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Submitted to DEP eComment

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Re: Proposed Rulemaking: CO₂ Budget Trading Program (#7-559)

Dear Mr. Trivedi and Ms. Demjanick:

Vicinity Energy (“Vicinity”) hereby submits the following comments pursuant to the Proposed Rulemaking by the Environmental Quality Board (“EQB”) to amend Chapter 145 of Title 25 of the Pennsylvania Code to add Subchapter E relating to a CO₂ Budget Trading Program (“Proposed Rule”). Notice of this Proposed Rulemaking was published on November 7, 2020 in the Pennsylvania Bulletin.

As a company, we are aligned with Pennsylvania in our shared commitment to achieving net carbon zero carbon emissions by 2050 in a sensible and responsible manner. We are supportive of Pennsylvania joining the Regional Greenhouse Gas Initiative (“RGGI”) and applaud the Commonwealth for its work thus far in developing the Proposed Rule. To achieve our mutual carbon emissions goals and reap the full benefit of joining RGGI for Pennsylvania, we would recommend two changes to the Proposed Rule. The first change would tighten the regulation’s definition of a Cogeneration Unit (§145.302) and the second change would create a full set aside provision for cogeneration (in lieu of the partial set aside as written in §145.305(k)).

We describe our rationale for these two changes herein but, in summary, we believe these modifications will directly contribute to achieving Pennsylvania’s Climate Action Plan by allowing us to capture the full environmental benefits of Combined Heat and Power systems (“CHP”), mitigate unintended consequences from the dispatch of “dirtier” resources, improve overall green reliability and contribute to economic development in the Commonwealth.

I. Vicinity Energy's Philadelphia Operations

Vicinity owns and operates the Grays Ferry Cogeneration Facility ("Grays Ferry") and the largest district energy system serving downtown Philadelphia. Grays Ferry consists of a 163MW electric and steam generation system. Through a network of over 41 miles of underground pipes, Vicinity leverages and transports the waste heat from this facility to deliver low carbon steam to customers in Philadelphia, including hospitals, universities, government, and commercial buildings. Vicinity serves the thermal needs of approximately 100 million square feet of commercial and institutional space and employs over 100 people from the Philadelphia area.

Grays Ferry Cogeneration is important for electric system reliability in Eastern Pennsylvania. It is connected to the PJM Interconnection at a constrained portion of the grid, an area known as the Mid-Atlantic Area Electric Reliability Council region. Because of its critical location, this facility helps to ensure consistent service to end use customers throughout the City.

In 2013, Vicinity completed a \$60 Million investment in its Philadelphia network, converting it to low-carbon steam through cogeneration and the installation of new and efficient rapid response boilers. Vicinity's investment has improved the city's critical energy infrastructure and avoids more than 300,000 tons of CO₂ emissions annually.

Vicinity recently announced a corporate commitment to achieve net zero carbon emissions across all operations by 2050.¹ Vicinity is implementing a strategy to reduce greenhouse gas ("GHG") emissions and will continue to be a major contributor to the City of Philadelphia's Greenworks GHG reductions goals and the Pennsylvania Climate Action Plan.

II. Summary of Recommended Changes to Proposed Rule

Vicinity supports Governor Wolf's efforts to take concrete and economically sound measures to reduce GHG emissions, including Pennsylvania's participation in the Regional Greenhouse Gas Initiative. Vicinity supports the Proposed Rule provided that the rule recognizes that cogeneration is a vital and necessary tool to address climate change.

The Environmental Quality Board specifically requested comments "on ways to appropriately address the benefits of cogeneration in this Commonwealth, including the allocation of CO₂ allowances similar to the waste coal set-aside provision." In response, Vicinity proposes **two** changes related to the treatment of cogeneration in the Proposed Rule.

- 1) The first change involves the regulation's definition of a Cogeneration Unit in §145.302. We recommend tightening this language to ensure that *actual* cogeneration resources will meet the definition as intended.

¹ <https://www.vicinityenergy.us/clean-energy-future/>

- 2) The second change involves modifying the proposed set aside provision for cogeneration in §145.305(k). Vicinity recommends the regulation offset the full compliance obligation of qualifying cogeneration units and allow for the retirement of allowances associated with cogeneration including electricity production.

These proposed changes will ensure that the Pennsylvania RGGI program fully and appropriately recognizes and realizes the carbon reduction capabilities of Cogeneration / Combined Heat and Power units and especially CHP-fed district energy systems. While the adoption of a CHP set aside program in the proposed rule is a good first step, the provision does not capture the full carbon reduction attributes of CHP and especially CHP-fed district energy systems. It will result in the unintended consequence of producing an immediate spike in carbon emissions.

CHP is by far the most carbon efficient method of producing baseload power, heating, and cooling with significantly higher efficiency than modern combined-cycle natural gas generating facilities. The case for an amendment to the proposed CHP set aside program to fully capture the benefits of CHP and especially CHP-fed district energy units is directly quantifiable and yields immediate benefits. A full set aside program would also allow the Vicinity Energy district energy system to expand and replace more carbon intensive power, heating, and cooling systems operating in the City of Philadelphia today, thus reducing carbon emissions for both electric generation and building heating and cooling.

III. Environmental Benefits of CHP-fed District Energy and Vicinity's Grays Ferry Cogeneration Facility²

Vicinity appreciates that the Department of Environmental Protection ("DEP") and the EQB recognized the important climate and economic benefits of cogeneration in Pennsylvania in its public notice of the Proposed Rule:

CHP captures the wasted heat energy that is typically lost through power generation, using it to provide cost-effective heating and cooling to factories, businesses, universities, and hospitals. CHP systems are **able to use less fuel** compared to other fossil fuel-fired EGUs to produce a given energy output. Less fuel being burned **results in fewer air pollutant emissions, including CO₂ and other GHGs**. In addition to reducing emissions, CHP benefits the economy and businesses by improving manufacturing competitiveness through increased energy efficiency and providing a way for businesses to reduce energy costs while enhancing energy reliability.³

Cogeneration enjoys broad-based and bipartisan support in Pennsylvania and is strongly supported by the Pennsylvania Public Utilities Commission ("PUC"). The PUC's Policy Statement on CHP stands as a national model of constructive regulatory support for promoting

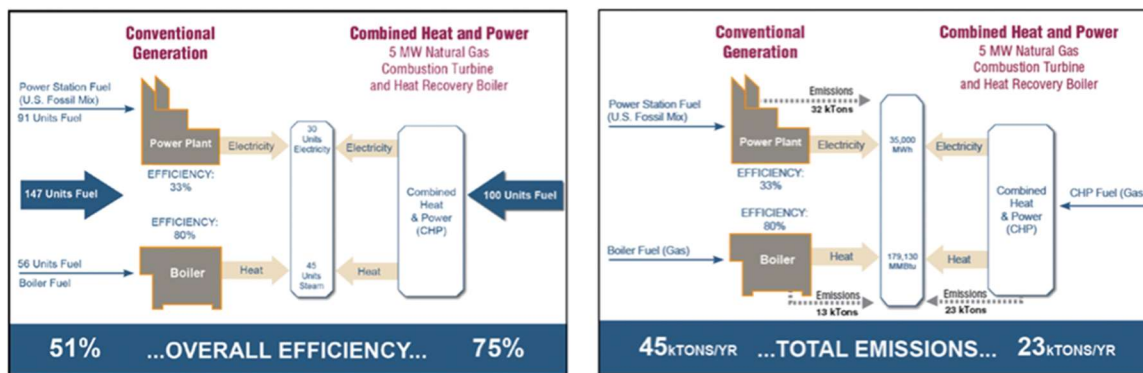
² The terms Cogeneration and Combined Heat and Power are synonymous. Certain sections of the preamble to the Propose Rule uses both terms such as the text cited in this section. However, the text of the draft regulation uses only the term "cogeneration." Accordingly, "cogeneration" is used predominantly throughout these comments.

³ 50 Pa. Bulletin at p. 6227.

cogeneration because it reduces emissions, supports reliability, and has potential for economic development, *inter alia*.⁴

According to a recent study and report by the global consulting firm ICF, cogeneration will continue to reduce carbon emissions through at least 2040,⁵ and beyond 2050 in the Reliability First Corporation East eGRID subregion, which includes most of Pennsylvania.⁶ Cogeneration reduces emissions because it displaces fossil fuel generation resources running on the margin in grid operations. As long as there are fossil fuel load following resources on the grid, natural gas-fired cogeneration will always result in less carbon emissions than separate heat and power, even when compared to the most efficient combined cycle turbine plants.⁷

CHP is a sustainable and efficient energy solution that uses heat that would otherwise be wasted from power generation and converts it into useful thermal energy. The simultaneous production of power and thermal energy consumes less fuel than if produced separately. CHP units can exceed 80 percent efficiency compared to traditional power plants which average 34 percent marginal efficiency. The graphics below from the EPA Combined Heat and Power Partnership provide an example of the benefits of CHP.



CHP-fed district energy systems are unique carbon reduction tools. In fact, they are the most robust tools we have in the toolbox to achieve carbon reduction goals in dense urban environments, providing benefits above and beyond traditional CHPs. A CHP-fed district energy system supplies critical thermal energy (for heating, hot water, sterilization, and cooling) to buildings in densely populated urban areas. Since a district energy system serves many customers, it provides added carbon reduction benefits by reducing or eliminating the need for on-site boilers across a city’s footprint. In addition, the presence of district energy allows for urban growth without erecting “more stacks”, which would release more emissions. In fact, when more square footage is added to a district energy system, overall carbon emissions drop substantially.

⁴ Pennsylvania Public Utilities Commission, Docket No. M-2016-2530484, April 6, 2018, <https://www.puc.pa.gov/pcdocs/1560599.doc>.

⁵ <https://www.icf.com/insights/energy/chp-role-in-decarbonization>

⁶ 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.

⁷ Ibid, note 5.

IV. Other Public Benefits of CHP-fed District Energy

Vicinity Philadelphia provides important public benefits in addition to its environmental benefits, including:

- ***Mission-critical reliability and grid resiliency:*** Vicinity Philadelphia meets the mission-critical energy requirements of a wide variety of sectors (e.g., hospitals, universities, manufacturing, etc.). CHP provides enhanced resiliency to the power grid and can provide end-users with uninterrupted power, heat, and hot water during natural disasters.
- ***Reduces stress to the power grid:*** By locating power production where there is high demand, CHP-fed district energy reduces the need for costly transmission upgrades and reduces electricity line losses.
- ***Serving important public and non-profit institutions:*** Vicinity Philadelphia supplies critical heating and cooling as well as sterilization steam to the University of Pennsylvania, Children’s Hospital of Philadelphia, the City of Philadelphia, Wills Eye Hospital, Hospital of the University of Pennsylvania, Presbyterian Hospital, Pennsylvania Hospital, and Thomas Jefferson Hospital. In addition, Vicinity steam is considered environmentally-friendly “green steam,” which helps our customers achieve their sustainability goals.

Vicinity’s CHP-fed district energy system is also an integral part of the Philadelphia Emergency Operations Plan both for emergency response and recovery support. The facility is specifically designated as an Emergency Support Function (“ESF”) for “energy” and as a Recovery Support Group (RSF) for “infrastructure systems.”

V. Recommendation 1: Defining Cogeneration in the Proposed Rule

The Proposed Rule includes a simple descriptive definition of cogeneration unit, which is overly broad for the purpose of determining which units should be recognized in the Cogeneration Set-Aside Account. A more robust definition is therefore necessary to determine which generating units should receive allocations for the cogeneration set-aside.

The definition should be rigorous enough to clearly identify which cogeneration/combined heat and power (CHP) resources qualify. It also must avoid any loopholes that would permit conventional generating operators to benefit from the set-aside by completing minor modifications, such as creating a small heat sink.

Further, the definition should be efficient to administer. It should not be more burdensome than necessary for DEP or other regulated entities to determine eligibility for the set aside. However, it must also be specific and objective enough to avoid subjective interpretation and potential litigation. Finally, the definition should follow well-understood technical protocols, such as the Electric Allocation Factor utilized by the Environmental Protection Agency’s eGRID database.

Vicinity recommends adding the following language (bold and italicized) to the current definition contained in the draft RGGI rule:

Cogeneration unit – An electric-generating unit **that uses a steam-generating unit or stationary combustion turbine to** simultaneously produce both electric or mechanical and useful thermal energy from the same primary energy facility, **where the useful thermal energy produced is at least 25% of the total energy output of the facility on an annual basis, having an Electric Allocation Factor of less than 0.75 on an annual basis as defined in the United States Environmental Protection Agency eGRID database or its successor.**

Our experience is that most CHP configurations have an Useful Thermal Factor of at least 40% over the course of one calendar year.⁸ However, we recommend a threshold of 25% to account for unforeseen, prolonged unit maintenance or mechanical breakdown. An annual calculation further accounts for seasonal changes and routine maintenance. Such a threshold allows robust cogeneration/CHP units to qualify for the set aside while preventing an unqualified facility from gaming the system.

VI. Recommendation 2: Proposed CHP Set Aside for CHP-fed District Energy Must Include Electricity Production to Achieve Optimal Carbon Reduction

Pennsylvania has improved its draft rule over earlier drafts by adding a CHP partial set aside (Proposed Section 145.342(k))⁹ and, while this is a positive step, the proposed rule falls short. As written, it will still lead to an increase in the number of hours per year that Grays Ferry will be displaced by generation with higher carbon intensity. As a result, Vicinity Energy will be forced to use more natural gas less efficiently by directly firing gas boilers (and not using cogeneration) to meet its thermal load.

The current version of the draft CHP set aside program in the Proposed Rule limits the set aside to only useful thermal energy or electricity, or both, supplied directly to a co-located facility. While this might be workable for an industrial-site located CHP, it does not work adequately for CHP-fed district energy systems. An industrial facility CHP is site-specific, designed and sized to provide power for a co-located facility with some small degree of extra cushion. The industrial facility can sell the excess to the grid as an upside or in other circumstances when the co-located plant is using less of its own capacity. On the other hand, a CHP-fed district energy system such as Vicinity Philadelphia, which serves the wider community with its thermal energy, is designed to provide district energy to its customers (heating, cooling and sterilization) and must offer its power to the grid. Importantly, the *only* method to achieve the carbon emissions

⁸ <https://www.epa.gov/egrid/egrid-technical-support-document>, page 24

⁹ [Set aside programs are common and used by all states in the RGGI footprint. According to the RGGI website](https://www.rggi.org/allowance-tracking/allowance-distribution), “Most allowances are distributed at auction, but a limited amount may be held in set aside accounts and distributed according to state-specific programs (<https://www.rggi.org/allowance-tracking/allowance-distribution>).” Currently, there are no fewer than 18 separate RGGI set aside programs in the RGGI states (https://www.rggi.org/sites/default/files/Uploads/Allowance-Tracking/States_Set-Aside_Accounts.pdf)

reductions that a large-scale CHP-fed district energy system produces is to offer its thermal output to its direct customers and all of its electrical energy to the grid.

By excluding the electricity production from the set aside, Pennsylvania would be adopting a policy that increases carbon emissions compared to a set aside that provides CO2 allowances for useful thermal energy and electrical energy production. Grays Ferry CHP, although more efficient than other generators, has costs that others do not due to its location in downtown Philadelphia and other factors that could displace the unit by one with a higher carbon intensity under the Proposed Rule. For example, unlike a combined cycle unit constructed for electricity generation which is located intentionally on or very near interstate gas and electricity transmission lines, the Grays Ferry unit is not located, nor could any district energy facility be located, directly on either the interstate gas or the electricity grid transmission lines. By definition, a CHP like Grays Ferry needs to be located near its steam load consumers, unlike other energy generating facilities. If Grays Ferry must include RGGI compliance costs in its marginal cost offers into PJM, it will necessarily be underbid by other units that have been explicitly built to minimize electrical production costs. Thus, the Grays Ferry unit will be off the grid for substantial periods of time and this will lead to a decrease in the number of hours per year the natural gas fueled unit with the lowest carbon emissions will be dispatched by PJM.

Clearly this is not an intended result, but this is in fact what will occur if the electricity production from the CHP is not included in the set aside. Vicinity Energy applauds DEP for including the CHP set aside in its current draft, but respectfully submits that the circumscription of electricity production from the CHP is contrary to RGGI policy goals to reduce carbon.

Accordingly, the CHP set-aside should be amended to provide a full set aside for qualifying CHP systems such that it includes both the useful thermal energy as well as the electricity supplied to the regional grid. This is especially necessary for CHPs feeding district energy systems.

Amending the CHP set-aside program in this fashion would return important and quantifiable direct carbon reduction benefits. A set-aside properly designed for CHP units provides demonstrable and significant current emissions avoidance and significant potential future carbon emissions reductions.

The case for a set aside program for CHP units is compelling in light of the direct carbon emissions reduction benefits derived from existing CHP units and especially existing district energy systems. Moreover, the potential to expand Vicinity's CHP-fed district energy system to more customers and to encourage new district energy facilities to come online provides a great opportunity to further reduce future carbon emissions. Facilitating the expansion of the most carbon efficient generation will reduce carbon emissions and should be a policy goal for Pennsylvania.

In addition, it is significant that the current draft of the Pennsylvania RGGI Rule provides for three "emissions offset project" types that are aimed at carbon emissions

prevention/avoidance, i.e., (1) landfill methane capture and destruction; (2) carbon sequestration due to reforestation, improved forest management or avoided conversion; and (3) agricultural manure management operations. As discussed herein, CHP units and especially CHP fed district energy facilities are the biggest carbon prevention/avoidance project available.

A More Robust CHP District Energy Set Aside Is Necessary to Accelerate Further Displacement of More Carbon Intense Generation

When Grays Ferry is off the grid, it will not be the most modern combined cycle plants that replace its generation. Those units are on for baseload anyway. It will be units well below Grays Ferry and even well below the most efficient combined cycle plants on the carbon stack that will replace it; units that would not otherwise be on the grid.

The more CHP units run, the more carbon-intensive resources (like certain combined cycle and coal plants and more carbon intense resources) are displaced. CHP units and CHP-fed district energy should follow directly after renewable and nuclear generation, and ahead of non-CHP combined cycle plants. The policy goal for RGGI is to displace higher carbon emissions intensive resources from the grid and replace them with lower carbon emissions intense resources. The maintenance and expansion of CHP fed district energy systems directly accomplishes this goal and is further reason to amend the CHP set aside to provide full set aside treatment for such facilities.

More Unintended Consequences Without a More Robust District Energy Set-Aside: Significant Spike in Carbon Emissions

The discussion above describes how excluding electricity production from the set-aside will lead to increased carbon emissions on the PJM grid. There are other unintended consequences that result from the displacement of CHP due to the costs of RGGI compliance. When a CHP unit does not operate because it is not dispatched by PJM, gas-fired boilers (which are outside RGGI) must run to serve Vicinity Energy's district thermal load. When this occurs, there is a spike in carbon emissions from the displacement of the Grays Ferry facility alone. (Please see below.) According to the Integrated Planning Model (IPM) used by ICF International on behalf of PA DEP, carbon reduction is highly dependent on increased use of natural gas for electric generation as a replacement for coal-sourced generation. **Any policy that reduces the dispatch of natural gas generation will necessarily increase the share of coal generation through at least 2030.**

- ✓ **CO₂ emissions will increase by between 52,964 and 148,133¹⁰ short tons/year under the Proposed Rule**

Vicinity's expert consultants, All4 Inc., analyzed the impact of the Proposed Rule on the Grays Ferry cogeneration unit and, because the Rule would reduce the run time of the unit, they found

¹⁰ Note: All carbon avoidance and reduction figures are calculated conservatively against combined-cycle natural gas generation. Vicinity Energy will continue to review available data to determine whether a mix of gas and coal generation is more appropriate.

that carbon emissions will increase between 52,964 and 148,133 short tons per year if it remains as currently written. This analysis was based on well accepted PJM dispatch rules and historical RGGI carbon allowance pricing. Also, this analysis takes into account the impact of losing *only* the Grays Ferry CHP from the grid and not the cumulative impacts added by the possible absence of other CHPs. The impact of the Rule as proposed with only a partial set aside for CHP as opposed to a full set aside will be counter to the intent of RGGI.

The calculations and methodology used to come to this conclusion is outlined in the attached spreadsheets. In short, All4 ran four cases:

- 1) Using the current price of carbon allowances from the last RGGI auction, i.e., \$7.41 (12/2/20);
- 2) Applying a reasonable increase in carbon allowance prices of 30% to \$7.41 to \$9.63 based on the actual demonstrated rate of increase seen between 2016 and 2020;
- 3) Applying an additional 30% increase in the RGGI allowance price to \$12.52; and
- 4) Applying an additional increase in RGGI allowance price to \$16.28.

The “most conservative” case is the least likely scenario as RGGI allowance prices have shown upward movement over time. The case 2, 3 and 4 allowance price increases over time are reasonable as well as historically and economically predictable. Not only was there a demonstrated increase in allowance prices between 2016 and 2020, but further upward price pressure is expected based on the program design. Since the cap will decrease over time, (i.e., 30% between 2020 and 2030¹¹), the allowances will become scarcer and prices will increase over this decade. A separate upward force on prices will be injected because the Biden administration will be taking steps, as promised in the Biden Clean Energy and Climate Action Plans, to introduce carbon control measures and that will further exert upward pressure on RGGI carbon prices over time.¹²

Pennsylvania's first RGGI auction will likely be in February 2022. By 2022, the allowance price lifting impacts of both the decreasing cap level and the onset of the Biden administration programs will be in effect. Scenarios 2, 3 and 4 are much more likely than the “most conservative case,” which means that the carbon emissions spike will be at the higher of the range of 52,964 and 148,133 short tons per year across the grid.

In short, the current Proposed Rule would cause the largest CHP plant in the state (which feeds the Philadelphia District Energy System) to operate less, and this would require more carbon intensive assets to supply Philadelphia’s energy needs. The establishment of a full, not partial,

¹¹ https://www.rggi.org/sites/default/files/Uploads/Program-Review/8-23-2017/Announcement_Proposed_Program_Changes.pdf

¹² This relationship between federal carbon emissions control programs and RGGI allowance prices is well documented. RGGI allowance prices rose after the August 2015 release of the Obama Clean Power Plan. The only pronounced drop in RGGI allowance prices happened in 2016-2017 and that was a response to the Supreme Court’s suspension in February 2016 of the Obama Clean Power Plan. So, there is clear relationship between increased federal government activity on carbon emissions control and RGGI carbon allowance prices. See <https://www.eia.gov/todayinenergy/detail.php?id=31432>

CHP set-aside program is vital to achieving the full carbon reduction potential of this specific form of CHP.

Proposed Regulatory Language Regarding a CHP Set-aside: Suggested revisions to the proposed language of 25 Pa. Code § 145.342(k), CO2 allowance allocations.

Proposed additions are indicated by **bold** font.

Proposed deletions are indicated by [~~bracketed strike through~~] font.

.....

(k) *Cogeneration set-aside allocation.* The cogeneration set-aside allocation will consist of tons from the Pennsylvania CO2 Budget Trading Program base budget set forth in § 145.341, as applicable. The Department will administer the cogeneration set-aside account in accordance with the following:

(1) *Applicability.* The Department will adjust the compliance obligation of a **qualifying** CO2 budget unit that is a cogeneration unit, **including combined heat and power units**, for which a complete application has been filed under subsection (k)(3).

(2) *General account.* The Department will open and manage a general account for the cogeneration set-aside account.

(3) *Compliance obligation adjustment application.* By January 30 of the year following the allocation year for which the compliance obligation adjustment is being requested, the CO2 authorized account representative seeking the compliance obligation adjustment for a cogeneration unit **or combined heat and power unit** shall submit to the Department a complete application, in a format prescribed by the Department, that includes the following:

(i) Documentation that the CO2 budget unit ~~[is]~~ **qualifies as** a cogeneration unit **or combined heat and power unit**.

(ii) Identification of the compliance account for the CO2 budget unit.

(iii) Identification of the allocation year for which an adjustment request is being made.

~~(iv) Specification of the amount of the adjustment being requested, as determined under subsection (k)(4).~~

~~(v-iv)~~ The calculations and supporting data used to determine **that the CO2 budget unit qualifies as a cogeneration unit or combined heat and power unit** ~~[the compliance obligation adjustment being requested]~~ and an explanation of the data and the methods on which the calculations are based.

(4) *Compliance obligation adjustment determination.* After verifying that the information submitted in the application under paragraph (k)(3) is complete and accurate, the Department will determine the compliance obligation adjustment for a CO2 budget unit that meets the applicability requirements under paragraph (k)(1) **and reduce its compliance obligation for all CO2 emissions related to the qualifying cogeneration unit or combined heat and power unit**

~~[based on the CO₂ emissions from the CO₂ budget unit]~~ during the allocation year for which an adjustment request is being submitted. **The Department will not distribute CO₂ allowances to the unit but will retire CO₂ allowances on behalf of the CO₂ budget unit in the amount equal to their qualifying CO₂ emissions.**

(5) *Retirement ~~[and transfer]~~ of CO₂ allowances.* At the end of each control period, the Department will retire CO₂ allowances **on behalf of the qualifying cogeneration unit or combined heat and power unit** from the cogeneration set-aside account in an amount equal to the **CO₂ budget unit's qualifying** CO₂ emissions. ~~[deducted from one or more compliance obligations under subsection (k)(4). The Department will transfer any remaining CO₂ allowances to the air pollution reduction account to be available for auction.]~~

VII. Opportunity for Future Carbon Emissions Reductions

Not only do carbon emissions increase under the current draft PA RGGI Rule but, because the current Proposed Rule would significantly reduce the incentive for future expansion of the district energy system, Pennsylvania would also lose significant future carbon emissions reductions.

For every 1 million square feet added to the district energy system, carbon emissions avoided are 3,417 to 4,960 short tons per year. **Vicinity Energy's pipeline of new customers includes over 16.9 million square feet of space. Connecting these customers to the district energy steam system translates to an additional reduction of carbon emissions between 57,790 to 83,830 short tons per year; this is between 10.6% and 15.4% of Pennsylvania's Climate Action Plan ("CAP") goal for CHPs.** Growth of the district energy steam loop is one of Pennsylvania's most effective tools to meet its carbon emissions reduction goals. Application of an amended version of the CHP set-aside program to include the full benefits of CHP-fed district energy will incentivize growth of the district energy system and assist carbon emission reduction goals. The current Proposed Rule, however, would negatively impact the ability of Vicinity to expand the user base for its district energy system in Philadelphia. In order to efficaciously reduce carbon emissions, the Commonwealth of Pennsylvania should be seeking ways to incentivize growth of the Philadelphia CHP-fed district energy system and other district energy systems.

VIII. Pennsylvania Climate Action Plan: Full Set Aside Needed for CHP-fed District Energy Systems For Pennsylvania To Meet Its Carbon Reduction Goals

In order for Pennsylvania to meet the carbon reduction goals set forth in the Climate Action Plan, CHPs are essential and incentives must be in place for these units to run as much as possible. As stated, the current Proposed Rule would result in a significant spike in emissions in the Commonwealth. Because more carbon intensive PJM electricity generators would be dispatched in lieu of Vicinity's CHP, Pennsylvania would experience a **big step backwards in achieving the goals of the DEP's Climate Action Plan**, estimated to be between amount of 52,964 and 148,133 short tons.

provide real benefits to the economy, the environment, and the security of residents and businesses within the Commonwealth.

In particular, the testimony of Gerald Foley, Senior Technical Advisor for the United States Department of Energy's CHP Technical Assistance Partnership, highlighted the potential benefits of CHP for Pennsylvania. Mr. Foley asserted that **by sourcing as little as 1% of Pennsylvania's electric consumption from CHP systems, the Commonwealth would reduce the need for more than 1.4 million MWh annually from the grid and reduce 196 MW of peak demand on the grid.**¹

Together, the participants at the hearings identified the following benefits of CHP:

- Improved energy efficiency through increased utilization of thermal energy;
- Reduced energy costs through reductions in peak demand as well as the associated mitigation of price volatility;
- Reduced emissions resulting from less overall energy consumption;
- Improved grid reliability to mitigate the impacts of natural and manmade disasters;
- Increased diversification of resources used for generating electricity;
- Increased economic development in the Commonwealth enhanced by the utilization of shale gas, an abundant local resource;
- Increased national security from multiple points of power generation, a better defense against catastrophic failure and attack; and
- Facilitated expansion of natural gas distribution for all customers.

Participants at the hearings also identified the following barriers to CHP development:

- Difficulty in justifying capital investment, particularly due to the long-term payback requirements of CHP;
- Costs of purchasing backup power during planned plant maintenance and unplanned downtime; and
- Interconnection procedures and fees.¹⁵

Despite this short list of challenges, Chairman Brown of the PUC issued a Statement concomitant with the PUC's issuance of its Final Policy Statement Regarding Combined Heat and Power which stated in part, "CHP offers a variety of benefits. First and foremost, CHP supports environmental stewardship through increased efficiency. Also, it provides economic benefits to its adopters through reductions in energy consumption. Further, it supports reliability and resiliency as a distributed energy resource."¹⁶

X. Conclusion

Vicinity thanks the DEP and EQB for its consideration of our comments on the Proposed Rule. We wish to thank the staff at the DEP for their interest and attention to the details of this regulatory proposal, for listening carefully to our concerns, and for the transparency demonstrated at every stage of the process thus far. We support Pennsylvania joining RGGI with

¹⁵ See PUC Docket M-2016-2530484 Final Policy Statement – 2530484-LAW-4-5-18 PM-CHP (<https://www.puc.pa.gov/docket/M-2016-2530484>), Docket Entry 4/5/2018.

¹⁶ Id., Brown Statement – Final Policy Stmt. Combined Heat and Power.PDF, Docket Entry 4/5/2018

appropriate treatment of cogeneration, as discussed herein. We share Governor Wolf's commitment to adopting sensible solutions to address climate change and to achieving net zero carbon emissions by 2050. We stand ready to work with the DEP and EQB as it considers further refinements toward adoption of a final rule.

Respectfully,

William DiCroce

Chief Executive Officer

Vicinity Energy