



December 10, 2012

DELIVERED ELECTRONICALLY  
Rosemary Chiavetta, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, PA 17120

Re: Comments on the Commission's Tentative Order in the Investigation of Pennsylvania's Retail Electricity Market, Docket No. I-2011-2237952

Dear Secretary Chiavetta:

Enclosed please find the Mid-Atlantic Renewable Energy Coalition Comments in the above-referenced proceeding.

Please do not hesitate to contact me should you have any questions.

Sincerely,

Bruce H. Burcat, Esquire  
Executive Director  
Mid-Atlantic Renewable Energy Coalition

Enclosure

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Investigation of** :  
**Pennsylvania’s Retail** : **Docket No. I-2011-2237952**  
**Electricity Market** :

**COMMENTS OF THE  
MID-ATLANTIC RENEWABLE ENERGY COALITION  
ON THE TENTATIVE ORDER**

**Introduction**

The Mid-Atlantic Renewable Energy Coalition (“MAREC”) is a coalition of wind industry developers, manufacturers, a transmission company, support service companies, and environmental organizations. MAREC is a registered non-profit 501(c)(3) whose mission is to educate state policy-makers on the benefits of renewable energy and public policies which encourage the continued cost-effective and sustainable growth of renewable energy technologies. In Pennsylvania, MAREC is especially concerned with education efforts related to the Alternative Energy Portfolio Standards (“AEPS”), Act 213 of 2004, as amended. Ensuring that load-serving entities (“LSEs”) have the tools and public policy support necessary to achieve their AEPS obligations is MAREC’s top priority.

The Pennsylvania Public Utility Commission’s (“Commission”) Retail Markets Investigation (“RMI”) and corresponding Tentative Order entered November 8, 2012 (“Tentative Order”) potentially impact how LSEs will comply with their AEPS requirements. MAREC commends the Commission for recognizing the nexus between default procurement, retail markets, and AEPS compliance and for asking participants to provide comments on the “Future of Long-Term Alternative Energy Credits Contracts.”

MAREC's comments will review the Commission's authority to require long-term contracting as a means for AEPS compliance; the essential role that long-term procurement plays in encouraging new generation resources, including renewables; procurement methods for ensuring that long-term alternative energy credit ("AEC") procurements are competitive and market-based; cost-savings resulting from long-term contracts for new renewable generation sources; and a draft proposal for a portfolio approach (mixture of long-term, short-term, and spot-market AEC purchases) to encourage cost-effective, stable AEPS compliance.

### **Existing Long-Term Contracts should be Held Harmless**

Before addressing the primary focus of our comments, long-term contracts to encourage new resource investments for AEPS compliance, MAREC strongly agrees with Tentative Order's proposal to hold harmless existing long-term contracts.

### **Relevance of the RMI Proceeding for Renewables**

As will be more fully substantiated in these comments, long-term contracts and, consequently, long-term cost recovery are essential for encouraging investment in new electricity sector resources, including new renewable energy generation necessary to meet future AEPS requirements. Restructured markets present a challenging design model for encouraging new energy generation, since competitive retail generation service tends to be procured largely through short-term and spot-market contracts, making it difficult for investors in new electricity sector resources to account for long-term cost recovery. One key exception to this has been the view that large segments of residential and small business customers would remain with the default service provider or electric distribution company ("EDC"). As a result, EDCs have, on a very limited basis, engaged in some long-term contracting for AECs. The renewable energy

industry's hope would be that long-term EDC AEC procurement might be expanded as AEPS requirements increase.

However, it is our understanding that the primary objective of the RMI proceeding is to design a default service model to encourage substantial shopping in the residential and small business classes. MAREC has no position on this objective, but is concerned that increased shopping for retail generation service will eliminate any incentive suppliers have to procure AECs on a long-term basis. Naturally, in a highly competitive retail generation supply market, suppliers will have a high degree of load uncertainty from year to year and, as such, will likely rely solely on short-term or spot markets to fulfill their AEC requirements.

MAREC's comments will focus on "squaring the circle," providing recommendations for mechanisms which will facilitate long-term procurement of AECs (thus encouraging sufficient cost-recovery for new renewable energy investments) while respecting and encouraging further competition for retail generation services.

### **MAREC Comment Summary**

- The Commission may require EDCs to engage in long-term contracting as a means of compliance with the AEPS.
- Long-term contracts are essential for new generation resources which must recover their capital costs over the long-term.
- All major electric sector capital investments have benefitted from long-term capital recovery mechanisms: generators through guaranteed rates of return, PURPA, and competitive transition charge payments; distribution and transmission still receive government approved rates of return.
- AEPS requires investments in new generation. Unlike existing power plants which are already amortized and are primarily concerned with variable cost recovery, new renewable energy resources must recover their capital costs.
- PJM's Reliability Pricing Model proceeding demonstrated that wholesale energy prices are insufficient to encourage new generation for reliability. This "missing money problem" demonstrates that new renewable energy resources, like all other new

electricity resources, require revenues greater than wholesale energy prices in order to achieve revenue adequacy.

- AECs represent the financial instrument by which new renewable resources are able to recover incremental capital costs.
- Capital costs for new renewable energy projects must be satisfactorily recovered over the long-term in order for rational investors to continue to invest in new renewable resources necessary to meet future AEPS demand.
- Total reliance on short-term AEC markets will produce prices that are either much lower than or much higher than a new renewable energy project's long-term incremental capital costs. This volatility, coupled with an inability for new renewable energy investors to fully capture the market's upside, makes total reliance on short-term AEC markets an unsatisfactory mechanism to achieve new renewable energy investment cost recovery.
- **MAREC proposes that the Commission require Electric Distribution Companies to engage in long-term (10-year and 5-year) AEC contracting for 50% of future AEPS demand.**
- Long-term contracts also, *ceteris parabis*, lower financing costs thereby reducing long-term costs to electricity customers.
- Because MAREC recognizes the Commission's commitment to promoting competitive generation service for all customer classes, MAREC is not proposing that EDC's acquire energy associated with AECs. This ensures that generation service is treated separately from AEPS compliance.
- Long-term contracts, so long as they are competitive, are "market-based." Market-based does not mean short-term; a market is buyers and sellers agreeing to a competitively set price for a product. In this case the product is a long-term AEC contract.

### **Compliance with the AEPS**

In its Tentative Order the Commission requested comments on whether EDCs or default service providers (DSPs) should be responsible for procurement to satisfy AEPS requirements and whether they should file a procurement plan for AEPS compliance with the Commission, consisting of short- to long-term AEC contracts for up to 50 percent of the zonal load in a service territory. We believe we provide strong support in these comments for moving in this direction, so that the State's policy enunciated in the AEPS can be met in a manner as described by the Commission that "helps facilitate a successful capacity build-out of AEPS qualified generation

facilities by mitigating long-term cash flow risks for relevant generation owners or financiers. This, in turn, will help to ensure that the percentage goals of the AEPS are reached.”<sup>1</sup>

The Commission is granted broad authority under Act 213, as amended, to administer the alternative energy system of payments. First, Act 213 is indifferent as to whether the AEPS are met by EDCs or electric generation suppliers (“EGSs”) or both.<sup>2</sup> There is no language directing the Commission to implement the Act through EDCs or EGSs either jointly or exclusively. The Act is primarily concerned with the mandatory delivery of alternative energy to the market. In establishing the procurement targets, the Act speaks only to energy “sold to retail customers” and is silent as to the type of market participant through whom it is accomplished.<sup>3</sup> The language “or” is used pervasively throughout Section 1648.3, perfectly illustrating the General Assembly’s desire to expand the role of alternative energy in the marketplace without specifying how this is accomplished by the Commission. Those arguing that the means of purchasing AECs is committed exclusively to the marketplace misread the Act.

Nor should Act 213 be narrowly construed, as this Commission has previously found:

The Commission concludes that the language of Section 1648.7(a) vests the Commission with the general supervisory, execution and enforcement powers for this Act. The phrase “carry out” can also be found in our general powers at Section 501 of the Public Utility Code, 66 Pa.C.S. § 501(a), “. . . the commission shall have full power and authority, and it shall be its duty to enforce, execute and **carry out**, by its regulations, order or otherwise, all and singular, the provisions of this part.”<sup>4</sup>

---

<sup>1</sup> Tentative Order at 37.

<sup>2</sup> 73 Pa. C.S. § 1648.3 (a)(1) (“... [T]he electric energy sold by an electric distribution company or electric generation supplier to retail electric customers in this Commonwealth shall be comprised of electricity generated from alternative energy sources...”) (emphasis added).

<sup>3</sup> 73 Pa. C.S. § 1648.3 (b)(1) (“... [A]t least 1.5% of the electric energy sold by an electric distribution company or electric generation supplier to retail electric customers in this Commonwealth shall be generated from Tier I alternative energy sources... ‘The minimum percentage of electric energy required to be sold to retail electric customers from alternative energy sources shall increase by at least 0.5% each year so that at least 8% of the electric energy sold by an electric distribution company or electric generation supplier to retail electric customers...’) (emphasis added).

<sup>4</sup> *Implementation of the Alternative Energy Portfolio Standards Act of 2004: Standards and Processes for Alternative Energy System Qualification and Alternative Energy Credit Certification*, Docket No. M-00051865 (Tentative Order entered January 31, 2006), at 6 (“*AEPS Tentative Order*”) (emphasis added).

The prerogative of the Commission to require EDCs to administer alternative energy procurement is expressly preserved in the Act where rate recovery is addressed:

... [A]ny direct or indirect costs for the purchase by electric distribution of resources to comply with this section, ***including, but not limited to,*** the purchase of electricity generated from alternative energy sources, ***payments for alternative energy credits,*** cost of credits banked, payments to any third party administrators for performance under this act and costs levied by a regional transmission organization to ensure that alternative energy sources are reliable, ***shall be recovered on a full and current basis*** pursuant to an automatic energy adjustment clause under 66 Pa.C.S. § 1307 as a cost of generation supply under 66 Pa.C.S. § 2807.<sup>5</sup>

On the topic of alternative energy credits specifically, the General Assembly completely understood the import of this aspect of procurement and crafted a separate section of the legislation addressing the topic. The Commission is expressly granted authority to establish a credit program as it feels is necessary:

***The commission shall establish an alternative energy credits program as needed*** to implement this act. The provision of services pursuant to this section shall be exempt from the competitive procurement procedures of 62 Pa.C.S. (relating to procurement).<sup>6</sup>

The “as needed” language makes it clear that the Commission has the flexibility to take the steps necessary to ensure that the AEC program is implemented in a manner as intended by the AEPS Act. The Commission has previously recognized that its powers to direct resource qualification and alternative energy credit are broad.<sup>7</sup>

The fact that the Commission has not previously mandated credit longevity is not a barrier to implementing such a program now. The Commission’s previous commentary

---

<sup>5</sup> 73 Pa. C.S. § 1648.3(a)(3) (emphasis added).

<sup>6</sup> 73 Pa. C.S. § 1648.3 (e)(1) (emphasis added).

<sup>7</sup> *AEPS Tentative Order* at 6 (“... Section 1648.3(e) vests the Commission with the power to promulgate regulations establishing standards and processes for resource qualification and alternative energy credit creation. Final determinations on resource qualification will therefore be made by the Commission or its agent, the program administrator.”).

indicated that its choice to use the competitive markets was simply one of several options and was an experimental solution:

The Commission recognizes that the successful implementation of Act 213 will require significant investments by the private sector in new alternative energy projects. It is the nature of many of these projects that they may require long-term contracts to be economically viable. The Commission acknowledges that the private sector seeks some assurance that long-term alternative energy contracts between EDCs and generators are not contrary to either the Competition Act or Act 213 before making these investments. *Because the alternative energy market is a new and emerging marketplace, in contrast to more mature, conventional energy markets, it appears that competitively procured, long-term generation contracts may be the prevailing market instrument for EDCs to comply with Act 213.<sup>8</sup>*

There is certainly strong justification for the Commission to move forward as we propose herein to ensure the long-term availability of stable and reasonably priced AECS as contemplated by the General Assembly when it enacted the AEPS Act. In view of subsequent developments and the experience gained, the Commission is free to revise its assessment of the competitive market place as the best means to encourage long term contracts. As described in these Comments, the Commission should do so now.

### **MAREC's Competitive Long-Term AEC Proposal**

This section sets forth MAREC's long-term contracting proposal. Hereafter, the remainder of these comments shall explain the reason for and benefits of MAREC's proposal that the Commission require competitive long-term AEC contracting as part of its final RMI Order. To be clear, MAREC believes that long-term contracting should be a requirement rather than a voluntary opportunity left to the EDC's discretion as suggested in the proceeding's Secretarial Letter.

---

<sup>8</sup> *Implementation of the Alternative Energy Portfolio Standards Act of 2004*, Docket No. M-00051865 (Order entered November 18, 2005), at 3 (emphasis added).

MAREC's competitive long-term AEC proposal is as follows:

- The EDC shall procure 50% of annual AEPS requirements (AECs only; no energy) through annual competitive procurements;
- Half of the procurement shall be for 10-year fixed price, AEC strips; the other half shall be for 5-year fixed price, AEC strips;
- The EDC shall retire AECS on behalf of EGS and itself based on a pro-rata share of each EGSs and EDCs retail customers in a given EDC service territory for a given year;
- EDCs shall recover their costs through a non-bypassable distribution charge;
- EGS's AEPS compliance obligations will be duly reduced based on the AECs retired by the EDC on their behalf, and;
- EDCs shall conduct competitive, long-term AEC procurements on an annual basis until such time as the Commission determines that sufficient resources exist to meet AEPS requirements on a long-term basis.
- MAREC recognizes that long-term contracting incentives should be limited to encouraging enough new renewable resources to meet the AEPS requirements. This ensures that the long-term contracting incentives proposed here are not over-incenting the market, leading to more wholesale energy production than would otherwise occur as a result of the AEPS act's mandates.

### **New Generation Requires Incremental Revenue**

In 2004, the Pennsylvania General Assembly passed the Alternative Energy Portfolio Standards Act. This law requires LSEs to acquire an increasing amount of electricity from designated eligible generation resources. The law created "tiers" of eligible generation resources. Tier one includes resources which are generally considered renewable, including electricity generated by wind, solar, biomass, certain types of incremental hydroelectricity, biologically derived methane gas, geothermal, coal mine methane and fuel cells. The law also created a "carve-out" for solar photovoltaics ("PV"); requiring LSEs to acquire a specific amount of electricity from this technology. Ultimately, LSE's must acquire 7.5% and 0.5% of their

electricity from tier one and solar PV resources, respectively, by 2021-2022.<sup>9</sup> In short, the AEPS requires that new generation be built to comply with the law.

As described in the Tentative Order, the RMI is primarily concerned with increasing retail electricity competition. Since the vast majority of retail electricity supply is generated by existing power plants, the benefits of retail electricity competition largely result from efficiencies created by the wholesale competitive market. As such, policies aimed at increasing the benefits of retail competition will largely be targeted at passing on the benefits of wholesale competition among existing power plants.

MAREC's challenge, as it relates to RMI is to ensure that well-intentioned policies to promote further retail competition do not inadvertently undermine policies necessary to cost-effectively and efficiently meet AEPS requirements. In other words, AEPS is a law concerned with promoting development of certain types of new power plants, whereas, retail electricity competition is primarily concerned with passing on the maximum benefits of wholesale electricity competition among existing power plants to retail rate-payers. MAREC will demonstrate how each objective can be achieved in a complementary fashion, but that meeting these objectives will require policy-makers to develop market-based approaches that recognize the unique objectives of each law (e.g. one size does not fit all).

### **AEPS Resources Require Incremental Revenue**

Most, if not all, of the generation resources serving Pennsylvania's ratepayers were constructed under either a guaranteed, government-approved regulated rate-of-return or through a guaranteed avoided cost contract as a PURPA (Public Utility Regulatory Policy Act) qualified

---

<sup>9</sup> The law also includes requirements for acquisition of 10% tier two resources. These are defined as electricity generated from large-scale hydroelectricity, waste coal, municipal solid waste, and various energy efficiency and demand response technologies. Sufficient resources currently exist to meet this requirement. Therefore, in MAREC's view, new resource investments are not required to meet the law's tier two requirements.

facility. Further, generation resources owned by investor owned utilities and operating in Pennsylvania also received, some through 2011, competitive transition charge payments to ensure that generation owners were fully compensated for those power plant's capital costs as the state's electricity market transitioned to competition. As a result, existing power plants have largely or entirely recovered their initial capital costs via rate-payer funded guarantees. In today's electricity market, these power plants compete with each other, and set wholesale electricity prices, based on their variable costs.

As PJM's Reliability Pricing Model ("RPM") proceeding demonstrated, revenues from wholesale electricity sales are insufficient to incentivize the construction of new power plants for reliability. This is commonly referred to as the "missing money problem"<sup>10</sup> and results because marginal wholesale electricity prices set by variable costs are not sufficient for capital recovery. RPM was created to provide additional revenue, above the market price of wholesale electricity, to encourage reliability investments. Skepticism remains whether RPM's design is ultimately sufficient to achieve the purpose of encouraging new investment. However, generation suppliers and many others are largely in agreement that wholesale market revenues, by themselves, are insufficient to encourage new generation investments and that supplemental revenue is necessary – in some cases, even necessary to maintain the revenue adequacy of existing power plants and prevent retirements.

Although AEPS resource investments are not primarily concerned with reliability, the problem is the same; new generation investments, unlike existing power plants, must recover variable costs **and capital costs**. Wholesale electricity prices by themselves are insufficient to encourage capital cost recovery and, therefore, supplemental revenue is necessary in order to

---

<sup>10</sup> See Dr. William W. Hogan. "Resource Adequacy Mandates and Scarcity Pricing ('Belts and Suspenders')." February 23, 2006. <http://www.whogan.com/>

properly encourage the investments envisioned by the AEPS law. In the case of AEPS, this supplemental revenue source is AECs (commonly referred to in the renewable energy nomenclature as renewable energy certificates or RECs, however, we will use the term AECs since that is the acronym specific to Pennsylvania).

RPM recognized that, in order to work, it must create an incentive payment strong enough to encourage new investments. RPM included two mechanisms to achieve this. The first is a forward price. Resources clearing in the RPS auction commit to providing energy (or demand response reduction) three years in advance. For that commitment they receive one-year of fixed payments. The incentive payment is based on a downward sloping curve which begins at two times the cost of new entry in order to encourage a robust incentive payment. It should be noted that the capacity “market” created by RPM is not a market *per se*, in that buyers and sellers do not exclusively meet to coalesce around a price that each agrees. Rather, RPM is largely an administrative configuration aimed at ensuring that reserve margins are met for reliability.

Similarly, in order for AEPS to work, it is essential that AECs send a price signal sufficient to encourage development of AEPS resources to meet the law’s requirements. Almost since the inception of AEPS, renewable energy developers have argued that long-term contracts provide the most efficient and best price signal to achieve this objective. Some restructured states with renewable energy requirements, most notably New York and Massachusetts, have recognized this, but most have not. As a result, state-level AEC (REC) markets have been volatile and generally send a price signal that is either too weak or, sometimes, too strong. Like Goldilocks, we argue that the objective of RMI should be to get this price signal “just right.”

## **Shortcomings of Total Reliance on Short-Term AEC Markets**

The Commission's RMI docket has been primarily concerned with ensuring that default service properly mirrors the "market cost" of wholesale energy. In this context the market is defined as a short-term product and default service should mirror this market as closely as possible to encourage competitive suppliers to offer the most innovative products. In our view, this is a legitimate approach by the Commission for retail energy sales, since this market is primarily concerned with capturing efficiencies from changes in variable costs of existing generators. However, that does not mean that this is the most appropriate approach for AECs. Total reliance on short-term markets for AECs, which are primarily concerned with long-term capital recovery, will result in prices that are either too low or too high, creating unnecessary price volatility for ratepayers and, in the worst case, discouraging investments necessary for AEPS compliance.

Renewable energy projects have three primary sources of revenue: federal tax benefits<sup>11</sup>, wholesale energy, and AECs.<sup>12</sup> In an efficient AEC market, an AEC's value equals the difference between the value of wholesale energy and tax credits and a new renewable energy project's long-term costs and a reasonable, risk-weighted rate of return.

In an efficient AEC market, an AEC equals (renewable project cost + reasonable rate of return) minus (wholesale energy + federal tax benefits)

---

<sup>11</sup> Qualifying renewable energy projects were able to elect to receive grants in lieu of tax benefits as part of the Treasury Department's 1603b program. These grants were equal to thirty percent of a project's capital costs. However, this option is expiring at the end of 2012, and additionally, the primary federal incentive for wind energy, the production tax credit (PTC) which provides a 22 cents/kWh tax credit, is expiring at the end of this year. Conventional wisdom is confident that should the PTC be extended it will not include the option to elect a grant in lieu of the tax credit.

<sup>12</sup> Some projects do receive capacity payments, but they are generally not a major revenue source for renewable energy projects.

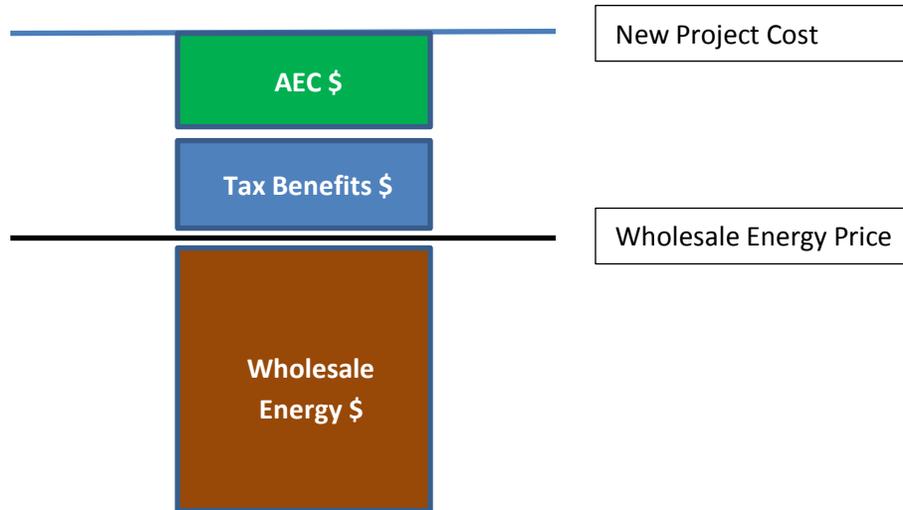


Figure 1: Renewable Energy Revenue Sources

If the AEC market is not producing a price signal equal to the difference between the value of wholesale energy and tax credits and the long-term cost of a new renewable energy project and a risk-weighted rate-of-return, then that price signal is inefficient. Going forward we shall refer to the difference between the value of wholesale energy and tax credits and the long-term cost of a new renewable energy resource and a risk-weighted rate-of-return as the incremental cost. In an efficient market, over the long-term, an AEC's value should equal the project's incremental cost (Efficient AEC Market Design:  $AEC = \text{Incremental Cost}$ ).

The challenge of relying solely on short-term AEC price signals is that the AEC price will be determined by short-term supply and demand and will not necessarily produce a price reflective of incremental cost. This is further exacerbated by the "thinness" of AEC markets, which means that AEC markets have limited demand and a limited number of buyers and sellers and, therefore, lack the massive market liquidity of, for example, the PJM energy market with hundreds of market participants on the supply and demand side, buying and selling at many different locations in the market. As a result, in a short-term AEC market, prices tend to fall towards zero when supply is even slightly long, discouraging investments in new renewable

generation required for AEPS compliance. When the market is slightly short, prices tend to rise towards the alternative compliance payment level, creating windfall profits for generators in the short-run and price spikes that may be detrimental to consumers.<sup>13</sup> Comparatively, the much more liquid PJM energy market produces far more stable pricing, *ceteris parabis*.

Over the long-run, total reliance on short-term AEC markets may still work to encourage AEPS compliance, although only if policy-makers and legislators are willing to let renewable energy investors take the market's upside. We are highly skeptical that this is possible. Further, the alternative compliance payments ("ACP") constrains the amount of upside which renewable energy investors can obtain and, therefore, limits the prospects for cost-recovery in a market totally reliant on short-term AEC price formation.<sup>14</sup>

The following series of charts will demonstrate the point that total reliance on short-term AEC price formation will potentially discourage AEPS compliance and almost certainly result in unnecessary price volatility.

---

<sup>13</sup> Illinois provides a real-life example of the price volatility that can arise from total reliance on short-term AEC price formation. With a notable exception in 2010, Illinois relies entirely on one-year REC (AEC) purchases for RPS compliance. The following are the average REC prices for 2008-2012: 2008, \$35.72; 2009, \$21.13; 2010, \$5.00; 2011, \$1.05; 2012, \$0.88. This pricing demonstrates how thin REC markets produce massive price swings unrelated to the incremental cost of new investments.

<sup>14</sup> The limited upside is a major problem in cost recovery. PJM's cap on wholesale energy prices is one reason that the capacity market was created. Again, market participants endorsing the RPM design recognize that markets which limit upside revenue create challenges for cost recovery and revenue adequacy.

We have established that an efficient AEC market produces an AEC price equal to a project's incremental cost over the long run.

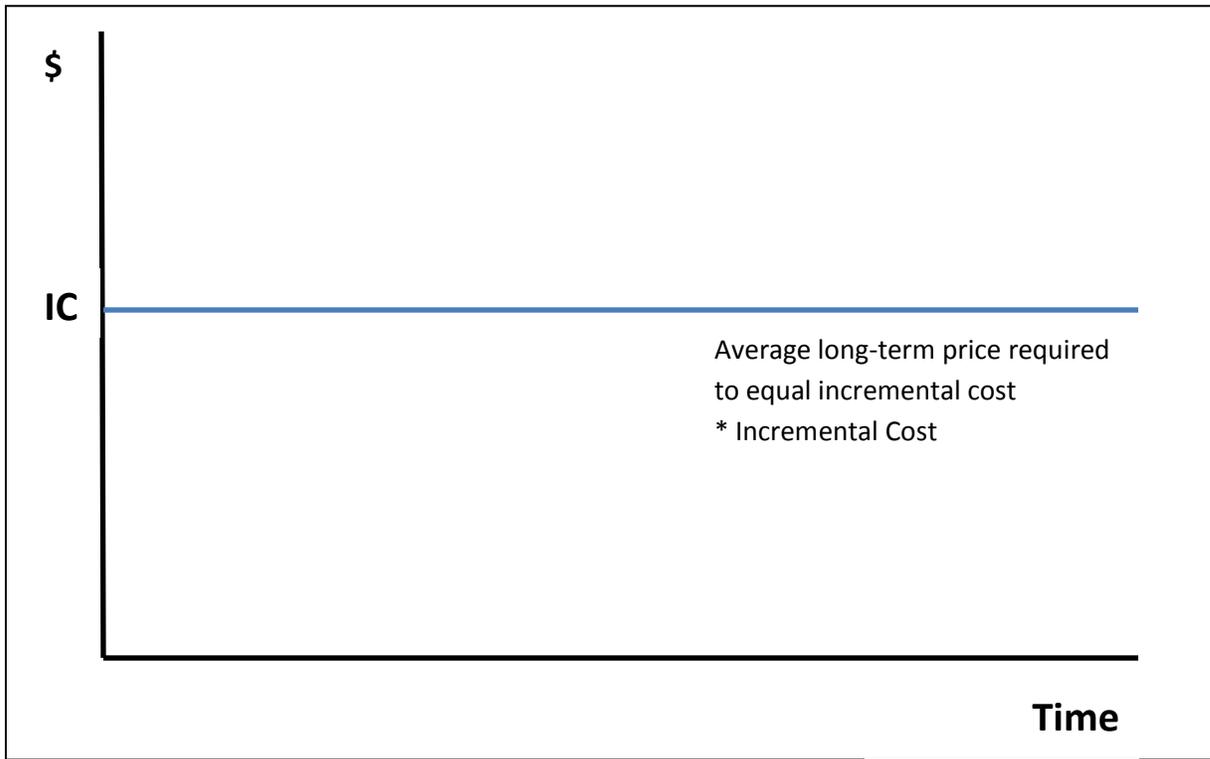


Figure 2: AEC Price Required to Achieve Incremental Cost

Figure 2 shows the AEC price which must be achieved over the long run to equal a new renewable energy project's incremental cost and, as such, to make a new renewable energy project economic. This price is represented by the flat blue line. IC stands for incremental cost.

Figure 3 characterizes the current state of Pennsylvania’s AEC market.

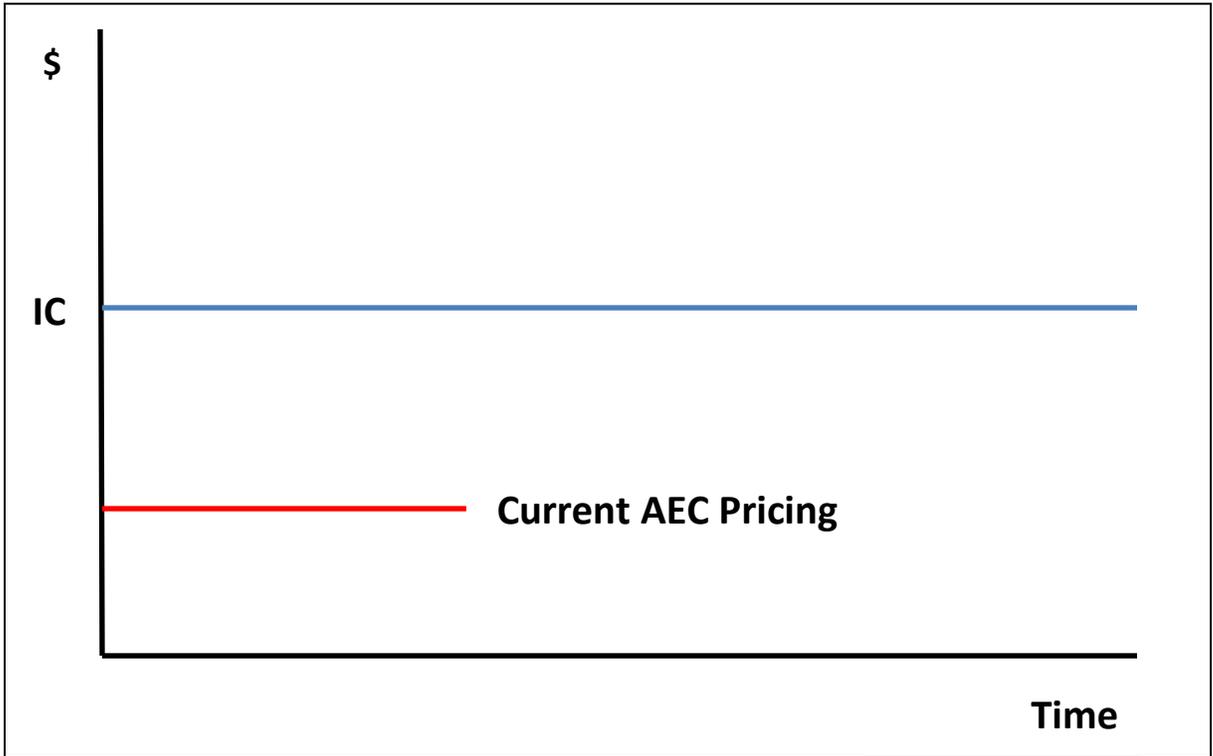


Figure 3: Current AEC Prices are Below the Incremental Cost

In other words, Pennsylvania’s AEC market is currently oversupplied. As expected, this results in AEC prices well below the incremental cost.<sup>15</sup> In an efficient market, *ceteris parabis*, the low price signal would discourage new investment; prices would rise in the out-years as a result, allowing existing investments to achieve their incremental costs. Rising AEC prices would then encourage the additional investment necessary to meet the AEPS out-year targets. We believe that advocates of total reliance on short-term AEC markets expect AEC market pricing to work this way. However, as the next figures will demonstrate there are flaws in this

---

<sup>15</sup> According PUC Annual AEPS reports, average Tier I (non-solar PV) AEC prices were: 2007, \$3.90; 2008; \$4.48; 2009, \$3.65, and; 2010, \$4.77.

approach that we believe makes total reliance on short-term AEC markets an inefficient approach to meet long-term AEPS requirements.

Figure 4 demonstrates that in order for AEC revenues to achieve the incremental costs, significant increase in AEC prices must occur in the out-years.

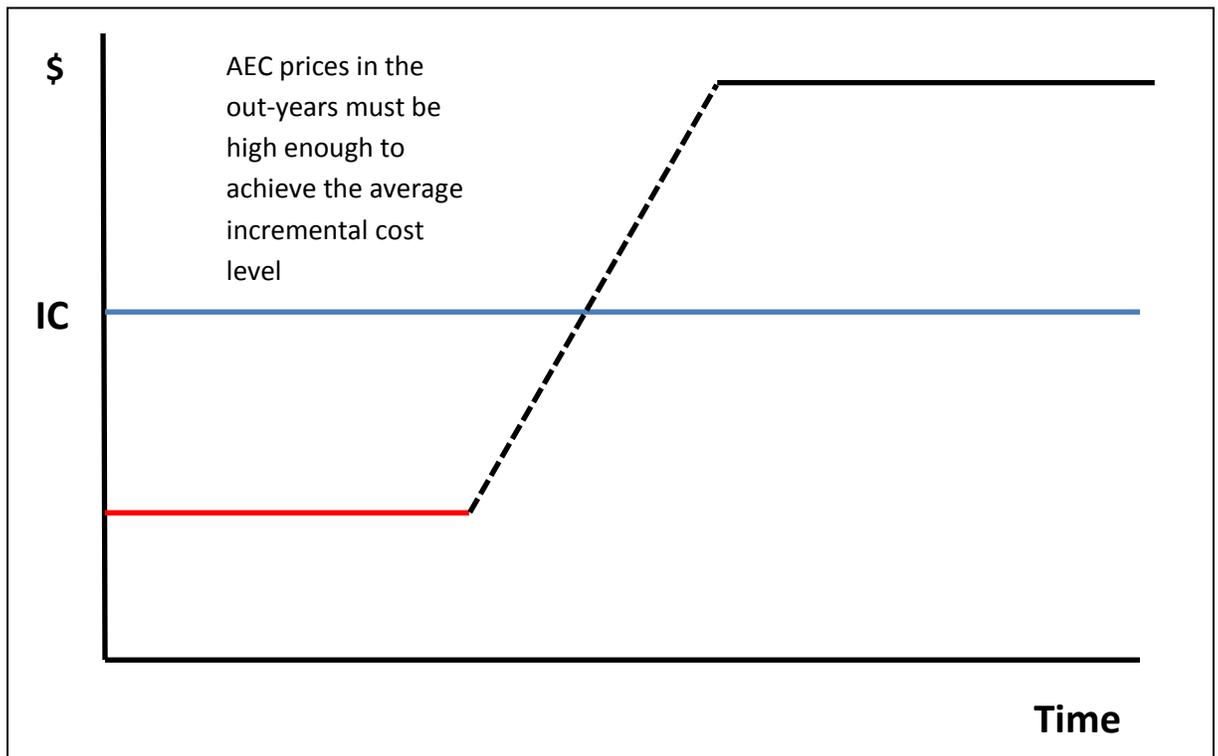


Figure 4: Out-Year AEC Prices Must Rise Significantly to Achieve Incremental Costs

If prices were able to rise in the out-years to achieve a long-term average AEC price that met the incremental cost requirements, then it is conceivable that total reliance on short-term AEC markets could achieve the objective of encouraging investments in new renewable energy resources necessary to meet future AEPS requirements. This would require stakeholders, such as legislators, PUC commissioners, LSEs, consumer advocates, and customers to accept that in

some years renewable energy investors will be entitled to receive very high prices in order to recover their costs and not to seek redress of future high AEC prices either through legislation or regulation.

Figure 5 presents the case that AEC prices are constrained on the “upside.” As a result, presuming renewable energy investors are behaving rationally, achievement of AEPS targets will be endangered as AEC price signals will be insufficient to encourage investments in new renewable energy resources.

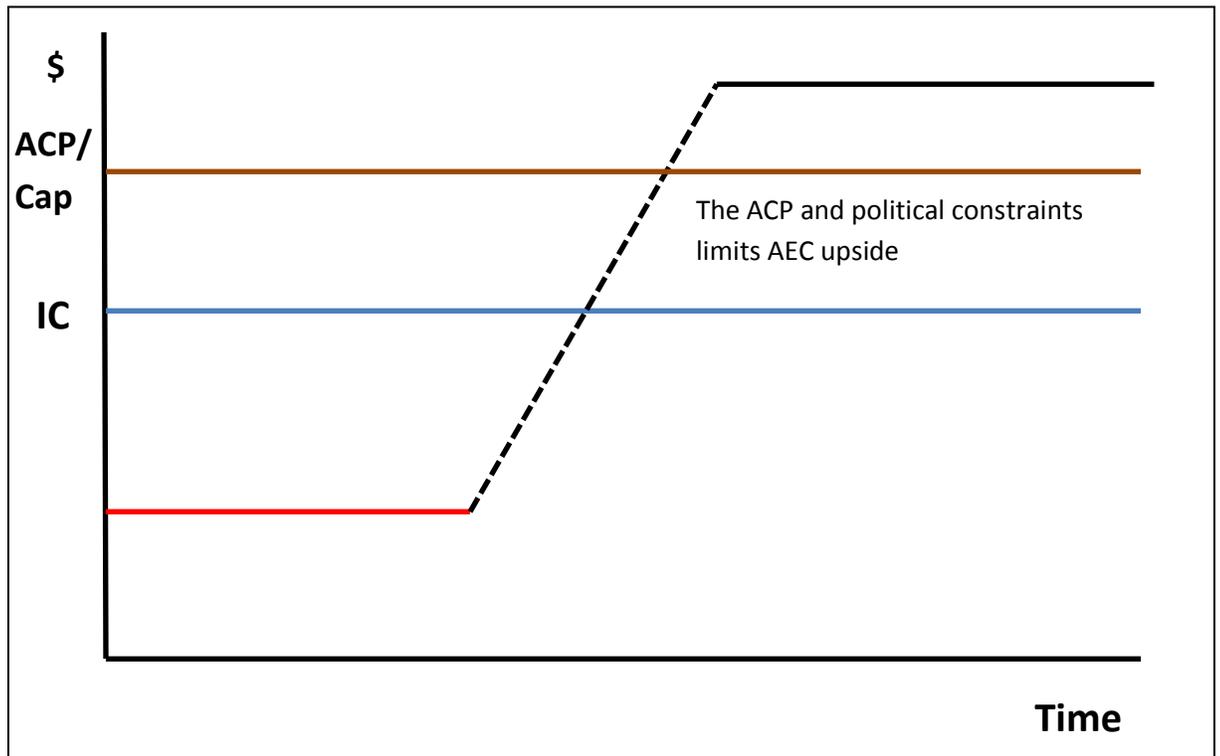


Figure 5: The ACP and “Political Considerations” Limits Out-Year AEC Prices

The brown line added to Figure 5 represents a limitation to the upside of out-year AEC revenue. In short, total reliance on short-term AEC markets to obtain incremental costs is limited by the ACP and, likely further, by the inability/unwillingness (“political risk”) of stakeholders to

allow renewable energy investors to take significant AEC upside revenue. As a result, we believe there is a real danger that out-year AEPS targets will not be achieved because renewable energy investors will not be able to recover their incremental costs (or will believe that cost-recovery is impossible due to limitations in achieving high-enough out-year AEC prices to make their investment worthwhile, especially in light of the high degree of regulatory risk such project investments face).

In this scenario, failure to achieve the AEPS targets will not result because tier one renewable energy resources were “too expensive,” rather it would result from a simple failure of market design, easily remedied by adopting MAREC’s recommendations to require LSE’s to engage in a portfolio approach to AEC procurement which seeks a portfolio of competitively sourced AEC products, including 10-year and 5-year AEC strips. Such products will more closely align AEC prices to long-term incremental costs, while reducing price volatility. In a very competitive market, in which renewable energy generators are only able to achieve recovery of their costs, plus an acceptable risk weighted rate-of-return, rate-payer impacts would be either the same or less (see pages 20-22) over the long-run as if the market relied completely on short-term procurement, but without the volatility or regulatory risk to renewable energy owners and citizens that AEPS targets will not be achieved.

### **MAREC’s AEC Long-Term Contract Proposal**

As demonstrated above, total reliance on short-term purchases of AECs are likely to result in extreme market volatility, leading to short-term AEC prices that are either too low (resulting in revenue deficiency for renewable energy investors) or too high (resulting in windfall profits for renewable energy investors). In an unconstrained market, it is conceivable that over time, the average of this volatility would lead to an average AEC price equal to a new renewable

energy project's incremental costs. We have shown that given the constraints of ACPs and legislative and regulatory risk, this result is highly unlikely as renewable energy investors will most certainly be unable to take the upside of the AEC market necessary to balance the extremely low prices created when short-term AEC supply is greater than demand.

The Commission should strive to create a competitive price signal which seeks to price the AEC as close to the incremental cost as possible. In our view, this is best achieved through a competitively sourced long-term AEC contract. A longer-term AEC strip will enable renewable energy developers to offer a price less subjected to short-term supply and demand and more reflective of the project's incremental costs. This will produce a flatter average price over time that will significantly reduce the risk that future supply shortages will lead to price spikes which would both negatively impact electricity customers and AEPS compliance.

Note that PJM and its stakeholders recognized that a "forward price" was essential to encourage new investment for reliability purposes and the three-year forward price concept was and is an instrumental component of the RPM. Further, PJM designed the RPM such that its clearing price is meant to be sufficient to encourage new supply. This design has been broadly accepted by PJM generation owners and demonstrates that generation owners recognize the key concern MAREC raises in regards to AEPS compliance: In order for new generation to viably recover its capital costs, a cost recovery mechanism (be it AECs or RPM capacity payments) must have a price signal that is both sufficiently robust for new generators to recover their capital costs and not subjected to the price volatility produced by short-term supply and demand imbalances.<sup>16</sup>

---

<sup>16</sup> Some would argue that one of RPM's primary deficiencies is that the one-year guaranteed price is not truly sufficient to encourage new generation, since short-term supply and demand imbalances could generate an out-year price that is insufficient for cost-recovery purposes. MAREC's proposal addresses this problem by proposing

### **Long-Term Contracts can be “Market Based”**

A primary objection to long-term contracts is that they are not “market-based.” MAREC’s view is that the key component of any market is that buyers and sellers come together to agree to a price for a product that is set through competitive means; competition being the operative fundamental component in any market, rather than length of term for which a product is purchased. In this case the product would be a long-term contract for AECs, and the market (e.g. competitive procurement) would set the price which a buyer and seller would agree to. This is a much different approach from long-term rate-recovery achieved either through the old vertically integrated model or PURPA in which prices were essentially fixed by the state government or through an avoided cost rate. Rather, MAREC proposes that long-term AEC contracts pursuant to our proposal be competitive. In MAREC’s view “market-based” equates to a product that is competitively priced, whereas some stakeholders seem to simply equate “market-based” solely to a short-term price. As demonstrated above, the latter view is insufficient to efficiently promote capital recovery for new projects.

### **Long-Term Contracts Executed for Capital Recovery Reduce Consumer Costs**

MAREC’s comments have primarily focused on short-term procurements fundamental deficiency in recovery of capital costs related to new power plant investment, including new renewable energy investments. We have shown how total reliance on short-term procurement of AECs can potentially compromise future AEPS compliance. However, long-term contracting

---

longer-term competitively priced AEC contracts. Nevertheless, generation stakeholder acceptance of the basic RPM model validates MAREC’s view that incremental capital recovery requires a model different than that of the short-term energy-only market.

can also reduce long-run consumer costs by decreasing the cost of borrowing to invest in a new renewable energy project.<sup>17</sup>

To make investments sizeable enough to meet the AEPS, renewable energy investors will, over the long-run, require assurance that they will receive an adequate return on their investment. What is considered an adequate return will be determined by the risk of the revenue stream associated with that investment. For example, a merchant (no long-term contract for energy or AECs) or partially merchant (long-term contract for either only energy or AECs only) will have different risk profiles and, therefore, will require a greater return than a project which has a bundled (energy and AECs) long-term power purchase agreement. Returns required for projects that are fully merchant will be higher than projects that have some reduced exposure to unknown pricing through long-term contracts. The practical implication of the higher return requirement is that, for the same project, expected AEC prices will need to be higher to trigger an investment.

Electricity consumers can benefit from pricing resulting from reduced renewable energy investment risk resulting from competitively sourced, long-term AEC contracts. The following is a basic example. Please note this is for demonstration purposes only and does not necessarily represent how any single company may choose to price risk in pursuing project development.

Assumptions:

1. The difference between a fully merchant project's Weighted Average Cost of Capital ("WACC") and a "hybrid" project with merchant energy and 10-year AEC contract WACC = 85 basis points.

---

<sup>17</sup> In the current market environment we believe it is highly improbable that lenders will finance fully merchant projects. The risk is simply too great and prices which recover the combination of price, regulatory and legislative risk are simply not achievable in this circumstance. Thus, only companies with a very high risk appetite and their own balance sheet will be able to invest in new renewable energy projects. Obviously, this circumstance reduces competition and, *ceteris parabis*, would lead to much higher prices. Therefore, uniquely, long-term contracting requirements are actually likely to increase competition (competition being the essential element of a "market-based" approach) and rate-payer benefits.

2. 85 basis points equals approximately \$7 to \$12 per MWh (we will assume the low-end for this example).
3. Assume a 50 MW wind project at a 33% capacity factor. This project will produce approximately 144,540 MWhs per year. Over a ten year period this project will produce 1,445,400 AECs.

Total rate-payer savings from the 10-year AEC contract equals:  $1,445,400 \times \$7.00 = \$10,117,800$ .

### **Conclusion**

We respectfully request that the Commission put MAREC's comments in their proper context. As these comments have demonstrated, all major capital investments in the electricity sector have required long-term cost recovery. In this regard, it is essential to differentiate market-mechanisms necessary for capital recovery, which history has demonstrated work most effectively if they are long-term, and market-mechanism for recovery of variable costs, which can appropriately be made through short-term and spot procurements. A market-based approach to long-term renewable energy capital investment can and should be achieved by focusing on competitive solicitations. In fact, a review of the history of electricity generation investment demonstrates that today's renewable energy investors are subjected to far more competitive risk than legacy fossil fuel and nuclear generators ever were.

The following chart sets forth this argument and demonstrates that legacy fossil fuel and nuclear generators experienced zero risk in recovery of their capital costs (apply this zero risk equation to the cost of capital example provided above and it demonstrates the tremendous advantage legacy generators have over new generation investors which must compete in a competitive market without government cost-recovery guarantees).

## Comparison of Cost Recovery Opportunities for New Renewables and Legacy Generation

|                        | New Renewables  | Legacy Generation  |
|------------------------|---|--|
| Capital Cost Recovery  | Competitively Sourced AECs (Proposed by MAREC);<br>Federal Tax Benefits | Government Guaranteed Rate-of-Return; PURPA;<br>Competitive Transition Cost Charges; Capacity Payments (RPM) |
| Variable Cost Recovery | Competitive Wholesale Energy  | Competitive Wholesale Energy   |

Clearly, investors in new renewable energy projects are subjected to far more competitive pressure than legacy generators ever were given their capital cost recovery was guaranteed in numerous ways. As a result, MAREC's request for long-term contracts for AECs is merely a change in the structure of a competitive product (going from a short-term to some opportunities for a long-term product). Given that the longer term product is less volatile from a price perspective, makes cost-effective AEPS compliance more likely, and saves electricity consumers money over the long-run, MAREC hopes the Commission will give our proposal serious consideration.

MAREC is more than willing to work with the Commission and all RMI Stakeholders to find a workable solution to the challenges set forth in MAREC's comments. MAREC thanks the Commission for the opportunity to provide these comments.

Respectfully submitted,




---

Bruce H. Burcat, Esquire  
(Pa. Attorney ID No. 44868)  
Executive Director  
Eric Thumma  
President  
Mid-Atlantic Renewable Energy Coalition  
208 Stonegate Way  
Camden, DE 19934

Date: December 10, 2012