

December 4, 2020

Emailed to DOER.APS@mass.gov

Samantha Meserve
Deputy Director, Renewable and Alternative Energy Division
Massachusetts Department of Energy Resources
100 Cambridge St., Suite 1020
Boston, MA 02114

Re: 2020 APS Minimum Standard Review Comment

Dear Ms. Meserve:

Vicinity Energy Inc. (“Vicinity”) hereby submits these comments pursuant to the November 6, 2020 notice for comments by the Department of Energy Resources (“DOER”) and 225 CMR 16.07(3) concerning the 2020 Alternative Energy Portfolio Standard (“APS”) Minimum Standard Review.

Background on Vicinity

Vicinity owns Kendall Green Energy cogeneration facility (“Kendall”) located in Cambridge, Massachusetts. Kendall produces electricity and is the primary energy source providing thermal energy to Vicinity’s steam district energy network in Cambridge and Boston. Kendall is an efficient 200MW natural gas combined heat and power (“CHP”) generation facility. Vicinity leverages the waste heat from Kendall to deliver 600,000 pounds per hour of carbon free steam to customers in its Boston and Cambridge, including hospitals, universities, government, and commercial buildings. Vicinity serves the thermal needs of 60 million square feet of commercial and institutional space and there are 180 employees working in Boston and Cambridge.

Introduction

Vicinity’s comments concerning the 2020 APS Minimum Standard Review discuss the past policy success of the APS program in promoting alternative energy resources, as well as the importance of the APS incentive to the continued success of the program to achieve the goals of the legislature. The comments also explain the conditions that have caused the current state of collapse of the program, why problems have emerged, and several recommendations for reform.

Until recently, the APS program has been successful in achieving the goals for the program established by the legislature. The APS program was created to promote alternative energy technologies to facilitate transformation in the way Massachusetts customers use energy to promote diversity of resources, flexibility, resiliency, and reliability. The APS program is not a program to address climate change *per se*, although the grid technologies that APS incentivizes, including CHP, have helped transform the energy economy to support the Commonwealth’s

climate goals. Recent changes to regulations caused serious challenges to the APS program, and further changes are badly needed in order to restore the program so that it can fulfill the objectives of the APS law and support a lower carbon economy.

Vicinity has endeavored to seriously address responses to the specific questions presented by DOER rather than focus excessively on refuting the deeply flawed report by DOER consultant Daymark Energy Advisors. The Daymark report relied repeatedly on incorrect and incomplete assumptions about emissions rates to reach the conclusions that CHP does not reduce emissions. For example, the study utilizes the wrong emissions rate assumption for natural gas CHP that overstates emissions,¹ while also using an outdated and incorrect assumption for ISO New England, Inc. (“ISO-NE”) marginal emissions to understate displaced emissions.² Daymark did not follow well-understood United States Environmental Protection Agency (“EPA”) recommendations for calculating displaced grid emissions resulting from energy efficiency or CHP projects.³ The Daymark report made similar substantial errors in its modeling for calculating CHP costs and the need for the APS incentive for investment. Vicinity respectfully requests that DOER not allow itself to be distracted by the deeply flawed Daymark report.

The APS program needs reform, but the program would be decimated if policy recommendations based upon the Daymark report are accepted. Daymark is utterly alone among consultants and academics in its widely inaccurate views about the value of CHP in reducing greenhouse gas (“GHG”) emissions. If DOER is inclined to further consider the Daymark analysis following its review of submissions to this request for comment, Vicinity respectfully requests that DOER invite public comments specifically on the analysis and modeling used by Daymark in order to ensure an accurate record.

According to a recent study and report by the global consulting firm ICF, CHP will continue to reduce carbon emissions through at least 2040,⁴ and beyond 2050 in the Northeast Power Coordinating Council region including New England.⁵ CHP reduces emissions because it displaces fossil fuel generation resources running on the margin in grid operations. Accordingly, as long as there are fossil fuel load following resources on the grid, natural gas-fired CHP will always result in fewer emissions than separate heat and power, even when compared to the most efficient combined cycle turbine plants.⁶

Vicinity makes several specific recommendations to change regulations in responses to the DOER questions below. Vicinity respectfully requests that DOER: 1) raise the minimum standard to level that balances supply and demand going forward; 2) adopt tariff-based pricing that is patterned after what exists for Massachusetts solar programs; 3) allow for “re-minting” or APS generator baking of Alternative Energy Credits (“AECs”); 4) create a mechanism in

¹ Using natural gas CHP life cycle emissions rates instead of combustions emissions rates.

² In 2018, ISO-NE added a new method, referred to as the “Load-Weighted LMU” approach to replace the inaccurate approach relied upon by Daymark.

³ https://www.epa.gov/sites/production/files/2016-05/documents/appendix_0.pdf

⁴ <https://www.icf.com/insights/energy/chp-role-in-decarbonization>

⁵ Presentation of David Jones, ICF, CHP Alliance 2020 Summit: The Role of CHP in a Low-Carbon Future, in a presentation entitled CHP Greenhouse Gas Emissions Reduction Potential: 2020-2050, Grid Emissions Comparison, at page 10, September 15, 2020.

⁶ Ibid, note 4.

regulation to adjust the minimum standard as necessary patterned after a similar mechanism in the Massachusetts Clean Peak Energy Standard; and, 5) invite proposals to adopt regulations for efficient steam technologies to participate in the APS program.

Responses to Questions

1. What are the benefits of the APS program to ratepayers, including but not limited to economic, environmental, and societal benefits?

Vicinity APS participation unlocks more than double the carbon benefits of new APS participants

It is important to note that Vicinity only generates AECs for the incremental improvement in the efficiency of its plant from a baseline based upon the configuration of the CHP/district energy system when participation in the APS program began. This baseline is equivalent to over 628,000 of AECs that are not recognized, but for which the Commonwealth receives the benefit in the form of GHG reductions. Another way to view this is that Kendall delivers 127,500 tons of Greenhouse Gas (GHG) reductions annually with no AEC incentive. Based upon performance for which AEC credits are generated above the baseline, Vicinity is responsible for eliminating an additional 120,000 tons of GHG reductions annually.

Accordingly, the changes Vicinity made to the Combined Heat and Power (CHP) operations at Kendall in order to be eligible to participate in APS eliminates 247,500 tons of GHG from the atmosphere annually. These benefits are real and measurable. The APS program is getting more than double leverage from Vicinity's participation the APS program in terms of carbon reductions.

Vicinity understands the baseline rationale for generating AECs above Kendall's prior configuration before the start of the APS program. However, at a minimum the full environmental benefits realized from its participation must be acknowledged in an accurate assessment of the benefits of CHP participation in the APS program. Among the many big misses and distortions in the Daymark review of the APS program was the utter failure to acknowledge this substantial benefit and properly assess the value of CHP.

As discussed below in response to question 8, in the case of Vicinity, the APS program was directly responsible for Vicinity's decision to make a \$112 million "Green Steam" energy project possible which included numerous efficiency improvements and the elimination of the Charles River as a heat sink for the now retired condensing steam turbines. That steam is now used every day to heat Boston and Cambridge rather than being discharged to the river. That investment eliminates nearly a quarter million tons of GHG annually from the atmosphere and facilitated significant environmental improvements to the Charles River that has been recognized and cited by EPA as a model project,⁷ referring to the project as a huge victory for sustainability.

<https://www.waterworld.com/environmental/article/16192258/epa-regional-focus-spotlight-on-new-england>;
<https://www.epa.gov/sites/production/files/2015-08/documents/chpguide508.pdf>;
<https://www.veolia.ca/en/media/newsroom/veolia-celebrates-final-green-steam-milestone-kendall-station>

In fact, it was referred to by the EPA at the time as the most important project in EPA Region One.

APS incentive lowers electricity costs

Another vital benefit of the APS program to ratepayers is that Vicinity's participation reduces electricity costs in Massachusetts. Historically, revenues earned from the Massachusetts APS Program have allowed Vicinity to competitively offer electric energy from its clean CHP facility into the ISO-NE market. By incorporating the APS incentive in order to lower its energy bids to ISO-NE, Kendall is able to clear the market, avoiding the dispatch of higher cost combined cycle plants with greater emissions and lower efficiency, and avoiding the need for Vicinity to start natural gas boilers to serve its primary thermal load.

The ability of Vicinity to continue delivering massive GHG reductions annually and provide resiliency and reliability to the grid is dependent upon the continuation of the APS program for CHP at meaningful incentive levels. These benefits are at risk now because of the collapse in prices for AECs in recent years and would undoubtedly be lost if there are changes to the APS program to phase out or eliminate CHP from the program.

It must be recognized that the APS incentive level impacts operations of Kendall and not only decisions about capital investment. Vicinity must structure cost-based offers of Kendall's output into ISO-NE, and the expected APS program incentive level is incorporated into its bids. The ISO-NE system is dispatched based on economic merit order which is impacted by the plant location on the gas supply system and not GHG emissions or any other factor. The APS incentive has allowed Kendall to operate at optimal efficiency levels. Until now, the APS has worked exactly as intended and has delivered significant emissions reductions achieved versus the program cost.

The corollary to the reduced emissions and lower electricity prices that result from operations with a meaningful APS incentive is that these benefits are quickly lost if the incentive falls away, as has happened in the recent AEC market price collapse. Beginning in Q2 of 2020, the reduced operation of Kendall Station due to record low AEC prices set in motion changes to operations that created a substantial increase in regional GHG emissions over baseload operations with the APS incentive. Pursuant to the rules of the Federal Energy Regulatory Commission and ISO-NE, Kendall must offer its energy into the ISO-NE auction at its marginal cost, or its break-even costs, which are subject to regulatory review. With record low AEC prices, Kendall's marginal costs increased, resulting in it being displaced in ISO-NE dispatch by units with greater emissions. Furthermore, with Kendall's reduced dispatch, Vicinity was forced to serve its primary thermal load with less efficient direct fired boilers. The increase in GHG emissions in 2020 over recent historic efficiency will likely be higher in future years if the APS program is not reformed quickly.

APS program tangibly supports electric grid reliability in Boston.

Vicinity's Green Steam project greatly enhanced reliability of the electric grid because it supported the additional investment in Kendall Station to be able to help restore operations to the

rest of the grid after an outage. The ability to quickly restore power quickly following an outage is vital to life and the safety of the community, and the ability to support such efforts is something Vicinity is very proud of.

In addition to this very concrete example of being able to support grid reliability during emergency conditions, there is another electric grid reliability benefit of CHP participation in APS that has a greater impact than all other APS technologies combined. By being co-located with electrical load for traditional CHP at a manufacturing facility or on a campus at a university, or being located in a city center and feeding a district energy system as is the case with Kendall, CHP can operate flexibly and reduce the load on the grid at key times. Kendall and other CHPs that are incented through the APS program reduce the burden on the transmission and distribution grid during periods of stress and enhance the flexibility of the grid. The participation and the growth of CHP is vital to preserving future reliability and facilitating the penetration of carbon free intermittent renewable energy resources.

2. What are the costs of the APS program to ratepayers, including but not limited to economic, environmental, and societal costs?

In the case of Vicinity's participation, the costs of the APS program to ratepayers is substantially outweighed by the economic, environmental, and societal benefits. CHP participation in the APS program helps ensure lower electricity prices, reduces demand and stress on the grid during periods of peak demand, and increases the availability of flexible distributed energy resources on the grid. In addition, operations as a CHP avoids the need to operate less efficient direct fired boilers to meet thermal needs, which have higher marginal GHG emissions.

3. Do you believe the APS program should prioritize technologies which provide the most benefits, such as greatest greenhouse gas emissions reductions?

DOER should follow the prioritization standards adopted in law. Inasmuch as the Massachusetts legislature has provided for prioritization among APS technologies and the basis for prioritization, it would be a question for the legislature whether to amend the statute to achieve a different statutory prioritization than that which is already provided by law. Massachusetts law speaks directly to the question of prioritization of technologies and the basis for such prioritization. Pursuant to Mass. Gen Laws ch. 25A §11F½(a) an alternative energy credit is equal to 3,412,000 British thermal units of net useful thermal energy. Paragraph (e) of the statute further provides that the DOER may enhance the value of credits for fuel cells and certain non-emitting renewable thermal technologies in order to stimulate the development of new on-site generating sources.

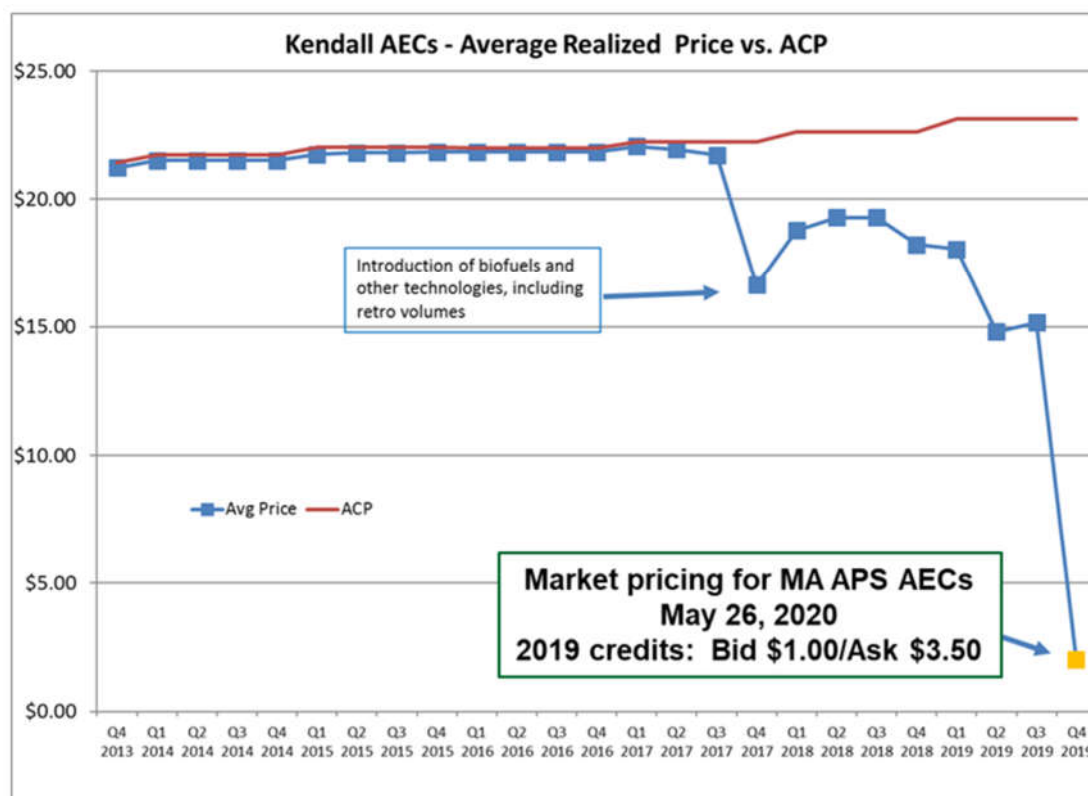
DOER has the statutory authority to prioritize the technologies under paragraph (e) for the purpose of stimulating the development of new on-site generating sources, but not for other purposes, however laudable the objective. Whereas the legislature authorized the DOER to enhance the value of credits for fuel cells and non-emitting renewable thermal technologies for a specific purpose, the legislature did not authorize DOER to create extra incentives or favor specific technologies on the basis of relative GHG benefit or other additional policy reasons.

4. From 2015 through the present, what have been the average quarterly Alternative Energy Certificates (AEC) sale prices?

The oversupply in AECs caused pricing to collapse in 2019, down to \$1.00-\$3.50/credit from \$20/credit in prior years.

As discussed below in response to question 5, the inclusion of additional technologies into the APS program without increasing the minimum standard has created excess generation of AECs relative to the minimum standard from 2017 forward that resulted in a drop in prices. Beginning in 2020, the market is so grossly oversupplied that retail electric suppliers are not able to utilize or bank for future use all the APS credits being generated.

As the graph below illustrates, prior to 2017, AECs credits traded just below the Alternative Compliance Payment (ACP) level. This reflected the fact that until 2018, the APS market was substantially undersupplied. With the additional technologies added by regulation and the retroactive minting and pre-minting provisions for certain technologies, in 2018 the prior undersupply condition was nearly erased, and prices started trending toward a significant discount to the ACP. In 2019 a massive oversupply of AECs emerged. The pricing effects of the massive oversupply was slightly delayed because retail suppliers were able to bank AECs up to 30% of their annual obligation for use in future years. An example of how oversupplied the market has become is demonstrated that by the fact that for 2019 NEPOOL-GIS reports 240,000 AECs were “unsettled”, meaning those credits were never sold and simply expired worthless providing no value to APS generators.



5. Is the current APS minimum standard and the annual rate of increase adequate? Please include details and any data supporting why or why not, where possible.

No. Increasing the minimum standard to a level that balances supply and demand and eliminates the current gross oversupply is fundamental to addressing the current collapse in pricing for AECs. As described below, the current problems with the APS program are directly related to the supply and demand imbalance that resulted from regulatory changes in 2017 and 2019 that increased supply without making concomitant changes to the minimum standard to ensure the proper balance of supply and demand.

In 2017 the regulations were amended pursuant to changes in the APS statute to admit several additional technologies to the APS program, while making no change to the APS minimum standard percentages. This perhaps appeared to make sense at the time because until that point there was an undersupply of APS credits. However, the 2017 changes created a distortion in the supply of credits that created a massive oversupply relative to the APS minimum standard. For example, eligible liquid biofuel went from zero to 20% of the program in only 2 years. The addition of that single technology added over 400,000 credits to the supply side of the program.

While the 2017 changes were intended to increase supply of AECs, the regulatory change overcompensated to create a glut in the supply of AECs. This glut undermines the APS law and the viability of the investments in alternative and renewable thermal generation resources. Unfortunately, aspects of the 2017 regulations and 2019 emergency regulations that continued pre-minting created unintended consequences.

First, in addition to admitting additional technologies, the regulation changes provided for a retroactive creation of credits for new technologies back to January 1, 2015. *See* 225 CMR 16.05(1)(b). This created an unnatural increase in credits in Q4 2017. This one-time introduction of credits has a continuing effect into the present due to the ability for Retail Electric Suppliers to bank AECs. Although the statute established the date of eligibility for these new resources, the subsequent time span before adoption of regulations created an artificial increase in retroactively created credits beginning in 2017. It should be noted that 2017 was the first year DOER reported significant banking of AECs by Retail Electric Suppliers.

Second, there was an emergency regulatory change in 2019 to extend pre-minting of APS credits for certain renewable thermal technologies. Despite the merit of that change from the perspective of those technologies, the change to the regulation eliminated a provision that was designed to prevent an oversupply of APS credits. This change contributed to the current oversupply glut and is perversely harming the very group of technologies it was designed to help.

Prior to the emergency regulation change last year, APS regulations included a provision that worked like a circuit breaker to prevent an oversupply glut. The now repealed provision would transition from pre-minting to forward minting of certificate for eligible technologies by operation of regulation when the supply increased to within 75% of the compliance obligation:

2. In a Compliance Year in which the ratio of the APS Alternative Generation Attributes settled for compliance to the APS compliance obligation from the Compliance Year two years prior was more than 0.75, the APS Renewable Thermal Generation Unit shall be forward minted each quarter for the 40 quarters following its Statement of Qualification or its Commercial Operation Date, whichever is later, a quantity of APS Alternative Generation Attributes equal to one-fourth of the annual net useful thermal energy determination as provided in 225 CMR 16.05(4)(c), times any applicable multiplier as provided in the Department's Guideline on Multipliers for Renewable Thermal Generation Units.
[225 CMR 16.04(4)(d)2 – **repealed**]

As a result of the impacts of the 2017 and 2019 regulatory changes to the APS program, a substantial increase in the minimum standard is necessary in order to stabilize it so that it can remain viable going forward. It is estimated that the 2019 compliance year was almost 15% oversupplied and the glut will continue in future years unless the minimum standard is raised.

6. Do you anticipate a growth or decline in the supply of AECs in the APS program over the next 5 years? 10 years? If so, how would you quantify this increase in growth rate? Please include details and any data supporting your conclusions.

At current APS incentive levels, the APS program is inadequate to spur substantial new investment in alternative or renewable thermal technologies. The AEC market is currently oversupplied, and Retail Electric Suppliers have a substantial reserve of AECs banked for use toward future year compliance. This oversupply and the volume of banked credits will keep AEC prices below levels necessary to support new investment until the minimum standard is substantially increased.

There are projects that were in the pipeline before the current problems emerged that are anticipated to generate some additional AECs that will still come into service. For example, it is expected that the Massachusetts Institute of Technology will bring its new 44MW CHP plant (MA APS HP-5105-18) online sometime in 2020-2021.

Vicinity is evaluating implementation of new clean energy solutions for its district energy system in order to meet its corporate commitment to achieve net zero carbon emissions across our operations by 2050.⁸ Such solutions include converting direct fired boilers used during peak conditions (not part of the CHP) from oil and natural gas to using biofuels. Other potential technologies include heat pumps, storage, electric boilers, and other efficient steam technologies.

The APS program can be an important catalyst to make these investments and begin reducing GHG emissions sooner, but not at current incentive levels. Inasmuch as GHG emissions are cumulative in the earth's atmosphere, making such improvements sooner rather than later will be beneficial to slow global warming.

Some of these technologies, such as biofuels, already qualify for the APS program. Other solutions will require changes to regulation to define efficient steam technologies in order to

⁸ <https://www.vicinityenergy.us/clean-energy-future/>

become qualified. For this reason, Vicinity requests that DOER solicit public comment to incorporate efficient steam technologies in regulation, as is further discussed in response to question 11.

7. Are there modifications to the APS program that could be made to reduce the volatility of the APS market?

Change APS regulations to mirror tariff-based pricing mechanism of Massachusetts solar incentive programs

The DOER should consider changes to the APS program similar to the SMART Program declining block tariff incentive or the price support mechanisms of the Solar Carve-Out Program or Solar Carve-Out II Program. The solar programs have an embedded mechanism that ensures stable pricing and is not subject to highly volatile fluctuations due to artificial supply and demand interactions.

There is a fundamental challenge of market elasticity in the current APS program design that warrants consideration of program modifications to stabilize APS incentive pricing. The APS minimum standard establishes the level of demand and creates a vertical demand curve up to the point of the Alternative Compliance Payment (“ACP”). If the market is undersupplied, AECs trade just below the ACP price. If the market is oversupplied, AEC pricing collapses because AECs must be sold, or they expire. This problem can be better managed with improvements to the current design, as described below, but a better approach would be to pursue for the APS program the successful policy innovation of Massachusetts solar incentive programs.

Allow for “Re-minting” or APS generator credit banking

APS regulation currently provides for one-sided ability to bank AECs for use in future years. This provision has perversely exacerbated the pricing collapse and market oversupply that must be addressed to reform the APS program to become sustainable. The banking provision allows Retail Electric Supplier banking up to 30% of the Retail Electric Suppliers obligation for use toward compliance in the two subsequent Compliance Years. *See 225 CMR 16.08(2)*. While one might expect the banking provision to act as a buffer against an oversupply glut, the design is causing a nasty unintended side effect. The problem with this provision in the current oversupply glut is that the banking provision is not symmetrical. Retail Electric Suppliers may bank credits, while any credits not sold by a generator at the end of a trading year expire worthless.

In the present oversupply glut, APS generators are compelled to offload credits at artificially suppressed pricing. Moreover, because Retail Electric Suppliers have exclusive banking rights, they can exercise market power to drive prices down to a distorted level, destroying the incentive that the APS program was intended to create.

Allowing credit banking to be symmetrical would partially address pricing volatility because it would partially address the unequal bargaining power between APS generators and Retail Electric Suppliers.

Untraded APS generation attributes expire on June 15 in the year after minting by operation of NEPOOL GIS Operating Rule 3.7(c). Accordingly, any AECs held by an APS program participant that are not sold as of the end of compliance window in the year after minting become worthless and disappear. This occurred in 2020 for the 2019 compliance year when 240,000 credits were reported as “unsettled” in NEPOOL GIS.

In order to address this asymmetry, DOER should adopt the following regulatory change:

New paragraph added as 225 CFR 16.07(4),

Any APS Alternative Generation Attributes not traded or otherwise transferred or retired by the Owner or Operator at the end of the trading period for the Compliance Year (e.g. June 15, 2020 for Compliance Year 2019) shall be retired and reissued by NEPOOL GIS as re-minted APS Alternative Generation Attributes in the new Compliance Year. These Attributes shall be eligible in either of the two subsequent Compliance Years from the year in which they were generated to meet obligations under the Massachusetts Alternative Energy Portfolio Standard.

The proposed re-minting language is patterned after the treatment of unsold Solar Carve-Out Program credits (SRECs) under DOER regulations in 225 CMR 14.04(4)(e). It is not expected that NEPOOL GIS would need to change its operating rules or its system to accommodate this change. Nevertheless, any such change at most would be a minimal change to the NEPOOL GIS operating rules.

Adjust minimum standard based upon market supply of AECs

The DOER recently approved another policy innovation in its adoption of regulations for the Clean Peak Energy Portfolio Standard that should be adopted as well for the APS program. 225 CMR 21.07(1)(b) includes a provision that will cause an adjustment to the minimum standard in the event that the supply of credits exceeds the minimum standard in a compliance year. The change to the minimum standard can be made by DOER with public notice, but without a new rulemaking.

This provision is perhaps even more appropriate and necessary for the APS program than it is for the Clean Peak Energy Standard program. Given the incredible diversity in technologies and relevant markets for various types of APS generators, it is incredibly challenging to choose a minimum standard in advance that will ensure a balance in supply of credits vs. the minimum standard. As was seen with the explosive growth of eligible liquid biofuels from the beginning, some technologies may grow faster than others, and this is hard to know at the time that a fixed minimum standard is adopted. The adjustment provision in the Clean Peak Energy Standard program should be adopted for the APS program as well and would stabilize the program so that the current problem of gross oversupply and pricing collapse does not happen again.

8. Has the APS incentive had an impact on the decision of system owners to invest in APS eligible technologies? Why or why not.

Vicinity can offer several very concrete examples where the APS incentive impacted investment decisions both positively and negatively.

Between 2013 and 2016, Vicinity completed a \$112 million Green Steam capital project that was made possible as a result of the opportunity to participate in the APS program. This project included a 7,000 feet pipeline extension and acquisition of Kendall in order to double the cogeneration capability to transport carbon free steam to downtown Boston and Cambridge. The project included a retrofit that replaced once-through cooling that eliminated hot water discharge to the Charles River, an important additional environmental benefit of the Green Steam project.

The project also substantially increased the resiliency of the Vicinity district energy system, which is another fundamental priority of the Commonwealth's climate goals. As a result of the project, Vicinity's district energy system is able to continue to operate during power outages and during severe weather events. In addition, Kendall is able to support grid operator efforts to quickly restore power to the grid after an outage. This capability is a vital service that helps the Commonwealth and the New England power grid maintain reliability and resiliency as climate change impacts become increasingly challenging for the region.

These positive changes from the Green Steam project would not have been possible without the APS incentive, and the loss of the incentive would negatively impact Vicinity's ability to provide the same high-level, efficient, and low carbon steam service we currently provide to our customers.

In contrast to the above example, in which the APS incentive leveraged a \$112 million clean energy investment that reduces 247,500 tons of GHG annually,⁹ Vicinity has recently been forced to reject several capital projects supporting sustainability because of the APS program collapse.

With the APS program in its current state of collapse, Vicinity must model the APS incentive value at zero in its business case for future capital projects. This change has negatively impacted decisions to proceed with investments in several projects. For example, without meaningful APS revenues, Vicinity could not establish a sound business case for a \$25 million investment in the latest efficiency upgrades to the Kendall Station, that would have further reduced GHG emissions by 14,000 tons annually. Similarly, due to the collapse in APS program, Vicinity could not make the business case to proceed with a sustainability investment at a prominent Boston medical institution that would have utilized waste heat as an energy source to provide air-conditioning in the summer. This project would have reduced GHG emissions by an additional 4,000 tons annually. Both projects, and several others, would have gone forward if Vicinity had confidence that the APS program would be reformed to ensure a constructive level of incentive going forward.

⁹ This figure assumes baseload operations of Kendall Station. This level of GHG emissions reductions will not likely be achieved in the future if the APS program is not reformed to restore a meaningful APS incentive.

9. How could the APS program be improved to better influence residential or commercial purchasing behaviors?

The APS incentive level is the primary and most effective tool to encourage residential or commercial customers to purchase alternative energy resources. As discussed in response to question 5, the minimum standard must be increased as a first step in reforming the program from its current state of collapse. In addition, having a stable and sustainable APS incentive level is vitally important to restoring confidence for customers to make investments and to manage operations in order to earn APS incentives. Vicinity's recommendations in response to question 7 build on policy innovations in other Massachusetts programs that will help stabilize the value of AECs.

10. Are there currently eligibility criteria in the APS program that you believe are a barrier to participation in the program? How would you address these barriers?

The pricing collapse in the APS program is the primary barrier today. Even if the minimum standard is raised and prices increase, that may not alone encourage customers to make the investments without some sort of price support mechanism. For example, renewable thermal generators whose credits were forward minted in 2019 or 2020 received or will receive 40 quarters worth of AECs at collapsed prices. If eligibility for APS is phased out or capped for CHP, it would discourage investments that are vital to the Commonwealth's decarbonization strategy. It will be very challenging to encourage customers to purchase alternative energy resources in the future if there is a risk that their anticipated incentive will disappear or could become nearly worthless in the future.

11. What revisions to the existing APS eligibility criteria would you propose to improve and simplify the APS program, if any?

Vicinity requests that DOER pursue adoption of regulations for efficient steam technologies to participate in the APS. The APS program is integral to Vicinity's plans to achieve net zero carbon emissions by 2050. Achieving this commitment will involve installing new efficient steam technologies in Vicinity's district energy system such as implementing several advanced efficient steam technologies, including electric boilers, heat pumps, thermal/battery storage, capturing waste heat in steam condensate, absorption chillers, among other many other new and innovative sustainability solutions.

Energy efficient steam technology is an approved alternative energy generation technology in the law, but DOER has not adopted regulation to define or incorporate efficient steam technology into the APS program. Vicinity is evaluating a number of efficiency improvements to its district energy system that should qualify as efficient steam technologies and should become eligible to participate in the APS program. As is illustrated in response to question 8, the availability of an APS incentive can make the difference in whether investments in our system toward a net zero future will be viable going forward.

Vicinity respectfully requests that DOER include in a future rulemaking defining efficient steam technologies as provided for in the APS statute.

12. Is there any additional information you believe DOER should consider in its 2020 APS Minimum Standard Review?

The report issued by DOER consultant Daymark Energy Advisors as it relates to CHP was deeply flawed and its recommendations should be dismissed by DOER. Daymark did not release all of its data sets and assumptions, so it is challenging to refute. However, when the analysis defies common sense and the overwhelming body of opinion and scholarship about CHP, it should be viewed with suspicion. When its conclusions go further to contradict the laws of economics and the laws of thermodynamics, then perhaps the analysis should be dismissed outright. If DOER intends to rely upon the Daymark report to make policy changes, then DOER owes it to its stakeholders to require Daymark to release its data sets, work papers, and methodology for public scrutiny.

For example, the Daymark report states that CHP achieves a payback in approximately 1 year and does not require an APS incentive. Clearly Daymark would not be the only consultant to know this secret if it were true. Common sense dictates that if Daymark is correct, then there would be tens of thousands of CHP units already installed throughout the Commonwealth and the market for CHP would be experiencing a boom of epic proportion. The fact is that Daymark's description of this parallel universe for CHP does not exist. That fact alone should give DOER serious pause in crediting its analysis.

Daymark further makes the odd claim under its Key Cost/Benefits Findings that "CHP systems do not provide any emissions benefits, in the cases studied." If that was the result, then there was something wrong with the study. CHP has been consistently recognized as an efficient GHG reduction technology by the United States Department of Energy and the EPA, and by the Department of Public Utilities and Massachusetts utilities via programs that incentivize CHP (e.g. MassSave). The EPA's Combined Heat and Power Partnership website state the benefits of CHP in a simple and concise and straight forward way, **"Because less fuel is burned to produce each unit of energy output and because transmission and distribution losses are avoided, CHP reduces emissions of greenhouse gases and other air pollutants."**¹⁰

Summary of recommended APS program changes

As discussed in detail above in response to DOER questions, Vicinity recommends the following changes to APS program regulations:

- 1) Increase the APS minimum standard percentage to a level that is commensurate with the annual generation of AECs and will maintain a balance between supply and the minimum standard going forward.
- 2) Adopt a tariff-based pricing mechanism for the APS program that is patterned after what exists for Massachusetts solar incentive programs.

¹⁰ <https://www.epa.gov/chp/chp-benefits>

- 3) Allow for “re-minting” or APS generator banking similar to what is allowed under APS regulation for Retail Electric Suppliers.
- 4) Create a minimum standard adjustment mechanism in the APS regulation that is patterned after a similar mechanism in the Massachusetts Clean Peak Energy Standard regulations.
- 5) Invite comments and proposals from the public for adoption of regulations for efficient steam technologies participation in the APS program.

Conclusion

Until recently the APS Program has been an amazing policy success that increased the penetration and diversity of alternative energy technologies and achieved demonstrable emissions reductions and lower energy costs to customers in the Commonwealth. Unfortunately, today the APS program is in a state of collapse due to a massive imbalance in the supply of AECs relative to the minimum standard. If the current problems affecting the program are not addressed soon, many the benefits and gains previously realized will be reversed and Massachusetts will see a significant snapback in increased emissions and investments in many promising alternative energy technologies will slow down significantly and may disappear.

Vicinity appreciates the careful consideration by DOER of these comments and recommendations for regulatory reform. Vicinity shares the DOER’s commitment to a successful and sustainable APS program that achieves the vision of the Green Communities Act. Vicinity stands ready to work closely with the DOER as it completes the 2020 APS Minimum Standard Review and considers regulatory changes to improve the program going forward.

Sincerely,



Kenneth D. Schisler
Director of Governmental Affairs

Vicinity Energy
100 Franklin St., 2nd Floor
Boston, MA 02110
410-725-1462
kenneth.schisler@vicinityenergy.us