 2008).
[3] In addition, there is a condition precedent in all three PPAs that the Commission issue an order approving the PPAs within six months of the date that Delmarva files for approval (PPA Sections 2.2(a) and 3.1).

> *Under [EURCSA] § 1007(b), DP&L has the ability, among other things, to enter into contracts for the procurement of power necessary to serve its SOS customers. In order to take such action, however, DP&L must either file an application or have such action approved as part of its § 1007(c) integrated resource plan. If DP&L chooses to apply for approval under § 1007(b), as it has done here, then the Commission must hold an evidentiary hearing on the request and approve the request if it finds that "such action is in the public interest." Section 1007(b).*[4]

The Commission approved an expedited procedural schedule recommended by the Commission Staff, which included the filing of a Staff report with recommendations on or by September 17, 2008. New Energy Opportunities, Inc. ("NEO"), and its subcontractor, La Capra Associates, Inc. ("La Capra Associates"), were retained to prepare this Staff report and to otherwise participate in this proceeding.

B. The Wind-Only RFP, EURCSA and the Wind PPAs

On January 22, 2008, Delmarva Power issued a press release stating that it "today began seeking bids from onshore wind power providers across the region in a process to obtain competitively priced renewable energy for its Delaware customers."[5] The press release further stated:

> *Delmarva Power supported state legislation in 2007 requiring that 20 percent of the energy supplied to its customers by 2019 be from renewable sources. Thus far only a long-term offshore wind proposal has been explored to meet this goal.* ***That proposal for a 25-year contract, according to a review by state agencies, would require customers to pay a "45% premium for offshore wind generation over onshore wind generation." [emphasis in original]*** *. . . .*
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> *"We look to buy both renewable energy credits (RECs) and energy for terms from 5 to 25 years," said Gary Stockbridge, President of Delmarva Power. "We will have results in hand by March that can be compared to the existing offshore proposal. We expect to see significantly lower costs, the same environmental benefits, far less risk, even more stability than with offshore wind power, and be able to have this power available years ahead of any offshore projects," Stockbridge said. This request for competitive onshore wind bids is part of Delmarva Power's Integrated Resource Planning Process, which began in 2006.*

On the following day, Delmarva sent out notices to approximately 30 developers of wind and other energy projects announcing its intent to issue a RFP to purchase energy and RECs from up to 300 MW of wind projects in the PJM region. On February 14, 2008, the Company issued the Wind-Only RFP and distributed it to over 20 companies.[6]

The "offshore wind proposal" referenced in the Delmarva press release was a proposed PPA for the purchase of energy, capacity credits, and RECs from Bluewater Wind

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[4] Order No. 7426 at 1.

[5] Delmarva press release "Delmarva Power Seeks Onshore Wind Energy Bids," http://www.delmarva.com/welcome/news/releases/archives/2008/article.aspx?cid=918.

[6] Delmarva press release "Request for Bids Sent to Over 20 Wind Energy Developers," ttp://www.delmarva.com/welcome/news/releases/archives/2008/article.aspx?cid=921.

Delaware, LLC ("Bluewater"), which was the result of a lengthy RFP process for in-state generation conducted pursuant to Section 1007(d) of EURCSA (the "In-State Generation RFP"). Over the objections of DP&L, the four State Agencies authorized by EURCSA[7] had directed Delmarva to negotiate a long-term contract for the purchase of energy, RECs and capacity credits from 200-300 MW of the offshore wind energy project proposed by Bluewater and for an arbitrator to resolve outstanding PPA issues.[8] A proposed PPA (with which Delmarva objected to with respect to price, contract size and other matters) under which Delmarva would purchase energy and RECs of up to 300 MWh per hour was presented to the State Agencies for approval on December 18, 2007, but the matter was tabled due to a lack of consensus among the State Agencies. Subsequently, it was announced that the Delaware Senate Energy and Transit Committee would conduct hearings on the matter.

The Wind-Only RFP called for price bids to be submitted on March 10, 2008 with final bids due on March 21, 2008.[9] On March 25, 2008, after the price bids were received, Delmarva issued a press release announcing that it had joined with Delaware Electric Cooperative and Old Dominion Electric Cooperative ("ODEC"), its full requirements supplier, in the power procurement effort and stated that over 35 price bids were received and the prices bid were substantially below those of the Bluewater proposed PPA.[10] Within the next three months, Delmarva entered into three PPAs pursuant to the Wind-Only RFP.

On May 30, 2008, Delmarva entered into a 20-year PPA for energy and RECs with Synergics Roth Rock Wind Energy, LLC for energy and RECs from a planned 40 MW wind energy project planned for Garrett County, Maryland. On the same date, Delmarva also entered into a second 20-year PPA with Synergics Eastern Wind Energy, LLC for all of the energy and RECs from a planned 60 MW project in the same county, with the Seller having the option of reducing the project size to 30 MW. Pricing for both contracts is $81/MWh (for both energy and RECs) in 2009, with annual escalations at a rate of the lower of (a) 50% of the increase in the consumer price index or (b) 2.5 percent. The sellers under these two PPAs are subsidiaries of the same company.

On June 6, 2008, Delmarva entered into a 15-year PPA with AES Aremenia Mountain Wind, LLC to purchase a 50 percent entitlement in energy and RECs from a planned 100.5 MW wind energy project located in Tioga and Bradford Counties, Pennsylvania, with a potential expansion of up to 139.5 MW if the parties mutually agree — a net 50 to 70 MW purchase. The bundled rate for energy and RECs under the PPA is (a) $92/MWh or (b) $94/MWh (for all energy and RECs) if the expansion option is exercised. The three projects are expected to achieve commercial operation over the next 2 – 3 years.

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[7] The Commission, the Energy Office of the Department of Natural Resources and Environmental Control, Office of Management and Budget and Controller General. Previously, NEO, the independent consultant retained by the four State Agencies, in a report addressing the relationship between the RFP process and the IRP process suggested that Delmarva be directed to conduct a renewables-only RFP as a market test to hedge energy and RPS compliance cost risks for Delmarva's SOS RSCI customers. Interim Report on Delmarva Power IRP in Relation to RFP, PSC Docket No. 06-241 (April 4, 2007) at 34-37, 39-40.

[8] Order No. 7199, PSC Docket No. 06-241 (May 22, 2007) and Order No. 7328, PSC Docket No. 06-241 (Dec. 4, 2007).

[9] Wind-Only RFP at 2.

[10]" http://www.delmarva.com/welcome/news/releases/archives/2008/article.aspx?cid=931.

After having opposed Bluewater's PPA proposals, Delmarva entered into a 25-year PPA with Bluewater on June 23, 2008, which the four State Agencies approved in an order dated September 2, 2008.[11] The PPA representated a negotiated settlement, facilitated by Senate Majority Leader Anthony DeLuca, which contained several features that were agreed upon contingent on the passage of legislation that was subsequently enacted. These key features were:

- Delmarva would purchase the energy and capacity and a portion of the RECs from 200 MW of nameplate capacity from a 200 – 600 MW offshore wind project that Bluewater would build, rather than up to 300 MW from a 450 MW project;
- Due to a 350% REC multiplier under the RPS, Delmarva would get RPS credit for RECs produced by 200 MW in connection with only 28.6% of this amount of energy;
- The net costs (or benefits) under the Bluewater PPA would be allocated to all of Delmarva's Delaware distribution customers under a non-bypassable charge.

With regard to the allocation of costs and benefits, Delmarva in the In-State Generation RFP proceeding had taken the position from early on that the Company should only procure power (and RECs) under long-term contracts for the residential and small commercial and industrial ("RSCI") SOS customers and not the larger customers that are more likely to migrate away from standard offer service (and perhaps switch back). In its IRP Update filing on March 5, 2008, Delmarva characterized its Wind-Only RFP as "targeting onshore and offshore wind energy developers to procure contracts of various size and term for renewable energy supply to meet the RPS needs of RSCI customers."[12] Delmarva explained that "Residential and Small Commercial customers demonstrate less propensity to shop; therefore, longer-term resources may be more appropriate for this customer class than for the larger commercial class customers. The [managed] portfolio must balance for these differences."[13]

In applying for approval of the land-based wind PPAs, Delmarva's position is that the costs and benefits of the energy and RECs from these PPAs should be assigned to the entire class of SOS customers, not just the subset of RSCI customers with "less propensity to shop."[14]

C. Matters Addressed in This Report

This report addresses whether the three PPAs executed by Delmarva as part of a competitive procurement instituted by Delmarva should be approved as being in the public interest. In addressing this ultimate issue, we first address whether the issuance of a Wind-Only RFP was reasonable and whether the RFP design was appropriate. This is important in determining whether the RFP resulted in the long-term purchase of energy and RECs

[11] Order No. 7440, PSC Docket No. 06-241, http://depsc.delaware.gov/orders/7440.pdf.
[12] IRP Update at 11.
[13] *Id*. at 14.
[14] Response to Question No. PSC (MWF)-05.

that are reasonably at market rates and under market terms and conditions. As part of this assessment, we address the following:

- The reasonableness of Delmarva's decision to seek long-term contracts for energy and RECs
- The impact of Delmarva's decision to go forward with the RFP outside of the regulatory process associated with the Integrated Resource Plan ("IRP")
- Delmarva's decision to limit bids to energy and RECs from wind farms in PJM (or those delivering energy and RECs into PJM)
- Whether the terms and conditions of the RFP and the Form PPA were reasonable
- Whether the amount of energy and RECs sought in the RFP and the inclusion of ODEC in the process was reasonable
- Whether the bid evaluation criteria and weighting were reasonable
- Whether the RFP was adequately publicized and the competitive response adequate

After we address these issues which pertain to the design of the RFP and the competitive response to it, we then address the reasonableness of Delmarva's evaluation of the bids, its selection of companies to negotiate with, and its negotiations resulting in PPAs with selected bidders.

We then address the merits of the three PPAs in terms of price, commercial terms and conditions, and likelihood that the projects under the PPAs will be built as promised.

Next, we address whether the three PPAs should be used to serve RSCI SOS customers only or the larger class of SOS customers and the pros and cons of either treatment, in conjunction with the Bluewater PPA being allocated to all distribution customers. We also address contract management and associated regulatory issues.

Finally, we make recommendations with regard to future power procurements associated with a managed portfolio for SOS customers.

D. Qualifications of Staff Consultants

New Energy Opportunities, Inc. is a consulting firm with expertise in the procurement and sale of energy, capacity and other products from electric generation facilities, with a focus on renewable energy. NEO and its principal, Barry Sheingold, have organized procurements, drafted Requests for Proposals and evaluated bids for both private and public clients and have assisted sellers in developing proposals in response to RFPs. Of particular importance to this assignment, NEO has served or is serving as an independent party retained to review competitive procurements for long-term power purchase agreements or other power transactions in Delaware (Independent Consultant, 2006 In-State Generation RFP), California, Hawaii, Oklahoma, Arizona, Oregon and Utah.

La Capra Associates, Inc. has participated with NEO on a number of assignments, including the Delmarva Power 2006 In-State Generation RFP. La Capra Associates is an employee-owned consulting firm which has specialized in the electric and natural gas industries for more than 25 years. The firm's expertise includes power market policy and analysis, power procurement, power resources planning, economic/financial analysis of energy assets and contracts, and regulatory policy. A substantial portion of La Capra Associates' practice has been in the renewable energy sector over the past decade.

Additional information on the qualifications of NEO and La Capra Associates is set forth in Appendix A.

II. APPROPRIATENESS OF RFP APPROACH AND DESIGN

A. Introduction

Delmarva Power seeks approval of three contracts pursuant to the Wind-Only RFP, stating that they satisfy the "public interest" standard and objectives of EURCSA, which according to Delmarva's witness Mark Finfrock, "is to provide energy supply through a diverse portfolio at the lowest reasonable cost."[15] In order to determine whether power purchase agreements arising out of a competitive procurement process can reasonably provide a diverse supply at the lowest reasonable cost, one must ascertain whether the Company's decision to issue the RFP and its structure and terms itself are reasonable. This assessment includes a number of factors which are addressed below.

B. Determination to Procure Energy and RECs Under Long-Term Contracts, Limitation to Wind Projects, Sizing and Process

Delmarva announced by press release in January 2008 that it was seeking proposals for energy and RECs from regional wind projects that "can be compared to the existing offshore proposal." The next day it sent notices to prospective bidders that stated that the Company could procure up to 300 MW of energy and RECs pursuant to an RFP that it intended to issue soon. Coincidentally or not, if the proposed Bluewater PPA would have been approved, Delmarva would have had to purchase up to 300 MWh per hour of energy and associated RECs. The Wind-Only RFP was not issued as part of any approved regulatory process as the In-State Generation RFP had been. Rather, Delmarva initiated the process of its own accord without the review or participation of the Commission, its staff or any independent consultant. According to the Company's March 2008 IRP Update, the Company issued the Wind-Only RFP to hedge the energy and RPS compliance risks associated with RSCI SOS customers, a relatively stable class of customers that are not inclined to migrate to competitive service.

In late May and early June 2008, Delmarva signed three PPAs with two developers as a result of the Wind-Only RFP. Under the three contracts, Delmarva would purchase between 120 and 170 MW of energy and RECs; the Company had discretion under the AES PPA with respect to an increase of the contract size by 20 MW, but did not have any discretion with regard to Synergics' decision to size its Eastern Wind Energy project between 30 MW and 60 MW. Later in June, Delmarva signed the PPA with Bluewater for energy and RECs from 200 MW of the Bluewater project's nameplate capacity. Since that time, Delmarva has taken the position that the land-based wind PPAs were procured to serve the entire SOS customer load, not just the RSCI customers.

A key issue in reviewing the reasonableness the proposed land-based wind PPAs is whether the RFP was appropriately designed.

[15] Direct Testimony of Mark Finfrock at 4. Mr. Finfrock holds the position of Director and Chief Risk Officer of PEPCO Holdings, Inc., Delmarva's ultimate parent company.

First, a decision to seek long-term contracts for energy and RECs to hedge long-term energy and REC price risk for RSCI SOS customers is, in our view, a reasonable and proper approach. It is consistent with recommendations we have previously made and with the Commission's and State Agencies' adoption of the Commission Staff's recommendations regarding establishment of a diversified managed portfolio on behalf of RSCI SOS customers.[16] However, we would not have recommended that Delmarva initiate an RFP outside of the IRP process and without Commission oversight (and we would not recommend that the Company do so in the future for this type of competitive procurement).[17] Yet, under the particular circumstances and times, it is difficult to see how a Commission-sponsored RFP process would have been reasonably possible to effectuate. Hence, the RFP process and the resulting PPAs must be evaluated on an after-the fact basis as to whether the proposed PPAs are "in the public interest."

Similarly, while it is conceptually better in issuing a RFP for renewable energy to allow all qualifying renewable resources under a RPS (or at least utility scale resources) to participate, it is far simpler to issue a competitive procurement for a single technology. A simpler procurement is much easier in terms of design, the conduct of evaluation, and contract negotiation and can be effectuated in a more expeditious fashion. Importantly, Delmarva concluded through its IRP analysis that wind energy would be the most cost-effective way to meet its non-solar RPS obligations,[18] a conclusion we concur with based on existing technologies, regional resources and market conditions.

While we have concerns that the potential quantity of energy and RECs that Delmarva was seeking was too large relative to the load intended to be served, this is primarily an issue of concern in evaluating the merits of the PPAs that Delmarva has executed. It does not appear to have affected, at least in a negative way, the response to the RFP by wind developers.

C. Commercial Reasonableness of RFP Design: Form PPA and Evaluation Criteria and Weighting

Delmarva prepared a RFP, solicited and evaluated bids, short listed bidders, and negotiated three PPAs in less than six months, a very short period for a long-term procurement of renewable energy under unit-contingent PPAs. According to Mr. Finfrock, Delmarva prepared a form PPA that "reflected industry standards and market provisions and contained an appropriate balance of responsibility and risk between Delmarva and bidders" in order to minimize the need for modification to the form PPA by bidders and to expedite the conclusion of contract negotiations.[19] With several exceptions (addressed in

[16] See Interim Report on Delmarva Power IRP in Relation to RFP (April 4, 2007) at 34, http://depsc.delaware.gov/documents/Interim%20Report%20040407%20-%20Final.pdf, and Order No. 7199 at 27. We do not view Order No. 7199 as addressing whether a managed portfolio should be provided for the entire class of SOS customers or the subset of RSCI customers.

[17] Although the Company did inform the Commission Staff of its intent to procure on-shore wind contracts, no meaningful effort was made by the Company to have Staff participate in the process.

[18] Direct Testimony of Mark Finfrock at 9.

[19] Direct Testimony of Mark Finfrock at 11.

Section II.E below), we agree that the form PPA in general reflected a reasonable balance of risks and responsibilities and formed a reasonable basis for the solicitation of bids.

Delmarva's evaluation criteria included consideration of the proposed price of energy at the delivery point and RECs relative to their market value and various non-price factors, such as site control, bidder experience, and siting and permitting requirements and issues. For this type of RFP, the bid evaluation criteria are generally consistent with industry standards. The weighting of price relative to total score — 80 percent — is high compared to most other RFPs but is at the high end of a reasonable range (50 to 80%). A concern with low weighting provided to non-price factors (20 percent in the Wind-Only RFP) is that it could foster bid selection of projects that have significant drawbacks in terms of their viability — the likelihood that projects will be successfully developed, financed, constructed and operated. Also, little weight in the non-price evaluation appeared to be given to bidder commercial or contractual access to wind turbines, which is important in the wind energy development market where there is more demand for wind turbines than supply.

Delmarva indicated in the RFP that it would conduct a second stage evaluation where it would consider the reasonableness of bidders' markups to the form PPA and would potentially adjust its evaluation based on this review. This was a reasonable approach.

D. Adequacy of Publicizing of RFP and Robustness of Market Response

Delmarva publicized the Wind-Only RFP through a press release, contacting over two dozen power plant developers, including many known wind developers directly and by placing notices in two industry publications, North American Wind Power (online) and Renewable Energy Weekly. Delmarva received offers from 10 developers with over 30 price proposals from 15 different proposed projects. This response is a reasonable one and should be fairly reflective of the market for long-term energy and REC purchase contracts from wind energy projects in the PJM region.

E. Unusual or Problematic Aspects of the Wind-Only RFP

1. Delmarva Public Characterization of RFP and Process

Delmarva initiated the Wind-Only RFP process through a press release in which it stated that it sought onshore wind bids to compare to Bluewater's proposal that Delmarva was seeking to defeat. At a minimum, Delmarva created the appearance that the RFP was a mechanism it was employing to oppose the Bluewater project.[20] Moreover, Delmarva did not seek approval of the RFP through the IRP process or any other regulatory process.

[20] An unusual feature of this RFP is that Delmarva sought price bids before the receipt of final bids. The standard industry practice is that price bids are received with the final bids, not before. Delmarva's request for early submittal of price bids may have been to obtain pricing information as soon as possible so that it could publicize the information (in general terms) during the pendency of the Delaware Senate's Energy and Transit Committee hearings.

Hence, Delmarva injected questions into the process as to how sincere the Company was in completing the RFP process and concluding contracts and whether the resulting PPAs would obtain regulatory approval from the Delaware Commission. This may have affected the market response to the RFP, although the actual bidder response does appear to have been a reasonable one.

2. "Sharing" of Bids with Another Buyer

Another unusual aspect of the Wind-Only RFP was Delmarva's decision to have ODEC join with Delmarva as part of the RFP process after Delmarva had already initiated the process and received price bids. Joint RFPs of this sort are uncommon. In light of the timing of this cooperative effort, it appears unlikely that this enhanced the market response and because of the need to "share" the best bids with ODEC, the resulting PPAs may have been less than optimal.

3. Allowing Affiliates to Bid Without Independent Review

A major objective of competitive procurements is that the design and implementation should not be biased against any bidder or have undue preference for any bidder, especially toward the company's own proposals or those of any of its affiliates. The Wind-Only RFP was designed to allow a Delmarva affiliate to submit a proposal under the same terms and conditions as any bidder (but not the company itself). While the RFP incorporated appropriate measures against self-dealing,[21] there was no independent evaluator or consultant retained to assure that affiliate bids would not be treated with favoritism. This aspect of the RFP process could have been better.[22] However, no Delmarva affiliate submitted a bid. The only adverse impact could have been that potential bidders might have been discouraged from bidding if they felt that an affiliate might bid and there was no independent check on the bid evaluation and selection. This adverse impact was unlikely, however, because at the time of the bidding, a Delmarva affiliate was not actively developing wind projects, to our knowledge.

4. Form PPA Provisions

a) Negative LMP

While, as indicated above, the form PPA contained terms and conditions that are within the range of what is "market" in the industry, there were several provisions that are unusual. First, Delmarva took the position that Sellers should take the risk associated with a negative locational marginal price ("LMP"). Specifically, in the event LMP at the Delivery Point is negative, Seller is allowed to curtail output, but in the event Seller delivers energy to the Delivery Point, the amount that LMP is negative (e.g., $25/MWh) is to be deducted from the energy price.[23] In our experience, it has traditionally been unusual for Sellers to be responsible for this risk in power purchase agreements of this sort. However, experience in the wind energy-intensive portions of West Texas last year where market energy prices collapsed have caused this to be an issue of concern for buyers and sellers even in regions where the potential for negative

[21] See RFP Section 12, at 10.
[22] For example, to avoid any potential bidder concerns, Delmarva could have simply not allowed any affiliate bids. Other utilities seeking to implement expedited competitive procurements have taken this approach.
[23] See Form PPA Sections 4.3 and 8.1.

LMP is much less significant.[24] While protecting Delmarva customers against the risk of negative LMP on its face is positive for ratepayers, the concern is that putting the risk on developers who are more sensitive in terms of bearing these risks where revenues are contractually limited would have the effect of reducing the pool of willing bidders or increasing bid prices significantly.

b) *Origination of RECs*

Another unusual feature of the RFP and Form PPA is that it did not require Sellers, as is typically the case for unit-contingent contracts, to provide RECs that originate from energy produced by the wind energy facility under contract. Instead, Sellers are allowed to provide RECs from anywhere that qualify as RECs under the Delaware RPS Act and may be counted toward Delmarva's compliance with the RPS Act.[25] As explained later, this provision could allow Sellers to provide RECs that under the current Delaware RPS or under an amended Delaware RPS would have less value than RECs provided from the particular wind energy facility, to the detriment of Delmarva's customers. This provision was incorporated into all three PPAs for which Delmarva seeks approval.

c) *Extension of Federal Production Tax Credit*

Under an existing law that has been extended many times since it was initially enacted as part of the Energy Policy Act of 1992, owners of wind energy projects receive a federal production tax credit ("PTC") of $20/MWh increasing annually with an inflation index for 10 years from the time the wind turbines initially produce electricity. However, under existing law, the wind turbines must be in service on or by December 31, 2008 for project owners to receive this tax credit, which is a major component of project economics. While there has been extremely strong support in Congress for extension of this tax credit, there has also been strong disagreement regarding how to address, if at all, the budgetary implications flowing from extension of the PTC. As a practical matter, extension of the PTC is critical to the developers' ability and willingness to go forward with their proposed projects under the pricing set forth in the PPAs. While extension of the PTC for one, two or more years is possible before the end of this year, it may be more likely to occur next year, by which time there will be a "gap period" when the PTC will not be in effect for projects that go into service during this period (for example, if the PTC is not renewed until April 30, 2009, the "gap period" will be January 1, 2009 through April 30, 2009). This has occurred several times over the past 10 years, but Congress has amended the PTC to apply retroactively to projects going into service during the "gap period." As a practical matter, few developers went ahead and built projects during the gap periods due to uncertainty regarding the availability of PTCs.

[24] Delmarva also raised this as an issue late in 2007 in the PPA negotiations with Bluewater. The risk allocation features pertaining to negative LMP incorporated in the December 2007 version of the proposed Bluewater PPA were decided by the Arbitrator assigned by the four State Agencies, (Section 3.4(d)), http://depsc.delaware.gov/electric/irp/Arbitrator%20Report%20121207.pdf, which were then incorporated in the Final PPA between Delmarva and Bluewater.

[25] Form PPA Section 4.5.

Power purchase agreements for wind energy projects typically have provisions that address the rights and responsibilities of the parties relative to (a) extension or non-extension of the PTC and (b) the extent to which the PTC is extended to provide the same benefits to owners of wind projects under existing law.[26] The Form PPA has such a provision. Under Section 2.2(b), if as of the earlier of the Initial Delivery Date (commercial operation) or the Guaranteed Initial Delivery Date ("GIDD"), the PTC is not extended to apply to electric energy produced by wind projects placed in service before the GIDD or the benefits under the PTC have been reduced, Seller may terminate the PPA by providing notice not later than 60 days after the expiration or amendment of the existing PTC law. If Seller exercises this termination right, Delmarva may keep the contract in effect by providing Seller a written statement *within 20 days* that it is willing to compensate Seller on an after-tax basis for the lost tax credit revenue resulting from the expiration or amendment of the existing PTC law.

We have substantial concerns regarding this provision. While not totally clear, it appears that this provision would allow the Seller under the PPA to issue its notice of termination within 60 days following the expiration of the PTC (which, if the PTC is not extended, would be approximately March 1, 2009). Delmarva would only have 20 days to respond to a notice of termination and its only option is to agree to compensate Seller for lost PTC revenues if it wishes to keep the contract in effect. There is insufficient time for Delmarva to seek approval from the Commission for exercising this contractual right, which will have a large financial impact. This raises the question as to whether the Commission's approval regarding the PPA should extend to Delmarva's exercising its right to keep the contract in effect by agreeing to pay for lost PTC revenues without any further Commission action. We address this matter in more detail later in this report.

d) Scheduling

The Form PPA requires the Seller to be responsible for scheduling energy with PJM (Section 5.1). While industry practice varies, it is much more common for the Buyer to be responsible for having the scheduling responsibilities for wind energy projects. From a ratepayer perspective, requiring the Seller to be responsible for scheduling reduces risks. The issue is the extent to which putting the responsibility on the Seller affects the quality of bids received and pricing. Although somewhat unusual, the scheduling provisions of the Form PPA are within the range of industry practice.

e) Damages on Termination

The provision on damages (Section 12.5) is based on the standard industry approach that a termination resulting from a default by the other party will result in a claim for damages based on the difference between contract value and market value for the products being sold under the PPA (with an exception for a Seller default prior to commercial operation where the seller does not further develop or operate the project).

[26] This is standard industry practice. There are two exceptions: (1) where the Seller takes the risk of non-extension of the PTC or modification of the PTC (i.e., failure to build a project due to non-extension/modification of the PTC is an event of default); or (2) the date for performance under a PPA, with applicable permitted extensions, is within the in-service date deadline under existing PTC law. Neither exception applies here.

The unusual feature of this PPA provision is the assumption required to be used in this contract value vs. market value calculation concerning the capacity factor of the project—20 percent. While some damages clauses attempt to define or set standards pertaining to the capacity factor used in a damages calculation, a 20 percent capacity factor is very low—capacity factors for these types of wind projects are in the range of 27 percent to 37 percent. Although the 20 percent capacity factor assumption is used both for Seller claims for damages as well as Buyer claim for damages and is therefore "neutral" in terms of risk allocation, it is still potentially problematic from a Buyer/ratepayer perspective in that it might provide a Seller with an incentive to terminate the PPA and sell to another buyer or buyers where market prices have increased substantially over contract prices. The reason for this is that the revenue upside may exceed the damages downside to a Seller due to the contractual assumption on capacity factor for purposes of damages. On the other hand, we would not view having this provision in a PPA as a "fatal flaw."[27]

F. Conclusion on RFP Approach and Design

While the Wind-Only RFP was not perfect, the RFP in general had sufficiently reasonable terms, was adequately publicized and in fact drew a sufficient response from the market. Hence, the solicitation and the resulting PPAs should be viewed on their merits.

[27] The Form PPA also contained a provision that would allow Delmarva to terminate the contract if the Seller failed to maintain a Mechanical Availability Percentage of 90 percent during any 12 month period (Sections 6.13 and 12.2(f), which, in our view, is an unreasonably stringent default/termination provision. However, bidders had the ability to negotiate modifications to these provisions and the three executed PPAs have significantly modified provisions.

Another unusual PPA term is a condition precedent that Delmarva receive an auditor opinion that Delmarva will not be required to consolidate the Seller in Delmarva's financial statements as a result of the PPA (Section 3.2). Usually, this accounting review is conducted by a buyer (if at all) prior to executing a PPA and, hence, is not included as a condition precedent under a PPA. However, since this review is to be conducted soon after the PPA is to be executed, it should not affect the ability of the Seller to finance its project, assuming that the condition is satisfied (it would be highly unlikely that the condition would not be satisfied), and, thus, should not have been a major problem for prospective bidders.

III. Bid Evaluation, Bid Selection, and PPA Negotiations

A. Evaluation of Bids—Overview

We conducted a review of the evaluation of the bids by Delmarva and its consultant, ICF International, Inc. ("ICF"). We found that the evaluation, in general, was reasonably conducted within the context of the bid evaluation framework. However, it was difficult to conduct a review since certain aspects of the evaluation and decision-making process were not well documented. In addition, we have a number of other concerns which are addressed below.

B. Initial Evaluation and Selection of Bidders with Whom to Negotiate

1. Initial Bid Evaluation

Delmarva and its consultant, ICF, conducted an initial evaluation of the bids. The bids were initially scored and bidders were asked to clarify their position on a variety of issues and provide information regarding their proposed projects. As indicated in Maria Scheller's testimony (p. 21), AES ranked second and Synergics ranked fourth. Among the top five, another bidder's bid was initially ranked second; however, another alternative bid was considered preferable (after the second stage evaluation) and for this preferable bid was given a lower score and was ranked fifth.

As part of this initial evaluation, a bidder with an attractive price but with an unconventional pricing proposal was not considered in the "first cut" evaluation, without any explicit reason as to why it was effectively disqualified or determined to have a "fatal flaw." However, having reviewed the proposals from this bidder, it would appear that the proposals had several components that were at least substantially problematic. Hence, it does not appear unreasonable for Delmarva to have failed to give it further consideration.

2. Second Stage Bid Evaluation and Selection of Bidders

Delmarva's decision to negotiate with AES and Synergics to the point of concluding contract negotiations was the product of four factors: (a) the initial bid evaluation; (b) a joint decision with ODEC, after discussions with ODEC, as to how the bids would be allocated or shared; and (c) size of the bids relative to the amount Delmarva wished to contract for, and (d) further dialog with the top bidders regarding their contract exceptions and supplemental or alternative bids and their potential impacts.[28]

Fundamentally, several of the top-ranked bidders insisted on some major exceptions to the Form PPA that cast question on the firmness of their commitments. In addition, Delmarva sought and obtained from AES an alternative bid (based on the contract term) that was viewed as being more favorable. Synergics proposed what can be viewed as a second

[28] See Direct Testimony of Maria F. Scheller at 22.

phase for its proposed Roth Rock project (Eastern Wind Energy) or simply a supplemental, separate project proposal based on the same pricing as proposed for the Roth Rock project. While the Synergics Roth Rock PPA has a Guaranteed Initial Delivery Date of December, 31, 2009, the GIDD for the Eastern Wind Energy PPA is a year later (the GIDD for the AES PPA is April 30, 2010). While the need to "share" with ODEC was unusual, as indicated previously, the process that Delmarva pursued did not appear to be unreasonable.

3. Non-Price Evaluation; Due Diligence

The non-price scores of AES and Synergics were 9th and 10th among the bid options, with AES scoring marginally better than Synergics.[29] Based on our assessment, we view the AES project as having a substantially higher likelihood of being built than the Synergics projects based on the resources available to the developer, project development status, and experience. For example, AES is a large international power plant developer with substantial experience in the wind sector, while Synergics is a small developer that has not yet constructed or operated a wind farm. We have also seen little information about the status of the Eastern Wind Energy project or whether there was even a separate assessment for that project. While it is difficult to conduct a thorough and insightful viability assessment, especially for a RFP with an expedited schedule, it appears that the degree of due diligence that was conducted (especially after the bids were scored) was light. On the other hand, the PPA provisions regarding the Seller taking development risk with substantial security being posted behind developer commitments does provide a significant degree of assurance that the sellers will be successful in developing, financing, and constructing their planned projects.[30]

C. Negotiation of PPAs; Option to Increase Size of AES Project

The negotiations with AES and Synergics were not difficult, in part, because the changes they sought to the Form PPA were relatively modest. However, Delmarva's actions were somewhat curious in several respects. Generally, utilities who are trying to hedge their energy and REC price risk tend to want to limit the leeway given to developers in terms of sizing their projects unless they can obtain some offsetting benefit. Delmarva allowed Synergics to have the option of building a project anywhere between 30 and 60 MW for the Eastern Wind Energy project, which is an unusually large amount of flexibility and larger than would likely be "dependent on the chosen turbine technology for the site," as Mark Finfrock explained at page 13 of his direct testimony.

AES proposed to build the 100.5 MW Armenia Mountain project in Tioga and Bradford Counties, Pennsylvania, with a potential expansion to 140 MW. The AES proposal was split between Delmarva and ODEC. Delmarva's PPA with AES is dated June 6, 2008. ODEC announced on July 9, 2008 that it had signed a PPA with AES for 50 percent of the output from the project, which it described as having a first phase of 100.5 MW and a

[29] Direct Testimony of Maria F. Scheller at 30.

[30] Conversely, the unwillingness of a bidder to take certain risks, such as permitting and financing risks, suggests that the developer itself may view its ability to overcome these hurdles as being quite questionable.

potential second phase of 39.5 MW that would increase the size to 140 MW.[31] From AES' perspective, the two PPAs were tied together. AES, with Delmarva's agreement, included a provision in the Delmarva PPA (Section 2.2(c)) that allows AES to terminate the PPA if Seller has not executed power purchase agreements for the Facility Nameplate Rating of the Facility (100.5 MW, subject to the expansion option up to 140 MW) by June 30, 2008.[32]

The parties also negotiated an expansion option, which allowed the Facility Nameplate Rating to be increased to 140 MW (and Delmarva's entitlement to 70 MW) but only if both parties agreed. Under Section 4.6 of the PPA, the parties must agree on whether to go forward with the expansion on or by August 31, 2008. We were told by Delmarva that they have agreed with AES on the expansion.

The AES PPA provides that the price for energy and RECs for 50 MW is $92/MWh (Schedule 8.1 and 8.2), but the price for energy and RECs for 70 MW if the expansion option is exercised is $94/MWh. The effective price of the additional 20 MW is $99/MWh (assuming that the capacity factor for the additional 20 MW is the same as the initial 50 MW). It is very unusual for a project expansion to have a higher price than the initial phase and often there is a lower price due to economies of scale. It is curious that Delmarva accepted the higher price for the expansion option and apparently did not evaluate the pluses or minuses of going forward with the lower price for the smaller project or seek to have AES justify why it needed a higher price for the expansion MWs. In any event, Delmarva's actions have effectively limited our review of the PPA to the larger contract size with the higher price.

[31] ODEC press release dated July 9, 2008, http://www.odec.com/about/press_release/ODEC%20Wind%20Energy%20Contract%20Release%20Final.pdf.

[32] As we discuss below, Delmarva should obtain written confirmation from AES that the condition has been satisfied or the option to terminate has been waived. The PPA provision arguably should have included a deadline by which AES would have had to exercise its right to terminate or waive its right to terminate.

IV. Merits of PPAs

A. Introduction

In this section, we address whether the three PPAs executed by Delmarva warrant approval by the Commission. Initially, we address whether the economics of the PPAs are attractive. Next, we assess whether the contract terms are commercially reasonable and protective of ratepayer interests. Finally, we analyze contract size — whether the PPAs collectively and in conjunction with the Bluewater PPA are appropriate for the customer class to be served — and issues associated with the management of these contracts.

B. Economic Value

1. Import of Competitive Bidding Process

Delmarva entered into three PPAs for energy and RECs from regional wind energy facilities pursuant to the Wind-Only RFP. We have previously assessed the benefits of a long-term RFP for procuring renewable energy and RECs on a long-term basis and whether it was reasonable to limit bidding to energy and RECs from wind energy projects. Having found that it was reasonable to do so and the design of the RFP was within the range of industry practice, there should be a presumption that the winning bids and resulting PPAs are "at market" for energy and RECs under forward contracts (assuming that the bids were reasonably evaluated).

As shown in this section, the assessment of Delmarva's consultant, ICF, is that the AES PPA is slightly above market and the Synergics PPAs are somewhat more above market. Our assessment is that all of the PPAs, especially, the AES PPA, are projected to be below market. While, as we discuss below, our view is that the ICF analysis substantially underestimates the future market value of RECs, especially in light of the current spot and forward markets for RECs, and our projections are more reflective of market values, perhaps the most critical point is that Delmarva conducted a region-wide competitive procurement for energy and RECs and the PPAs were the result of that competitive process. Hence, there should be a presumption that the bids received were the best representation of the market at that time for the types of products being solicited.

2. Delmarva's Assessment

Delmarva's economic evaluation of the bids was performed by its consultant, ICF.

a) Evaluation Methodology

ICF conducted the economic evaluation based on the projected levelized above/below-market cost of the various bids, averaged across multiple market cases. The cases tested included:

- Base Case
- Low Gas
- High Gas
- Low Gas/Low Carbon
- High Gas/High Carbon
- No MAPP (proposed Mid-Atlantic Power Pathway transmission project)

The above/below-market cost was the difference between (a) the annual bid price for energy and RECs for the MWh projected to be purchased by Delmarva and (b) the sum of (i) the annual output weighted average zonal price plus any basis associated with the interconnection node (i.e., the difference in price between the zonal LMP and the nodal LMP) and (ii) forecasted REC market prices resulting from the application of ICF's Integrated Planning Model ("IPM") for the region. To this above/below-market cost, ICF added an estimate of imputed debt associated with the PPA and a $2.00/MWh estimated cost for balancing operating reserve ("BOR") expected to be borne by Delmarva. ICF used the average of the scenarios tested for evaluation purposes.

b) Evaluation Results

According to ICF's analysis, the AES PPA is only slightly above market and both Synergics PPAs are almost $5.00/MWh above market when taking into account the nodal premiums. If ICF's estimate of imputed debt and BOR are also taken into account, the above-market cost is increased by about $6.50/MWh for each of the bids. The last column in Table 1 was used for ranking and scoring of bids.

Table 1: Real-Levelized Above Market Costs of Negotiated Bids (Average of Scenarios) ($/MWh)[33]

Project	MW	Start Year	Term	Average Above Market Cost for All Scenarios	With Nodal Basis	With Imputed Debt and Nodal Basis	With Imputed Debt, Nodal Basis and BOR
				Real Levelized (2007 $/MWh)			
Synergics-Roth Rock	40	2009	20	($0.33)	$4.69	**$9.21**	$11.21
Synergics-Eastern Energy	60	2010	20	($0.33)	$4.87	**$9.38**	$11.38
AES-Armenia Mountain	70	2010	15	$4.39	$0.95	**$5.55**	$7.55

[33] Response to PSC (MFS) – 17 "Interrogatory Q17d_Score and Rank.xls"

ICF's expected (base) case estimates for the two Synergics contracts and the AES PPA (nodal basis, but without imputed debt and BOR) were (-$3.37)/MWh, (-$3.15)/MWh and $.01/MWh, respectively, which is modestly better than the average of the various scenarios tested.[34] According to ICF, the impact of the three contracts on SOS customers is estimated to be $0.24/MWh assuming no imputed debt and up to $0.62/MWh with imputed debt.[35]

c) *Our Assessment of ICF Analysis*

ICF's analysis, in our view, was reasonable for purposes of comparing the bids submitted pursuant to the Wind-Only RFP, although some of the concerns we have regarding the methodology would affect the comparison between different bids (primarily, the assessment of zonal to nodal "basis" differentials, which is addressed below).

Our most significant concerns primarily relate to the valuation of all of the bids relative to the market. They pertain to: (a) ICF's energy price forecast as it applies to nodal values; (b) the REC price forecast, which is unduly low in comparison to current and recent REC forward market prices; (c) inclusion of balancing operating reserves in the analysis since they are the responsibility of the sellers under the PPAs, not Delmarva; and (d) assessment of imputed debt.

Energy Market Price Assumptions

Since ICF's energy market model, IPM, provides forecasts at a "zonal"[36] level, rather than "nodal,"[37] ICF first forecasted prices for zones PJM-West Central (Penelec) for the AES project and PJM-West (APS) for the Synergics project and then applied a nodal basis to the zonal price. ICF's energy price forecast is based on a number of key variables such as natural gas prices and carbon dioxide allowance prices, which we find to be reasonable.[38] Other aspects of ICF's analysis, such as assuming declining construction costs and coal prices in real terms, may tend to result in overly conservative projected increases in electric energy prices, and implied market heat rates (the relationship between natural gas prices and electric energy prices) that are lower than that of recent years.

Modeling Nodal Value

To assess the price impact at a nodal level, ICF first determined the most likely nodes to which the bids would interconnect. For the AES project, South Troy (Stroy) was

[34] *Id.* (real levelized 2007 dollars).
[35] Direct Testimony of Maria Scheller at 31 (real levelized 2007 dollars). In this estimate, BOR was apparently not included.
[36] Zonal prices typically reflect the average price of a group of nodes within a certain area. In this case, PJM-West and PJM-West Central were the zones that ICF used.
[37] Nodal prices typically refer to the price paid to generators at the point of interconnection to the grid. Nodes that experience congestion will experience lower LMPs than uncongested nodes.
[38] These are the same natural gas and carbon dioxide allowance price projections that we incorporated in our analysis on the Bluewater PPA. Report on Final Power Purchase Agreement Between Delmarva Power and Bluewater Wind Delaware, LLC (July 3, 2008) at 10.

the proxy node used.[39] Synergic's Roth Rock project was assumed to connect at the Mettiki node in APS and Eastern Energy would be at the Carlos Junction point in APS.

To get the nodal basis, ICF used three years of historical average basis for Off-Peak prices, adjusted to 2007$, for the interconnection nodes and the larger zones in which they are located. ICF chose to use "Off-Peak"[40] prices as a proxy for the nodal basis values to reflect a typical wind generation profile for the area, assuming output is concentrated in the off-peak hours. This basis differential was held fixed between the zonal prices forecasted by IPM and the nodal price in real terms.

Table 2: Off-Peak Nodal Basis for AES Project Interconnection

Off-Peak	Node	Zone	Basis to PJM West Central
Year	*S. Troy*	*PJM West Central*	*S. Troy*
2005	$39.21	$35.79	$3.41
2006	$33.17	$31.59	$1.58
2007	$39.88	$34.78	$5.10
		Average	**$3.36**

Table 3: Off-Peak Nodal Basis for Synergics Projects

Off-Peak	Nodes		Zone	Basis to PJM West	
Year	*Mettiki*	*Carlos Junction*	*PJM West*	*Mettiki*	*Carlos Junction*
2005	$32.61	$32.99	$35.99	($3.38)	($3.00)
2006	$27.73	$27.54	$32.35	($4.62)	($4.81)
2007	$29.47	$28.76	$36.34	($6.88)	($7.59)
			Average	**($4.96)**	**($5.13)**

Use of the Off-Peak basis differential to adjust the zonal prices for all MWhs expected to be produced by a project is questionable because more generation actually occurs during the On-Peak hours as defined by ICF[41] (see Table below).

Table 4: Percentage of Total Annual Output during Peak and Off-Peak Hours

	AES	Synergics-Eastern Energy	Synergics-Roth Rock
Off-Peak	37%	37%	37%
On-Peak	63%	63%	63%

[39] AES provided two options for the nodal interconnect. South Troy (Stroy) was suggested after their original suggested point of Groverload, but neither was indicated as final. After reviewing the historical LMPs, ICF determined that Groverload had more instances of negative LMPs and had a lower premium than did Stroy. Given AES's revised consideration and assuming that they would try to optimize revenues, ICF assumed Stroy would be the preferred interconnection for AES.

[40] ICF defined Off-Peak as the eight daily hours between 11 pm and 7 am. There was not a distinction between weekday and weekend.

[41] On-peak hours are the 16 hours between 7 a.m. and 11 p.m. each day.

The better approach is to use the output-weighted average of the nodal basis, which results in a greater positive basis, $7.00/MWh, relative to PJM-West Central for the AES project (compared to $3.36/MWh) and greater negative basis, (-8.70) to (-9.47) per MWh, relative to PJM-West for the two Synergics projects (compared to (-$4.96) to (-$5.13) per MWh). Hence, ICF's approach may have underestimated the value of the AES PPA and overestimated the value of the Synergics PPAs.

Table 5: Output Weighted Average Nodal Basis for AES Projects

Output Weighted Average	Node	Zone	Basis to PJM West Central
Year	*S. Troy*	*PJM West Central*	*S. Troy*
2005	$61.30	$55.69	$5.60
2006	$49.19	$45.36	$3.83
2007	$63.66	$52.10	$11.56
		Average	$7.00

Table 6: Output Weighted Average Nodal Basis For Synergics Projects

Output Weighted Average	Nodes		Zone	Basis to PJM West	
Year	*Mettiki*	*Carlos Junction*	*PJM West*	*Mettiki*	*Carlos Junction*
2005	$48.23	$48.50	$56.81	($8.58)	($8.31)
2006	$38.60	$37.24	$46.43	($7.84)	($9.19)
2007	$44.04	$42.82	$53.73	($9.69)	($10.91)
			Average	($8.70)	($9.47)

Moreover, the historical basis (relative to the zone) over the past three years has increased substantially due to different growth rates for zonal and nodal prices. Certain nodes are more congested in getting energy out than others, which are evidenced by much lower nodal prices, such as the Mettiki and Carlos Junction nodes, relative to PJM West. South Troy, on the other hand, has a significantly higher value than the zone it is in, indicating there is congestion getting the energy into the node. Therefore, to use a simple arithmetic average for the basis differential to reflect the forecasted price of a node could underestimate the future price disparity between nodal and zonal prices.

REC Prices

ICF uses the IPM model to forecast market REC prices based on the economics of renewable energy projects and the assumption that supply and regional RPS demand will be evenly matched. As we have stated in previous reports, our view is that the ICF forecast of REC prices understates REC market values over the long term.[42] ICF,

[42] See Report on Evaluation of Bids Submitted in Response to Delmarva Power & Light Company's RFP, PSC Docket No. 06-241 (February 21, 2007) at 45.

in modeling renewable energy resources in IPM, assumed that the federal Production Tax Credit, upon its expiration at the end of this year (2008), is reduced to 50 percent of its current rate through 2013 and then expires thereafter.[43] This reduction in PTC revenues should increase the revenue requirements of wind projects not attributable to the PTC, but this increase in revenue requirements does not appear to be reflected in the REC price forecast. Instead, ICF's REC price forecast sharply reduced REC prices to $2 in 2011 and to around zero by 2013 and thereafter with the exception of 2020.[44] Forward markets in recent months, though limited to the next few years, are showing REC prices in the$14-$23 range for 2009 and 2010.[45]

Table 7: REC Price Forecast from IPM

	Capital Cost (2007$/kW)	REC Price (2007$/MWh)	REC Price (2008$/MWh)	REC Price (Nominal)
2008	$1,603	$ 0.00	$ 0.00	$ 0.00
2009	$1,809	$ 23.59	$ 24.17	$ 24.78
2010	-	$ 6.80	$ 6.97	$ 7.32
2011	$1,783	$ 1.96	$ 2.01	$ 2.16
2012	-	$ 0.91	$ 0.93	$ 1.03
2013	$1,756	$ 0.42	$ 0.43	$ 0.49
2014	-	$ 0.03	$ 0.03	$ 0.03
2015	$1,951	$ 0.00	$ 0.00	$ 0.00
2020	$1,783	$ 3.64	$ 3.73	$ 5.02
2025	$1,647	$ 0.00	$ 0.00	$ 0.00
2030	$1,594	$ 0.00	$ 0.00	$ 0.00

The underlying issues causing these zero REC prices in the future may be twofold. ICF's assumptions related to the capital cost of wind generation, the renewable resource most often selected by the model, understates the capital cost of actual wind projects. The capital costs for ICF's model shown in the table above are discounted by the PTC benefits from the actual installation cost (including equipment and labor).[46] This is only applicable to capital costs from now until 2013. The capital costs beyond 2013, without any PTC discounts, are still much lower in real terms than projects being constructed today. Reviewing a sample set of projects recently built or under construction shows installed costs of $1,800 to $2,300/kW, but planned projects are facing increased costs of $2,400 to $2,700 per kW.[47] With the recent trend of increasing construction commodity costs and other rising cost factors, these projected lower capital costs will be difficult to achieve. ICF provided a sample set of REC price results using higher capital costs of $2350/kW, which resulted in minor changes in projected REC market prices.

[43] Response to PSC (MFS)-12

[44] Curiously, Delmarva witness Frank Graves used projected REC prices in his analysis which were obtained from ICF. These projections ranged from $18.13 for 2009, $9.51 for 2010 to $16.30 for 2014 and $13.53 for 2016 (compliance years).

[45] These estimates are based on various REC broker quotes for New Jersey Class 1 RECs, which have softened in the last two months. New Jersey Class 1 REC prices are a good proxy for Delaware new REC prices.

[46] Response to PSC (MFS)-13

[47] Based on market information and publicly available project costs for recent projects, such as Biglow Canyon Wind Farm (OR), Otter Tail/Ashtabula Wind Center (ND), Highland Wind Project (PA), and Tatanka Wind Farm (ND).

Table 8: REC Price Forecast from IPM

	REC Price Used in Evaluation (Nominal)	REC Price With $2350/kW[48] (Nominal)
2008	$ 0.00	$ 0.00
2009	$ 24.78	$ 24.78
2010	$ 7.32	$ 3.39
2011	$ 2.16	$ 0.46
2012	$ 1.03	$ 0.01
2013	$ 0.49	$ 0.00
2014	$ 0.03	$ 0.00
2015	$ 0.00	$ 0.00
2020	*$ 5.02*	$ 7.58
2025	*$ 0.00*	*$ 0.00*
2030	*$ 0.00*	*$ 0.00*

It seems unlikely that a substantial increase in wind energy construction costs would have such a minimal effect on REC prices. ICF's input assumptions may result in the model selecting the lowest cost resources first (including those with the highest capacity factors) without consideration of the siting/permitting or transmission barriers that real projects face. Moreover, ICF's model does not take into consideration the real market dynamics of regional REC markets and actual supply and demand conditions (i.e., it is not a "bottom up" analysis) and its results are at odds with the forward REC markets of the last few years, which have been in the $12-$23 range for New Jersey Class I RECs.

For these reasons, our view is that ICF has undervalued RECs in their economic analysis of the three land-based wind PPAs.

Imputed Debt

In November 2006 and May 2007, Standard & Poor's revised its guidance for imputing debt applicable to power purchase agreements with wind farms where the predominant payment is in $/MWh. Under this methodology, a proxy capacity payment based on the cost of new combustion turbine is used which is multiplied by (a) the wind project's installed capacity in megawatts and (b) by the expected capacity factor of the wind project; a risk factor of 25% is applied where the costs are to be recovered under a power cost/fuel cost recovery mechanism authorized by a public service commission.[49] ICF applied a higher 30% risk factor (previously used by S&P) and did not apply the capacity factor adjustment, resulting in higher imputed debt calculations than under current S&P guidance. If imputed debt is to be considered, the highest value to be considered should be that calculated under the current S&P guidance, not values based on a methodology that is no longer utilized.

[48] Response to PSC (MFS)-16 "Interrogatory Q16_Mark-to-Market ResultsWorkingCopy_$2350kWWind-sent.xls"
[49] Standard & Poor's, Methodology for Imputing debt for U.S. Utilities' Power Purchase Agreements (May 7, 2007).

Balancing Operating Reserves

ICF, in its evaluation, includes a $2/MWh adder for Balancing Operating Reserves. The impact on the rankings and scores are *de minimus* since the cost is applied to all bids and, in fact, the balancing operating reserve cost was not added to calculations of ratepayer impact. Since the need to pay for balancing operating reserves, if any, is the responsibility of the seller under the three PPAs, balancing operating reserve payments will not be incurred by Delmarva or its ratepayers.

3. Staff Consultant Assessment

We conducted our own assessment of the three land-based wind PPAs. Based on our market assumptions, all three contracts are projected to be below market over the term of the contracts, although to varying degrees. The AES PPA is projected to be well below market, with the Synergics PPAs being below market but significantly less so than the AES contract. The projected cost impact to either the whole projected Delmarva SOS load or the RSCI load subset results in some savings.[50]

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Table 9 – Input Assumptions and Summary Results

	AES	Synergics (RR)*	Synergics (EE)*	Total of On-Land Contracts	Bluewater PPA	Total of All Wind Contracts
Contracted Annual Energy and RECs (GWh)	171	122	184	477	559	1,036
Percentage of 2010 RSCI Load (3,238 GWh)	5.3%	3.8%	5.7%	14.7%	6.0%	20.7%
Percentage of 2010 SOS Load (4,750 GWh)	3.6%	2.6%	3.9%	10.0%	6.0%	16.0%
Real Levelized Contract Cost (2007$/MWh)	$76.98	$71.26	$71.26		$121.67	
Total Contract Cost (Nominal $million)	$244	$233	$349	$825	$2,761	$3,586
Real Levelized Above/(Below) Market Cost (2007$/MWh)**	($19.38)	($6.60)	($6.60)		$11.63	
Real Levelized RSCI Cost Impact ($/MWh)	($0.96)	($0.22)	($0.33)	($1.52)	$0.70	($0.82)
Real Levelized SOS Cost Impact ($/MWh)***	($0.64)	($0.14)	($0.22)	($1.00)	$0.70	($0.30)

**Assumes the Consumer Price Index escalates at 3.0% annually*
***This is the above or below-market price per MWh generated by the project under the PPA.*
**** We have used Delmarva's projections of SOS load; however, these projections are based, in part, on the current SOS large customer load, which could be substantially lower or higher than is implied in these projections*

[50] The cost impact to load does not include potential interest costs associated with delayed cost recovery for banked RECs, which is discussed in Section IV.D. of this report. However, the interest-related cost impacts are relatively small ($2.06/REC, $.07/MWh impact on SOS load, and $.29/MWh impact on RSCI SOS load) and do not significantly affect the conclusions stated above. The costs associated with the land-based wind PPAs include imputed debt--$1.07/MWh for the AES PPA and $1.28 for the Synergics PPAs (real levelized 2007$ per MWh generated). The costs associated with the Bluewater PPA do not include imputed debt (our assessment is that due to the special legislation mandating cost recovery it is unlikely that the rating agencies would impute debt to the Bluewater PPA).

In conducting our economic evaluation, we modeled market energy prices for the winning bidders using the historical LMP for each specified interconnection node (AES = South Troy node and Synergics = Carlos Junction node[51]).

a) *Market Model*

The basic features of the energy market model and key assumptions are as follows:

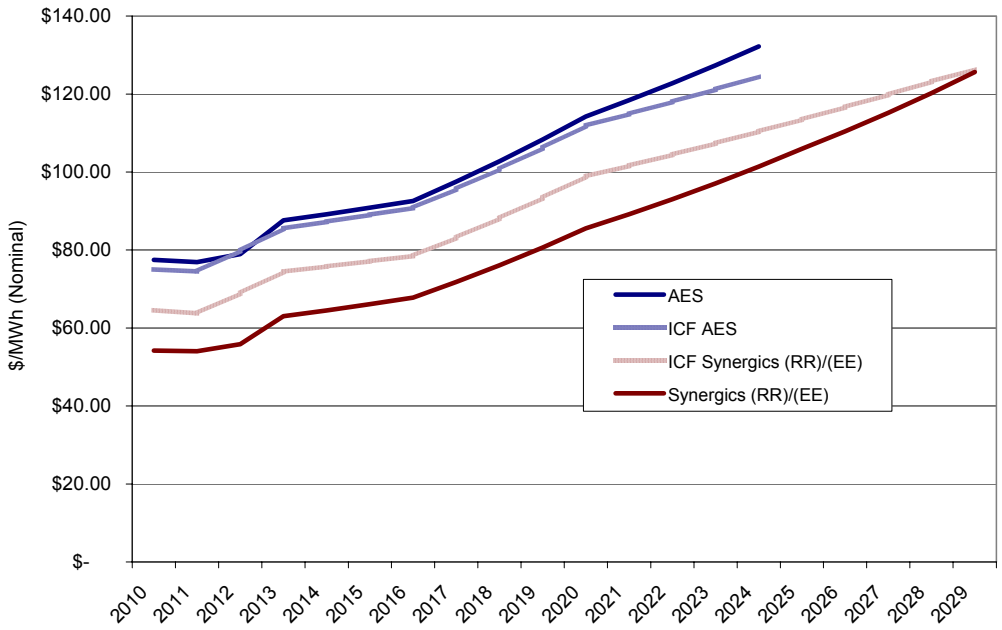
- Implied Market Heat Rate: Based on three years of historical hourly LMP and natural gas prices, we derived a chronological hourly (8760 hours per year) representation of "implied market heat rates" for each of the aforementioned nodes.
- Change in Market Heat Rate: In recent years, PJM's average annual implied market heat rate has risen as load has grown and natural gas units are increasingly on the margin. In the model, it is assumed the implied market heat rate in PJM will continue to increase for several years at 0.5% per year and will stabilize over time at an assumed market heat rate of 8,200 btu/kWh. For the Carlos Junction node, the implied market heat rate was significantly lower than South Troy, so the energy price starts at a significantly lower level.
- Natural Gas Price Forecast: After developing hourly market heat rates for each year of the analysis period, we then applied the various natural gas price forecasts to the hourly implied market heat rates in order to estimate hourly prices. Monthly factors are applied to the annual natural gas price forecasts to reflect high seasonal swings associated with natural gas prices. The natural gas prices include delivery into the PJM region. We used the same natural gas price forecasts as ICF in their analysis for the reference, high, and low gas cases.
- Carbon Price Adder: Assuming major changes in carbon policy are on the horizon, relying on a market heat rate methodology to estimate energy prices is insufficient in capturing the impact of the cost of carbon on the energy market. Thus, a carbon price adder is then applied to the derived hourly LMP, depending on the hourly implied market heat rate. The heat rate provides an indication of the type of unit on the margin and the associated emissions level. By including the cost of carbon in the marginal cost, this mimics the way units would bid into the market.
- Output Weighted Average Price: We then took the hourly energy price forecasts and estimated the total annual value of the energy generated for each project at their respective nodes.
- REC Price: A REC price of $19.75 (2007$) escalating with inflation was added to the value of each project's output.
- Above/(Below) Market Cost: The above/below market cost was calculated on an annual basis by taking the combined value of the weighted average

[51] Carlos Junction was used as the proxy for both Synergics projects because the historical prices at Carlos Junction and Mettiki were very similar.

market value and REC value and subtracting the annual contract cost and calculation of imputed debt using S&P's updated guidance.[52]

Our analysis is based on a methodology and set of economic assumptions similar to that used in our July 2008 analysis of the Bluewater PPA.[53] Our energy price forecasts are similar to ICF's for the AES (Stroy) node but are lower than ICF's forecast for the Synergics interconnection nodes.

Figure 1: Comparison of Forecasted Nodal Energy Value



However, since our REC price forecast is substantially higher than ICF's, under our analysis, the Synergics PPA is projected to be modestly below market, while the AES PPA is projected to be substantially below market. The AES PPA is projected to be consistently below market, while the Synergics PPAs are projected to be above market in the early years and becoming increasing below market throughout the contract term.

b) Scenarios

We conducted sensitivity evaluations of the three land-based wind PPAs based on changed assumptions regarding REC prices, natural gas prices, and carbon dioxide allowance prices.

[52] As a simplifying assumption, we used a commercial operation date of January 2010 for all three land-based wind PPAs.

[53] As in our previous analysis, we compared the cost of the products purchased to their market value taking into consideration location and time of production. As before, it would not be appropriate to compare the costs under the PPAs with SOS requirements service costs since they include products not purchased under the unit-contingent PPAs, such as capacity, ancillary services, and load following, and the energy profile is substantially different.

REC Prices

If one assumes that REC prices are $10 higher or lower than our REC price projection, the AES PPA is "in the money" over the term of the PPA while the Synergics PPAs are slightly above market in the low REC price scenario. We recognize that there is substantial uncertainty regarding REC market prices over long time periods.

Figure 2: REC Price Sensitivity - Real Levelized Impact on SOS Load

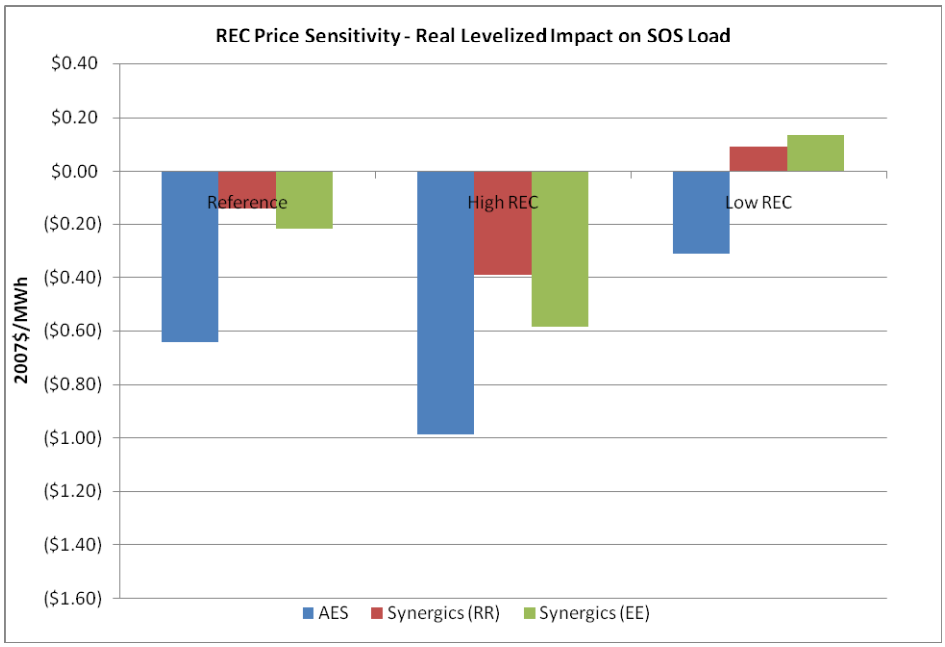


Figure 3: REC Price Sensitivity - Rate Impact of Synergics Roth Rock and Eastern Energy on SOS Load (2007$)

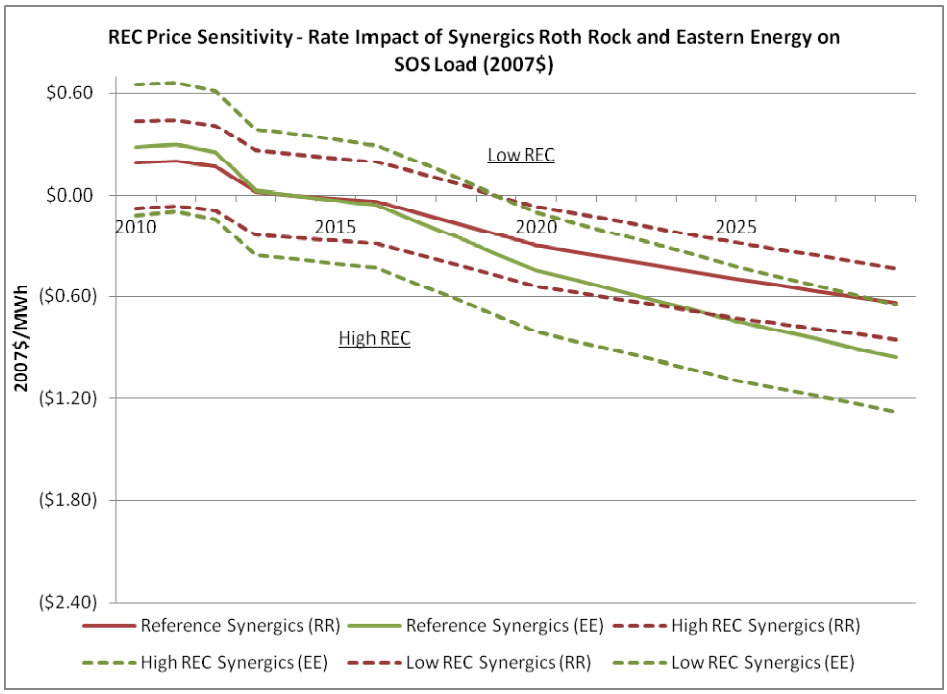
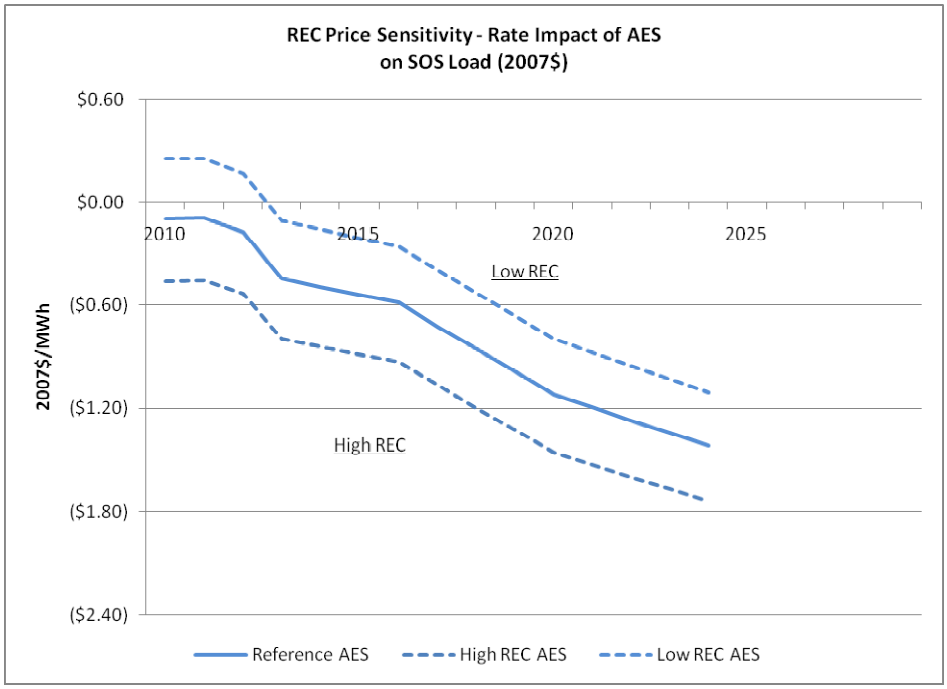


Figure 4: REC Price Sensitivity - Rate Impact of AES on SOS Load (2007$)



Natural Gas Prices

The AES PPA is below market in all of the natural gas price cases while the Synergics PPA is above market in the low gas scenario.

Figure 5: Natural Gas Price Sensitivity - Real Levelized Impact on SOS Load

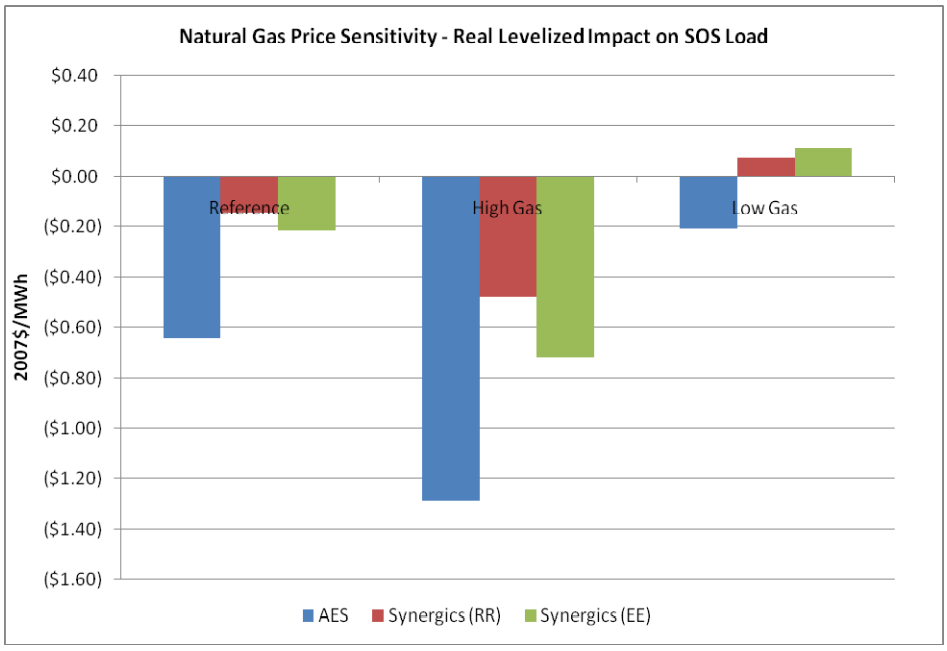


Figure 6: Natural Gas Price Sensitivity - Rate Impact of Synergics Roth Rock and Eastern Energy on SOS Load (2007$)

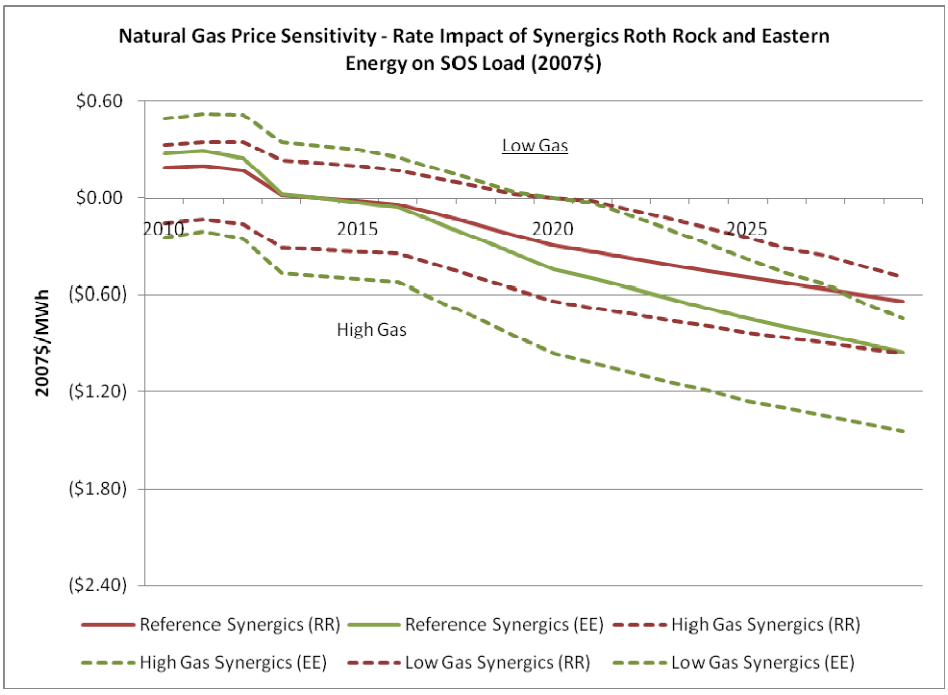
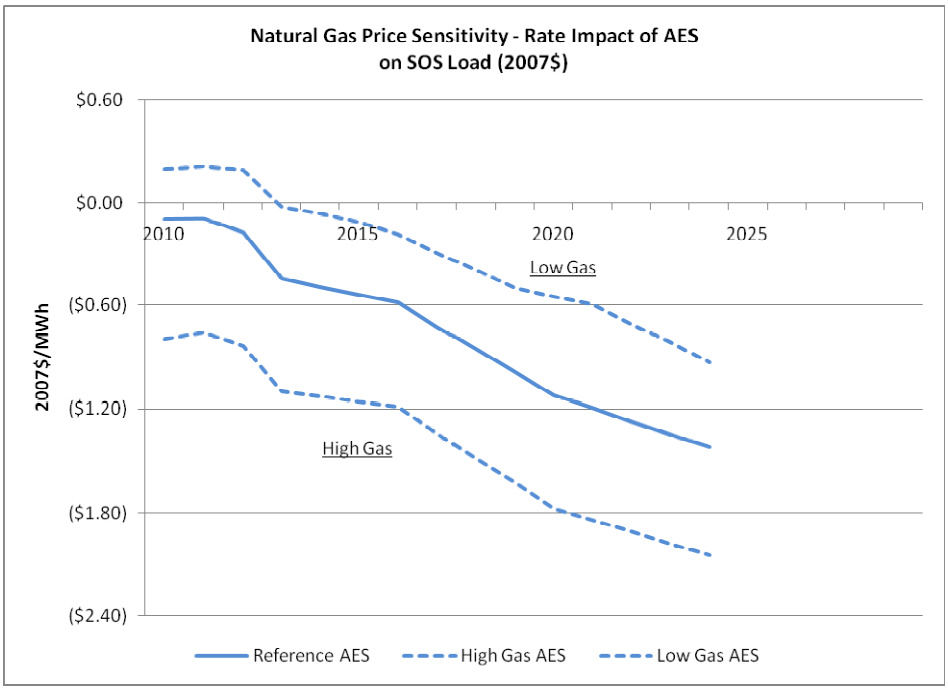


Figure 7: Natural Gas Price Sensitivity - Rate Impact of AES on SOS Load (2007$)



Carbon Regulation

If the Federal Government does not enact greenhouse gas control legislation or if it does, it is no more stringent than those under the Regional Greenhouse Gas Initiative ("RGGI"), the Synergics PPAs are projected to be marginally above market while the AES PPA is projected to be below market.

Figure 8: Carbon Price Sensitivity - Real Levelized Impact on SOS Load

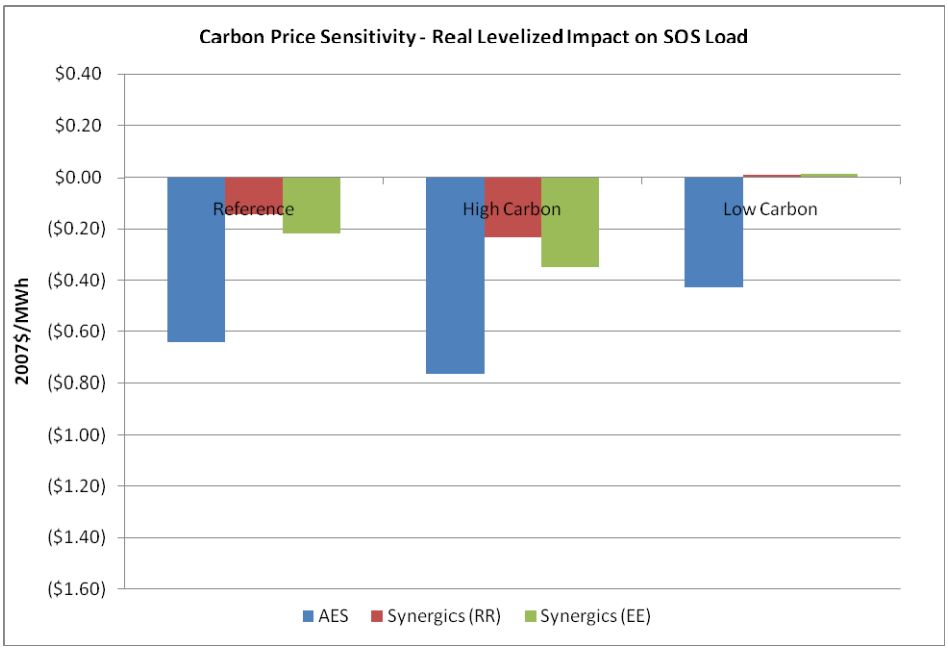


Figure 9: Carbon Price Sensitivity - Rate Impact of Synergics Roth Rock and Eastern Energy on SOS Load (2007$)

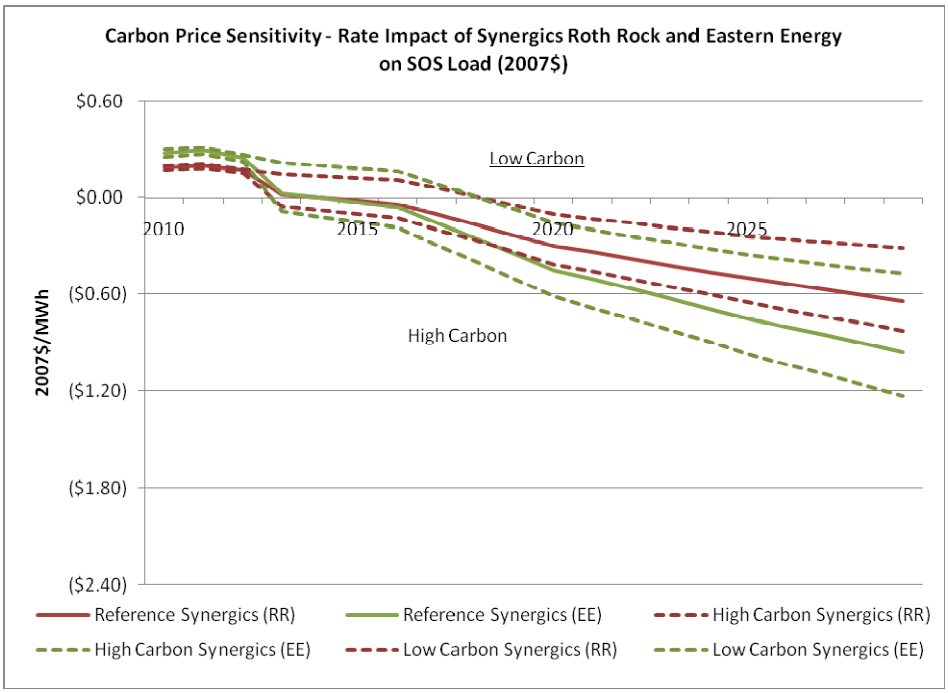
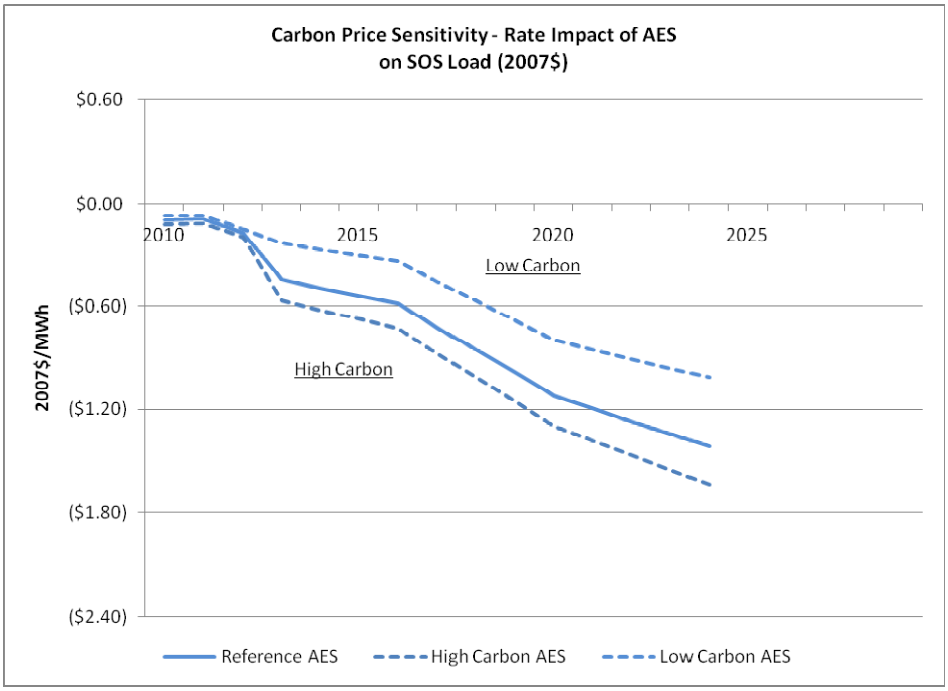


Figure 10: Carbon Price Sensitivity - Rate Impact of AES on SOS Load (2007$)



Natural Gas and Carbon Regulation

Even in a case with low natural gas prices and no Federal greenhouse gas regulation, the AES PPA is projected to be marginally below market while the Synergics PPAs are projected to be above market.

Figure 11: Gas and Carbon Price Sensitivity - Real Levelized Impact on SOS Load

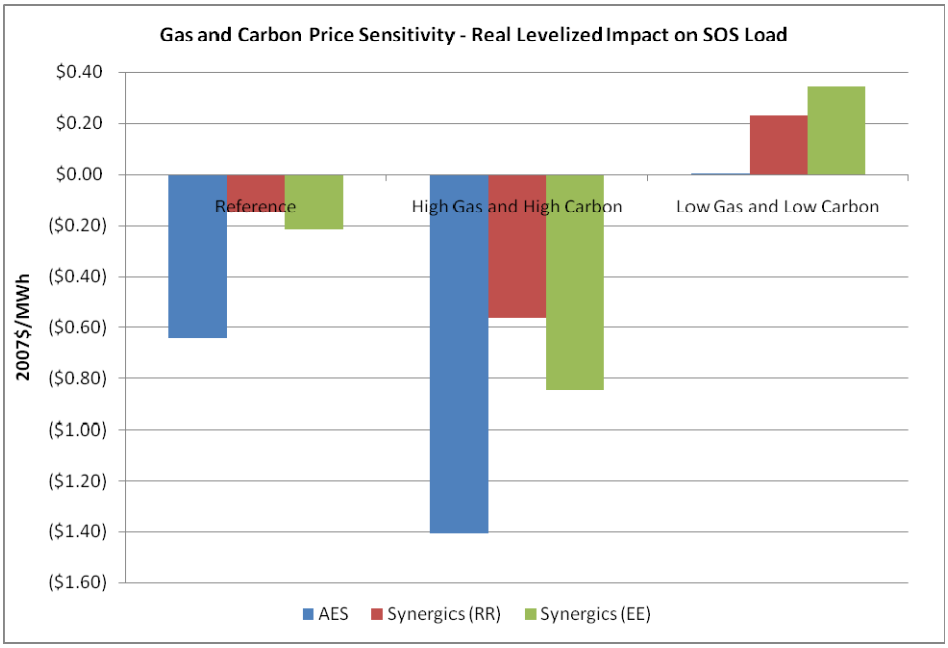


Figure 12: Gas and Carbon Price Sensitivity - Rate Impact of Synergics Roth Rock and Eastern Energy on SOS Load (2007$)

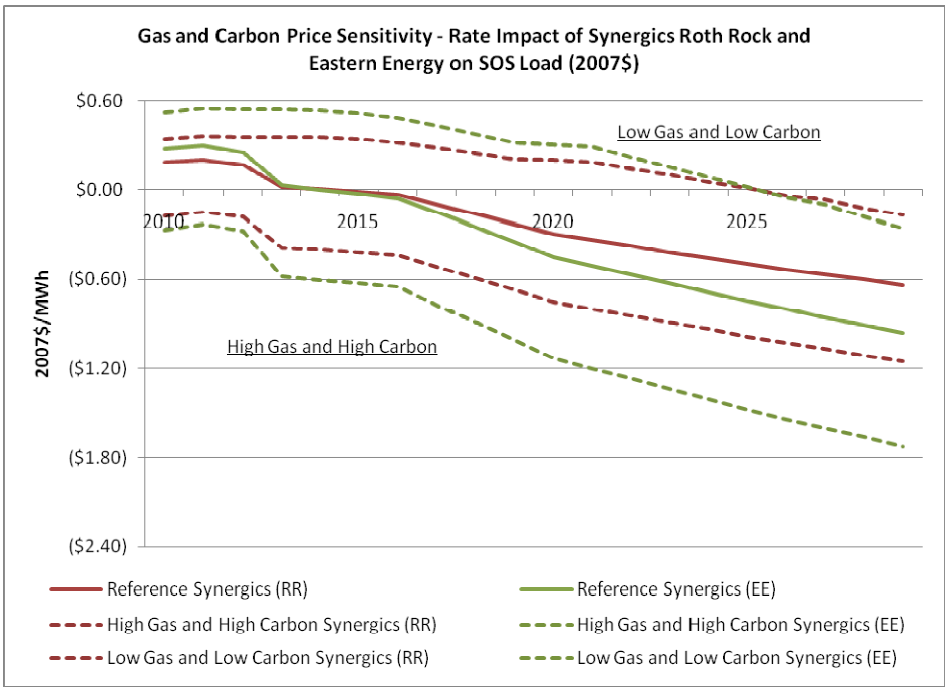
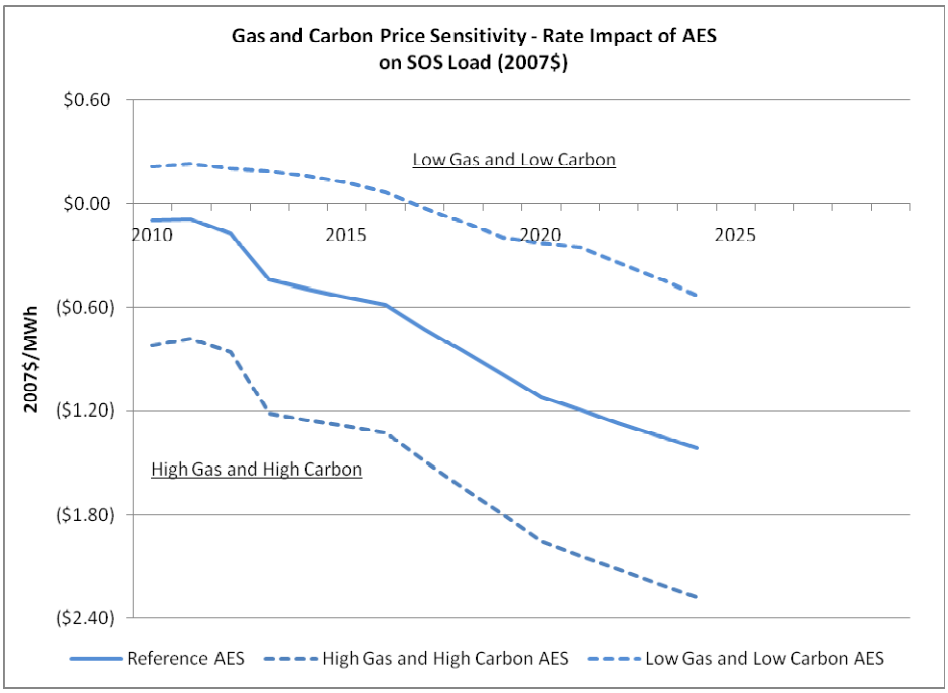


Figure 13: Gas and Carbon Price Sensitivity - Rate Impact of AES on SOS Load (2007$)



Under the various scenarios tested, the AES PPA performs positively while the performance of the Synergics PPAs is less robust.

C. PPA Terms and Conditions

We have concerns with two of the PPA provisions in all three of the land-based wind PPAs. As indicated previously, the PPA provisions are substantially identical to those included in the Form PPA—those dealing with (a) the Origination of RECs (Section 4.5) and (b) Special Termination Rights pertaining to the Production Tax Credit. We also have some concerns with a few other PPA provisions, as noted below.

1. Origination of RECs

With respect to the origination of RECS, Section 4.5 of the AES PPA states as follows:

> *RECs provided by Seller to Buyer hereunder shall not be required to originate from Energy produced by the Facility so long as all RECs delivered to Buyer under this Agreement: (a) are sourced from an Eligible Energy Resource; (b) qualify as RECs pursuant to the [Delaware] RPS Act, the RPS Rules and GATS; and (c) may be counted toward Buyer's then current compliance requirement under the RPS Act.*

This provision is identical to the one included in the Form PPA.

The Synergics PPAs have the following Section 4.5:

> *Products provided by Seller to Buyer hereunder shall not be required to originate from Energy produced by the Facility so long as all Products delivered to Buyer under this Agreement: (a) are sourced from an Eligible Energy Resource; (b) qualify, as applicable, as Energy or other Environmental Attributes (including but not limited to RECs) pursuant to the RPS Act, the RPS Rules and GATS; and (c) may be counted toward Buyer's then-current compliance requirement under the RPS.*

With respect to RECs, the Synergics PPAs appear to have the same meaning as the Form PPA and the AES PPA.

From discussions with Delmarva, it appears that the intent of the PPA provision regarding origination of RECs is to provide the Seller with the flexibility to deliver RECs from either the Facility or any eligible resource under the Delmarva RPS as long as the RECs qualify as RECs under the Delaware RPS. We have several concerns with Delmarva's approach and the PPA provisions.

First, it is standard industry practice in unit-contingent PPAs with renewable energy facilities, such as those solicited in the RFP and entered into by Delmarva, to require that RECs associated with energy produced by the Facility be sold to the buyer.[54] The sellers do not have the option of (a) not selling RECs produced by the Facility to the buyer and (b) instead, selling RECs produced by some other power plant to the buyer.

The primary reason why sellers are not given this optionality is that they could provide RECs to the buyer that have a *lower value* than the RECs produced by the Facility either

[54] See, for example, the 2008 Pacific Gas and Electric Renewables RFO Solicitation Protocol at 1, http://www.pge.com/includes/docs/pdfs/b2b/wholesaleelectricsuppliersolicitation/2008protocolagreementRev022908.pdf, and Hawaiian Electric Company, Inc. Model PPA, Section 2, 2008 Renewable Energy RFP.,

under the existing RPS law or as it may be amended in the future. For example, under the Delaware RPS, the AES and Synergics wind farms would qualify as "New Renewable Generation Resources," which are "Eligible Energy Resources" that go into commercial operation after December 31, 1997. 26 Del C. §352(13). Under the RPS, up to 1% of retail load may be met from Eligible Energy Resources that are not New Renewable Generation Resources until compliance year 2020. RECs from existing Eligible Energy Resources, such as old landfill gas generators, could qualify as RECs from "Eligible Energy Resources," but could not qualify as RECs from New Renewable Generation Resources. The RECs from the old projects are likely to have a lower market value than the RECs from a new wind project. For example, Evolution Markets July 2008 REC Market Monthly Update states that the last trade for Delaware 2007 "New" RECs was $13.75, but the last trade for Delaware 2007 "Existing" RECs was only $0.65.[55] Delmarva would be disadvantaged if Seller sold Delmarva the "Old RECs" because it would limit Delmarva's ability to buy old RECs under a separate transaction (there is a one percent cap). Importantly, we have evaluated the RECs to be purchased as being "New Wind RECs" and not including any "Old RECs."

Equally as important, the Delaware RPS has already been amended twice in its short life and may be amended in the future to create additional classes or tiers of RECs that may have a lower value than RECs from a new wind project. Other states, such as Massachusetts, have taken these steps in amending their state renewable portfolio standards laws. The PPA provision, as currently drafted, would appear to enable the Sellers to replace the New Wind RECs associated with energy produced by the Facility with lower tier RPS-compliant RECs that are created as the result of future changes in law, thus devaluing the RECs to be provided under the PPA.

There are several ways that this problem can be fixed. The simplest is an amendment to the PPA that would require Seller to sell all RECs that are associated with energy produced by the Facility with no option on the part of the Seller to deliver RECs from another source. Also acceptable would be a letter agreement in which the parties agreed that in interpreting this PPA provision that the Seller must deliver RECs that are associated with energy produced by the Facility with no option on the part of the Seller to deliver RECs from another source.

Another possible, but much less attractive solution, is to allow Seller to either (a) sell to Buyer all RECs that are associated with energy produced by the Facility or (b) to allow substitution with other RECs, but only if (i) the RECs are from a "New Renewable Generation Resource" under the Delaware RPS and (ii) have the same market value as a REC produced by the Facility, with Seller having the responsibility of demonstrating that both conditions are met. This is a much less attractive solution from the utility and ratepayer perspective in that it involves additional review time and expense to assure Seller compliance.

[5555] See RECs Monthly Market Updates (July 2008), http://new.evomarkets.com/index.p http://www.heco.com/portal/site/heco/menuitem.508576f78baa14340b4c0610c510b1ca/?vgnextoid=a42a723e01ef5110VgnVCM1000005c011bacRCRD&vgnextfmt=default&cpsextcurrchannel=1hp?page=Renewable_Energy-Markets-Renewable_Energy_Certific.

2. Origination of Energy

Delmarva's Form PPA contains provisions, such as Section 5.1, that require Seller to sell energy produced by the Facility and to sell it to Delmarva at a defined Delivery Point representing a projection's interconnection with the grid. The Synergics PPAs contain provisions that raise questions regarding whether Synergics is limited to providing *energy* produced by the Facility, specifically Section 4.5 (reproduced above) which expands the subject of the provision from "RECs" to "Products," which includes "energy" and the qualifier "if applicable" inserted prior to the first sentence of Section 5.1. On the other hand, Sections 4.1 and 4.2 appear to require that the energy sold to Buyer must be produced by the Facility, delivered to Buyer at the Delivery Point, and for the quantity to be measured at the Metering Point. We request that Delmarva and Synergics confirm that only the energy produced by the Facility and delivered to the Delivery Point will be purchased by Delmarva under the Synergics PPAs.

3. Expiration or Modification of the Production Tax Credit

Section 2.2(b) of the Form PPA, which addresses the parties' rights and obligations if the federal Production Tax Credit is not extended or is modified, has been incorporated without change into the AES PPA and Synergics PPAs.

This provision states as follows:

> *If, as of the earlier of the Initial Delivery Date or the Guaranteed Initial Delivery Date, the Existing PTC Law: (i) is not extended to apply to electricity produced from wind by generating facilities placed in service before the Guaranteed Initial Delivery Date; or (ii) is extended to apply to electricity produced from wind by generating facilities placed in service before the Guaranteed Initial Delivery Date but the amount of PTCs available under the new Law is materially less than the amount of PTCs available under the Existing PTC Law, Seller may terminate this Agreement; provided however, that: (a) in order to exercise its right to terminate this Agreement pursuant to this Section 2.2(b), Seller must deliver written notice of termination no later than sixty (60) days after expiration or amendment of the Existing PTC Law and such notice of termination must designate a termination date no earlier than thirty (30) days after the date thereof; and (b) Seller shall have no right to terminate this Agreement pursuant to this Section 2.2(b) if, within twenty (20) days of receipt of Seller's notice of termination pursuant to this Section 2.2(b), Buyer delivers to Seller a written statement agreeing to compensate Seller for the difference, calculated on an After-Tax Basis, between the amount of the Production Tax Credits Seller is entitled to receive in connection with the generation and sale of Buyer's Percentage of Energy produced by the Facility and the amount of Production Tax Credits Seller would be entitled to receive in connection with the generation and sale of Buyer's Percentage of Energy produced by the Facility if the Existing PTC Law continued to be in force (such monthly differences, the "PTC Compensation Amounts"). Any PTC Compensation Amounts shall be reasonably documented by Seller and shall be invoiced by Seller and paid by Buyer in accordance with Article 9 [Billing and Payment] based on the times when Seller receives (or would have received) Production Tax Credits.*

As mentioned in Section II.E above, the Existing PTC Law—defined in the PPAs as "Section 45 of the Internal Revenue Code of 1986, as amended, as in effect on the

Effective Date" (May-June 2008)—will expire the day after December 31, 2008 (currently, the In-Service Deadline Date) unless Congress extends the In-Service Deadline Date. As a practical matter, if Congress does not pass an extension of the PTC in the next few weeks, it is highly likely that the PTC would expire as of January 1, 2009.

While under this PPA provision, Seller has the right to terminate the PPA if as of the Guaranteed Initial Delivery Date (December 31, 2009 under the Roth Rock Wind PPA, with later dates for the other PPAs) the Existing PTC Law is not extended or is modified in a material adverse manner to seller. However, Seller can only terminate the PPA if it provides written notice of termination no later than 60 days after expiration (or amendment of) the Existing PTC law, which would be on or about March 2, 2009, with an effective termination date no earlier than 30 days thereafter. Delmarva can prevent termination of the PPA, but only if it agrees *within 20 days of receiving the notice of termination* to compensate Seller for the loss in Production Tax Credits on an after-tax basis compared to the tax credits it would have been received if the PTC law were to be extended in its current form.

As indicated previously, the PPA provision is problematic in three respects. First, it requires the Seller (as we read the provision) to either exercise its right to terminate the PPA within a few months of Commission approval (assuming it is approved later this fall) or to assume the risk that the PTC is not extended in its current form. Second, it requires Delmarva to either agree to compensate Seller for lost PTC payments within 20 days of receipt of the notice or to allow the PPA to be terminated. Twenty days is an insufficient amount of time for Delmarva to obtain regulatory approval of any decision to exercise its right to keep the PPA in effect by compensating Seller for lost PTC revenues. Third, it puts the Commission in the position of either authorizing Delmarva in advance to agree to compensate the Sellers for lost PTC revenues or to not authorize Delmarva to do so, without providing the Commission with a reasonable opportunity to review the matter if and when the situation presents itself.

The consequences of expiration and the non-renewal by Congress is a substantial increase in price to compensate for the lost PTCs so that the seller is financially whole. Under existing law, the PTC is a dollar per MWh tax credit that accrues to the owner(s) of wind energy facilities for 10 years following their in-service dates (initial operation). The amount of tax credit per MWh is $20.00/MWh for energy produced by a qualifying facility in 2008, with an inflation adjustment for each subsequent year (the number is in whole $/MWh). To make Seller whole, the amount Delmarva would have to pay Seller is "grossed up" to take into consideration that Seller will have to pay federal and state taxes on the amounts received from Delmarva. Based on Maryland and Pennsylvania state tax rates, this equates to approximately $36/MWh in 2010, with an estimated 2.5% escalation thereafter for 10 years.

It can be argued that the non-extension or potential reduction in the PTC should not have an impact on the relative value of these PPAs compared to other forms of renewable energy since wind is generally the most economic and that if the PTC is not renewed or modified for these projects, the same will be the case for other alternatives. This may be true. However, there may also be a situation where the PTC is renewed—perhaps later in 2009—but the renewal does not apply to projects that went into service before Congress

authorized the renewal. This eventuality — referred to as the "gap risk", which is in all likelihood a very low risk, would, however, mean that ratepayers could pay a substantial additional premium for these PPAs because they, unlike other projects put into service at a later (even slightly later) time would not benefit from the PTCs.[56]

A common and more suitable approach to addressing the PTC risk is to provide the Seller with the right to extend milestones — in these PPAs, the GIDD — without any penalty due to non-extension of the PTC on a day for day basis *to the extent construction would be delayed by non-extension of the PTC*. If the PTC is not extended within the next year for in-service dates that would also be deferred (perhaps by December 31, 2010), then Seller would have the right to terminate. Buyer would then have the right to keep the PPA in effect by compensating Seller for the lost PTC's but would have significantly more time to exercise that right to give sufficient time for the Commission to review the matter with all of the facts to be considered as they appear at that time.

Under the circumstances, we would recommend that the Commission approve the PPAs but that such approval or finding of reasonableness would not extend to future action by Delmarva to keep the PPA in effect by agreeing to compensate Sellers for lost PTC revenues. At the same time, we would recommend that Delmarva negotiate amendments to the current PPA provision so that (a) in the first instance, the effect of non-extension of the PTC would be extension of the GIDD, to the extent applicable, and (b) providing Delmarva with sufficient time in the event of a Seller notice of termination to come back to the Commission for approval of a Delmarva decision to compensate Seller for lost PTC revenues.

4. AES Contract Right to Terminate PPA

Under Section 2.2(c) of the AES PPA, AES has the option to terminate the PPA if AES "has not executed power purchase agreements for the Facility Nameplate Rating by June 30, 2008." While we understand that AES has executed a PPA with ODEC for the remainder of the project nameplate rating, it may not have been executed by June 30, 2008. Section 2.2(c) does not explicitly require AES to terminate the PPA or waive its right to terminate by a date certain. To assure that AES is "locked into" the PPA, we would want AES to provide in writing a statement that the condition set forth in Section 2.2(c) has been satisfied or that AES waives its right to terminate the PPA under Section 2.2(c).

5. Delmarva Condition Precedent: Non-Consolidation Opinion

Under Section 3.2 of the PPAs, Delmarva has the right to terminate the PPA in the event its auditors determine that as a result of the PPA, Delmarva would be required to consolidate Seller in Delmarva's financial statements. Delmarva has the obligation to request an auditor opinion within 30 days of execution of the PPA. Based on conversations with Delmarva, its internal review has indicated that consolidation is not an issue and the Company has not yet sought an external auditor opinion. Under the

[56] The PPA PTC extension provision would operate to disallow any compensation for lost PTCs in the event that (a) a project that goes into service during a "gap period" and (b) the project owners later becomes eligible for PTCs if the Production Tax Credit law is reenacted to apply retroactively to "gap period" projects.

circumstances, we suggest that Delmarva waive its right to terminate under Section 3.2 to avoid any obstacle to performance under the PPAs.

D. Sizing, Customer Class, and Contract Management

1. Customers for Whom the Energy and RECs are Being Procured

In the In-State Generation RFP proceeding, Delmarva took the position that long-term power purchase agreements should be solicited, if at all, for RSCI SOS customers since they are relatively stable SOS customers and not inclined to migrate to competitive service. Delmarva's IRP filings reflect the approach that long-term contracts for renewable energy—and land-based wind in particular—should be procured on behalf of RSCI customers as part of a managed portfolio.[57] With this filing, Delmarva now takes the position that the energy and RECs to be procured under these PPAs should be on behalf of all SOS customers, including those larger customers that procure standard offer service under annual requirements contracts and hourly purchases.

Conceptually, we have concurred with Delmarva's position that it is appropriate to enter into long-term agreements to hedge the energy and REC price risk for RSCI customer load. We also would have no problem with Delmarva's procurement of energy and RECs for the entire SOS load except for consideration of the dynamics of above-market and below-market costs of the land-based wind contracts over time and the potential effect on large customers switching on or off SOS service and the resulting impact on RSCI customers.

In this section of our report, we look at the potential quantity of RECs (and energy) to be procured under the land-based wind PPAs (taking into consideration the Bluewater PPA that has already been approved) under two scenarios (a) the Land-Based PPAs would serve RSCI SOS customers only and (b) these PPAs would serve all SOS customers. We will evaluate both scenarios under two alternative assumptions—(1) all of the projects are constructed and will deliver energy under the PPAs and (2) one of the four projects will not be built—using a so-called "attrition" assumption. For purposes of the attrition risk analysis, we will assume that the projected RECs will be reduced by 25 percent for each of the proposed projects since we do not know which of the projects may not be constructed.[58] Attrition risk, also known as risk of "contract failure," is a recognized issue associated with renewable energy procurements,[59] and based on historical experience, a 25 percent attrition rate would not be unusual. Delmarva has asserted that diversification of its renewable energy portfolio of long-term PPAs is a positive attribute, and the potential for attrition supports this approach.

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[57] Delmarva Power & Light Company's Delaware IRP Update (March 5, 2008) at 11-14.

[58] There is also a risk of delay beyond that of the "Guaranteed Initial On-line Date" as specified in each contract, but our analysis does not explicitly consider that although there is already some delay built into the Bluewater projections used by Delmarva (which we believe to be reasonable).

[59] See KEMA, Inc. report for the California Energy Commission, "Building a "Margin of Safety" Into Renewable Energy Procurements: A Review of Experience with Contract Failure (January 2006), http://www.energy.ca.gov/2006publications/CEC-300-2006-004/CEC-300-2006-004.PDF.

2. Projected Wind PPA RECs vs. SOS Projections

The table below shows (a) Delmarva's projected SOS non-solar RPS requirement and (b) Delmarva's projected RSCI SOS non-solar RPS requirement, both on an annual basis. While Delmarva's assumptions regarding the RSCI customer requirements appear reasonable and unlikely to vary substantially due to migration, the SOS load projections are based on recent SOS participation of the larger customers, which could be substantially lower or higher at any point in time over the term of the PPAs.

Table 10: Projected Non-Solar REC Requirement for SOS and RSCI Load (GWh)

Year	Non-Solar SOS RPS Demand	Non-Solar RSCI RPS Demand
2010	202	178
2011	335	228
2012	409	278
2013	483	327
2014	556	376
2015	626	422
2016	699	470
2017	759	507
2018	842	561
2019	926	615
2020	929	615
2021	940	621
2022	950	626
2023	961	632
2024	971	636
2025	980	641
2026	995	651
2027	1010	662
2028	1025	672
2029	1040	683

As shown in the table below, there is a projected surplus of RECs when the land-based wind PPAs are to serve all SOS customers, but a substantially larger surplus when the customer base is limited to RSCI customers.[60]

[60] The RPS demand projections were calculated by applying the RPS annual compliance year percentages to calendar years, which to a small extent will overstate RPS demand for some years and understate banked RECs, other things being equal.

Table 11: Projected RECs for SOS and RSCI Load (GWh)

(GWh)	RECs from BW Project			On-Land Wind Contracts	SOS Load		RSCI Load Only	
Year	Total RECs	For SOS Load	For RSCI Load	Total RECs[61]	Total RECs	Annual Cumulative Banked/ (Short) RECs	Total RECs	Annual Cumulative Banked/ (Short) RECs
2010				237	237	35	237	59
2011				478	478	178	478	309
2012				478	478	246	478	509
2013				478	478	240	478	660
2014	558	283	191	478	761	445	669	953
2015	558	283	191	478	761	580	669	1200
2016	558	283	190	478	760	641	668	1397
2017	558	282	188	478	759	642	666	1556
2018	558	281	187	478	759	559	665	1660
2019	558	281	186	478	758	392	664	1709
2020	558	280	185	478	758	221	663	1757
2021	558	280	185	478	757	38	662	1799
2022	558	279	184	478	757	(155)	662	1834
2023	558	279	183	478	757	(359)	661	1863
2024	558	278	183	478	756	(574)	660	1887
2025	558	278	182	364	642	(912)	545	1792
2026	558	278	182	307	584	(1323)	488	1630
2027	558	278	182	307	584	(1748)	489	1457
2028	558	277	182	307	584	(2189)	489	1273
2029	558	277	182	307	584	(2645)	489	1079

When attrition risk of 25 percent for all the wind contracts combined is taken into consideration, the surplus is significantly reduced when the customer base is limited to RSCI customers and is eliminated when the customer base is all SOS customers (this is based on Delmarva's projections that the percentage of larger customers remaining on SOS will remain effectively what it is today).

[61] Calculation of total RECs based on projects' "Guaranteed On-IIne Date." If projects come on-line sooner, there will likely be even more banked RECs each year.

Table 12: Projected RECs for SOS and RSCI Load with 25% Assumed Attrition (GWh)

	SOS Load		RSCI Load Only	
Year	Total RECs	Annual Cumulative Banked/ (Short) RECs	Total RECs	Annual Cumulative Banked/ (Short) RECs
2010	178	(24)	178	0
2011	358	(1)	358	131
2012	358	(52)	358	211
2013	358	(177)	358	242
2014	571	(162)	502	369
2015	571	(218)	501	448
2016	570	(347)	501	479
2017	570	(536)	500	471
2018	569	(808)	499	409
2019	569	(1165)	498	292
2020	568	(1526)	497	174
2021	568	(1898)	497	50
2022	568	(2280)	496	(81)
2023	567	(2674)	496	(216)
2024	567	(3077)	495	(357)
2025	481	(3576)	409	(589)
2026	438	(4133)	366	(874)
2027	438	(4704)	366	(1169)
2028	438	(5291)	366	(1475)
2029	438	(5893)	367	(1791)

The other factor to take into consideration when determining whether to allocate the land-based wind PPAs to the RSCI customers or the larger SOS class is the cost associated with banking RECs. If one assumes a 5% annual interest rate that Delmarva would be able to recover for banking RECs, the cost associated with banking RECs for SOS customers with no attrition would only be a levelized $0.07/MWh (real levelized 2007$), but would be a levelized $0.29/MWh if the PPAs are procured only for the RSCI SOS customers, as shown in the table below. The cost impact of banking per MWh of supply is $0.72/MWh on a real levelized basis, which is significantly below our projections of below market costs of the three bids.[62] The interest cost is substantially reduced (procurement for RSCI customers) or eliminated (procurement for all SOS customers) if 25 percent PPA attrition is assumed.

[62] This assumes a $24 REC price, as in the AES PPA, and interest costs associated with serving the entire SOS load; if the RSCI customers are the only ones served, the cost impact per MWh of generation increases to $2.06/MWh on a real levelized 2007 basis.

Table 13: Interest Costs Associated With Banking RECs

	SOS Load		RSCI Load Only	
Year	Impact on Wind Contract Cost (2007$/MWh)	Rate Impact on SOS Load (2007$/MWh)	Impact on Wind Contract Cost (2007$/MWh)	Rate Impact on RSCI Load (2007$/MWh)
2010	$0.17	$0.01	$0.29	$0.02
2011	$0.41	$0.04	$0.72	$0.11
2012	$0.56	$0.05	$1.16	$0.17
2013	$0.53	$0.05	$1.47	$0.21
2014	$0.96	$0.09	$2.07	$0.29
2015	$1.23	$0.12	$2.54	$0.36
2016	$1.32	$0.12	$2.88	$0.40
2017	$1.29	$0.12	$3.13	$0.44
2018	$1.10	$0.10	$3.26	$0.46
2019	$0.75	$0.07	$3.27	$0.46
2020	$0.41	$0.04	$3.28	$0.46
2021	$0.07	$0.01	$3.28	$0.45
2022			$3.26	$0.45
2023			$3.23	$0.44
2024			$3.19	$0.43
2025			$3.89	$0.40
2026			$4.09	$0.35
2027			$3.57	$0.30
2028			$3.04	$0.25
2029			$2.51	$0.20
Real Levelized Cost Impact	**$0.72**	**$0.07**	**$2.06**	**$0.29**

Based on these projections, the sizing of the contracts has a reasonable relationship to the customers to be served, regardless of whether the customer class to be served is the RSCI SOS customers or the larger group of SOS customers.[63]

3. Potential for Asymmetrical Risk for RSCI Customers

Our evaluation of customer impacts assumes that roughly the same percentage of larger customers will remain on SOS for the next 20 years and that the cost of the land-based wind PPAs are below market. However, if the land-based wind PPAs are substantially above market, there will be a tendency for the larger customers to leave SOS, and if the PPA costs are substantially below market, there will be a tendency for large customers to remain on or move to standard offer service. In light of the relatively small size of the PPAs relative to customer loads, the PPAs would have to be substantially above-market or below-market to make a significant difference.

[63] Without the Bluewater PPA, which was likely the assumption that Delmarva was using at the time it issued and pursued the RFP, 150 MW of land-based wind without an attrition assumption is a reasonably good fit for the projected RSCI load.

As shown on the table below, we have assumed (a) that the land-based wind PPAs are $25/MWh above-market without any migration by the large customers, then (b) all of the larger customers leave standard offer service, with only the RSCI customers remaining on SOS. The levelized above-market price without migration is $1.90/MWh. With migration of the large customers away from SOS, the above-market price is about $2.80/MWh. Hence, there is a potential (maximum) cost shift of about $0.90/MWh on a levelized basis under this scenario.

Table 14: Migration Risk and Impact on Cost to Load ($/MWh)

(Assuming $25/MWh above Market Cost)

	Migration Estimates		
Year	Bill Impact for SOS Load	Bill Impact for RSCI Load	Max Change
2010	$1.25	$1.83	$0.58
2011	$2.48	$3.65	$1.17
2012	$2.45	$3.61	$1.16
2013	$2.42	$3.58	$1.16
2014	$2.39	$3.54	$1.15
2015	$2.37	$3.51	$1.14
2016	$2.34	$3.48	$1.14
2017	$2.34	$3.51	$1.16
2018	$2.33	$3.50	$1.17
2019	$2.32	$3.49	$1.17
2020	$2.31	$3.49	$1.18
2021	$2.29	$3.46	$1.17
2022	$2.26	$3.43	$1.17
2023	$2.24	$3.40	$1.17
2024	$2.21	$3.38	$1.16
2025	$1.67	$2.55	$0.89
2026	$1.39	$2.12	$0.73
2027	$1.37	$2.09	$0.72
2028	$1.35	$2.05	$0.71
2029	$1.33	$2.02	$0.69

If we assume prices are $25/MWh below market (which is more likely based on our base case analysis), the expected benefit (savings) to SOS customers is about (-$1.90) /MWh on a levelized basis, but is the savings is reduced to ($-0.96) /MWh if all customers receive standard offer service (because it is below market). In this scenario, the benefit to the SOS (and RSCI) customers is reduced by $0.94 /MWh due to the swinging back to SOS by the larger customers.

Table 15: Migration Risk and Impact on Cost to Load ($/MWh)

(Assuming $25/MWh below Market Cost)

	Migration Estimates		
Year	Bill Impact--All Distribution Load on SOS	Bill Impact Expected SOS Load	Max Change
2010	($0.64)	($1.25)	$0.61
2011	($1.26)	($2.48)	$1.22
2012	($1.25)	($2.45)	$1.20
2013	($1.23)	($2.42)	$1.19
2014	($1.22)	($2.39)	$1.18
2015	($1.20)	($2.37)	$1.17
2016	($1.19)	($2.34)	$1.15
2017	($1.18)	($2.34)	$1.16
2018	($1.18)	($2.33)	$1.16
2019	($1.17)	($2.32)	$1.15
2020	($1.16)	($2.31)	$1.15
2021	($1.15)	($2.29)	$1.14
2022	($1.13)	($2.26)	$1.13
2023	($1.12)	($2.24)	$1.12
2024	($1.10)	($2.21)	$1.11
2025	($0.83)	($1.67)	$0.84
2026	($0.69)	($1.39)	$0.70
2027	($0.68)	($1.37)	$0.69
2028	($0.67)	($1.35)	$0.68
2029	($0.66)	($1.33)	$0.67

Inherently, the approach sought by Delmarva regarding allocation of costs and benefits to SOS customer classes is not ideal. However, (1) the potential "swing" impact against the interest of the smaller customers is relatively small and (2) the Commission has the authority under Section 1010(c) of EURCSA to take the net charges for energy and RECs and place them on a nonbypassable (distribution) charge "to protect the customers of the electric distribution company receiving standard offer service."

4. Management of Energy and RECs

Delmarva plans to bank RECs procured under the three land-based wind PPAs when they are not needed to meet the non-solar RPS requirements associated with SOS load. Banking may also occur if and when the Bluewater project comes on line and the sum of the RECs procured under the Bluewater PPA and the three land-based wind PPAs exceed the non-solar requirements associated with SOS load. As shown above, there is a cost associated with banking and Delmarva might, under appropriate Commission oversight, sell some excess RECs into the market rather than banking them for future use.

On a forward basis, the cost of SOS supply would include the cost of RECs associated with the non-solar RPS requirement for the expected SOS load, with over-recovered or under-recovered costs subject to an annual adjustment. Since there is no separate cost

under the Synergics PPAs for RECs, Delmarva would value the RECs at a market-related price (the remaining $ per MWh amount under the PPA would be assigned to energy) and use this market value for purposes of incorporation into the SOS price per customer class.[64]

Delmarva will either sell the energy purchased into the spot market or by other means or use it to displace spot energy purchases as part of a managed portfolio.[65] Separately, Delmarva has indicated that it would only use a managed portfolio for the RSCI customers and not the large SOS customers.[66] Another option for consideration is the sale of the energy purchased under term contracts to marketers, with the potential for marketers to acquire such energy under contracts in connection with competitive bidding for SOS full requirements agreements, as has been conducted in Maine for several years.[67]

Based on market conditions and the size of the REC bank, Delmarva could sell some excess RECs to the market rather than banking them.. Operational decisions of this sort should be subject to some degree of Commission oversight, such as an oversight committee which Delmarva proposed in the IRP proceeding involving the Commission Staff and the Public Advocate.[68]

[64] See Direct Testimony of Mark Finfrock at 16-18.
[65] Direct Testimony of Mark Finfrock at 17-18.
[66] Response to Question No. PSC (MWF)-03.
[67] See PSC Staff Report on the Term Sheets for Proposed Power Sales to Delmarva Power, October 29, 2007, Exhibit A, Assessment of Term Sheets for Proposed Power Sales to Delmarva Power at 56-57.
[68] See Delmarva Power & Light Company's Delaware IRP Update (March 5, 2008) at 19-20.

V. Conclusions and Recommendations

After having scrutinized the PPAs and the RFP that led to the execution of the PPAs, our conclusions and recommendations are as follows:

1. The design of the land-based wind RFP was reasonable, albeit not without some issues of concern.
2. The RFP was sufficiently well publicized and an adequate number of bids were submitted in response to the RFP.
3. Delmarva's decision to negotiate with AES and Synergics to finalize PPAs was reasonable under the circumstances.
4. The AES PPA and the two Synergics PPAs would provide reasonably low cost energy and RECs relative to our market projections, with the AES PPA being a significantly better value.
5. Subject to the following clarifications and conditions and subject to the contract sizing considerations set forth in Section 6 of our recommendations, we recommend that the three PPAs be approved.
    a. Section 4.5 of the PPAs should be amended or a written agreement between the Sellers and Delmarva regarding their interpretation of Section 4.5 be executed that would require the Sellers to sell RECs to Delmarva that are associated with the energy produced by the Facility and not from any other source, unless the Seller can demonstrate that the RECs delivered to Delmarva from another source would have the same value and regulatory compliance features under the Delaware RPS as RECs produced by the Facility.
    b. Delmarva's exercise under Section 2.2(b) of its right to keep the PPAs in effect by agreeing to pay for a shortfall in Production Tax Credits due to a non-extension or modification of the federal Production Tax Credit law should not be authorized by a Commission order granting approval of the PPAs; however, an amendment of this clause that would provide the Commission with sufficient time to review such a request would be welcomed.
    c. Delmarva should either state that the condition precedent requiring an Auditor Opinion that as a result of the PPAs Delmarva would not be required to consolidate any of the Sellers in Delmarva's financial statements (i) has been satisfied or (ii) is waived.
    d. AES should provide a statement in writing that the condition set forth in Section 2.2(c) of the AES PPA—that Seller has executed power purchase agreements for the Facility Nameplate Rating of the Facility by June 30, 2008—has been satisfied or that it has waived its right to terminate the PPA if the condition was not satisfied.

e. Synergics should provide a statement in writing clarifying that under both the Roth Rock and Eastern Wind Energy PPAs, it is required to sell energy produced by Seller's Facility at the Delivery Point and it is not entitled to sell energy from any other source or at any other location under the PPAs.

6. Delmarva has proposed that the energy and RECs under the land-based PPAs be procured on behalf of all SOS customers, not just the RSCI customers. If one is to assume that sellers will perform under all three land-based wind PPAs and the Bluewater PPA, there will be some over-procurement of RECs relative to non-solar RPS demand and, hence, the need to bank RECs. If all energy and REC costs for the land-based wind PPAs are to be allocated to RSCI customers only, the quantity of over-procurement would be larger. If one assumes that one or more of the PPAs will not result in built projects and sales of energy and RECs, the need for banking would be mitigated or eliminated. Since the larger SOS customers may swing to or away from standard offer service based on the extent to which the land-based wind PPAs are above-market or below-market at any point in time, there is an asymmetrical risk for the RSCI customers who are less prone to migration, although the cost impact of this risk is likely to be small. In consideration of these factors, we recommend:

   a. If the Commission decides to allocate the costs and benefits of these PPAs to all SOS customers, it should closely scrutinize whether larger customers are swinging on or off standard offer service based on the extent to which the land-based wind PPAs are above or below market. If the costs are above-market and there is significant migration away from SOS, especially on the part of larger customers, the Commission should implement its authority under EURCSA to assess the net costs and benefits of the land-based PPAs to a non-bypassable distribution charge.

   b. If the Commission decides to allocate the costs and benefits of these PPAs to RSCI SOS customers only but is concerned regarding the potential for over-procurement, the Commission should give consideration to approving the AES PPA and the Synergics Roth Rock PPA but not the Synergics Eastern Wind Energy PPA to reduce the potential for over-procurement for RSCI SOS customers. The Synergics Eastern Wind Energy PPA is the least attractive of the three PPAs on the basis of economics, the uncertainty regarding contract size—30-60 MW, as well as the degree of project development, according to the information available to us.

7. Delmarva's decision to issue a RFP without Commission approval or oversight resulted in a less than optimal RFP and this process should not be replicated in the future.

Appendix A

New Energy Opportunities ♦ La Capra Associates

Experience and Qualifications

Appendix A: Experience and Qualifications

New Energy Opportunities, Inc.

New Energy Opportunities, Inc. is a consulting firm with a focus on the procurement and sale of electric power and other products from generation facilities, especially those using renewable resources. Barry Sheingold, President of NEO, has over 20 years of experience in the design and structuring of long-term contracts for the purchase and sale of electric power, the design of competitive procurements, evaluating bids, and oversight of competitive procurements, including considerable experience with competitive procurements for long-term contracts involving renewable energy projects. Mr. Sheingold was formerly Senior Vice President of Citizens Power LLC, the nation's pioneering electric power marketing company, where he served in a senior business capacity after serving as General counsel. Previously, Mr. Sheingold worked for an electric utility, a power plant development company and the Federal Energy Regulatory Commission. He is a graduate of Boston College Law School (*cum laude*) and New College, now the honors college of the Florida university system.

NEO has provided consulting assistance in the renewable energy field in a variety of capacities and for various different types of clients. Mr. Sheingold has performed, or is performing, an independent evaluator function for renewable energy RFPs in several states, including Delaware (2006 Delmarva Power In-State Generation RFP, with La Capra Associates and Merrimack Energy Associates), California (2007 Pacific Gas and Electric Company Renewables RFO, with Merrimack Energy Associates), Hawaii (2008 Hawaiian Electric Company Renewable Energy RFP), Oklahoma (2008 Oklahoma Gas & Electric Company Wind RFP, with La Capra Associates), Utah (2008 Pacificorp Renewable Energy RFP, with Merrimack Energy), Arizona (2008 Arizona Public Service Distributed Energy Resources RFP, with Merrimack Energy) and Oregon (2003 Portland General Electric RFP, with Merrimack Energy). In this capacity, Mr. Sheingold has authored or co-authored a variety of reports.

Mr. Sheingold has also represented a variety of public clients involving competitive bidding. In 2003, Mr. Sheingold was the lead consultant in providing the conceptual and detailed design for the Massachusetts Technology Collaborative's competitive bidding program for the procurement of renewable energy certificates, and options on renewable energy certificates, under long-term contracts. The purpose of this program—the Massachusetts Green Power Partnership—was to provide financing support for new generation facilities in a competitive, deregulated market where long-term contracts were very difficult for developers to obtain. In addition, Mr. Sheingold was the principal consultant in developing the economic evaluation criteria, evaluating the bids from an economic perspective, and advising on contract negotiations with the winning bidders. He collaborated with La Capra Associates in the conduct of the bid evaluation. He has also advised the New York State Energy Research and Development Authority ("NYSERDA") in its program of procuring generation attributes from renewable energy projects under long-term contracts in implementing the New York Renewable Portfolio Standard, again working with La Capra Associates. He has advised the Town of Fairhaven, Massachusetts in the design of a competitive procurement, bid evaluation and contract negotiations involving the leasing of town land to a developer of a wind energy project and the

purchase of power from the project. In 2003, he testified on behalf of Hydro-Quebec Distribution in the regulatory review of power contracts resulting from a competitive procurement with respect to confidentiality issues. Currently, he is assisting the State of Rhode Island, in conjunction with La Capra Associates, regarding a Request for Proposals for offshore wind projects.

For private clients, Mr. Sheingold has provided due diligence and other negotiation assistance regarding commercial arrangements associated with project development for onshore wind farms (Iowa, Texas, Colorado, New York, Vermont and Maine), offshore wind farms (Ireland) and other types of generation projects. Other commercial experience includes consulting advice pertaining to a 12-year power purchase agreement resulting from a competitive procurement following the bankruptcy of a previous supplier, and the closing of a major power contract restructuring involving a debt swap, power contract buydown, and a natural gas swap.

Mr. Sheingold has many years of relevant experience, both from a commercial and legal perspective. As Senior Counsel with Delmarva Power & Light in the 1980s, he helped in developing the company's first competitive power procurement under long-term purchase contracts. The RFP was issued after Mr. Sheingold left the company in early 1989 to take the position of General Counsel and Vice President at Citizens Power, the nation's first independent electric power marketing company, where he played an important role in pioneering market-based ratemaking for power marketers (and later independent power producers) with the 1989 *Citizens Power* decision at the Federal Energy Regulatory Commission. At Citizens Power, Mr. Sheingold specialized in long-term contracts between generators and utilities and the restructuring of those contracts, working for both buyers and sellers and for Citizens Power acting as a principal. He advised clients in a variety of competitive power procurements in Massachusetts, Oregon, New Jersey, Indiana, California, Maryland, Nevada and elsewhere.

La Capra Associates, Inc.

La Capra Associates is an employee-owned consulting firm which has specialized in the electric and natural gas industries for more than 25 years. The firm's expertise includes power market policy and analysis (wholesale, retail, and renewable), power procurement, power resources planning, economic/financial analysis of energy assets and contracts, and regulatory policy. La Capra Associates has been involved in many aspects of the renewable energy sector over the past decade. As a firm, La Capra Associates has conducted a number of renewable resource potential and economic impact analyses for various states (Massachusetts, New York, North Carolina, Connecticut, South Carolina, and Arkansas). The company also has power markets modeling expertise, especially in the Northeast and Mid-Atlantic regions. We analyze renewable energy certificate markets, by developing an understanding of project economics, tracking of proposed projects and RPS regulations. Furthermore, the firm provides transaction advice, financial modeling and asset valuation support.

Mon-Fen Hong, a Senior Consultant at La Capra Associates, has played a major role in firm's activities in the renewable energy sector. She has worked with Mr. Sheingold on each of the major efforts where La Capra Associates and NEO have collaborated. In the past few years, she has managed most of the renewable energy projects within the firm and has extensive familiarity with project development and market issues in the Northeast. Ms. Hong has authored several reports on renewable resource potential and economics for clients such as NYSERDA and the North Carolina Utilities Commission. She has hands-on experience with power markets modeling, financial modeling, and power project economics. In addition to evaluating projects for the Massachusetts Technology Collaborative, she conducted several economic feasibility assessments for community wind projects in Massachusetts, on behalf of the MTC. For private clients, Ms. Hong provides advisory services related to REC markets in New England and New York and wholesale energy/capacity market transactions. She was formerly with PPM Energy (now part of Iberdrola Renewables), a major U.S. wind developer and, prior to that, with Edison Mission Energy, a major power projects developer.

In 2008, Ms. Hong testified before the Massachusetts Siting Council, on behalf of Russell Biomass, on issues related to "need" for the generator. In 2006, she presented the firm's study on North Carolina's renewable energy potential before the Senate and House committees of the North Carolina legislature.