

**CLIMATE CHANGE ADVISORY COMMITTEE  
MEETING MINUTES  
June 25, 2019  
10:00 a.m. – 3:00 p.m.  
Conference Room 105  
Rachel Carson State Office Building**

**MEMBERS/ALTERNATES PRESENT:**

Chairperson Mark Hammond	Robert Graff
Vice-Chairperson Steve Krug	Joseph Sherrick (for Gladys Brown Dutrieuille)
Greg Czarnecki (for Cindy Dunn)	Adam Walters (for Dennis Davin)
Terry Bossert	Patrick Henderson
Zachery Smith	
Representative Steve McCarter	
Timothy Vickey (for Rep. Ryan Bizarro)	

**MEMBERS ABSENT:**

Alissa Burger	James Felmlee
Luke Brubaker	Zakia Elliot
Lindsay Baxter	Mark Mondor
Gary Merritt	Jaret Gibbons
Rep. Marty Causer	

**PA DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) STAFF:**

Kerry Campbell, Lindsay Byron, Christopher Noble, Grace Bechtel, Heidi Kunka, Audrey Kulberg

**INVITED GUESTS:**

Jeremy Avellino, Stan Salwocki, Isaac Smith, John Costlow

**MEMBERS OF THE PUBLIC:**

Bob Barkanic, Steve Morris

**MEETING:**

The June 25, 2019, meeting of the Climate Change Advisory Committee (CCAC) was called to order at 10:15 a.m. by Chairperson Mark Hammond. With 11 of 20 seated members present at the start of the meeting, a quorum was established.

**MINUTES:**

The minutes of the April 23, 2019, CCAC meeting were presented to the committee to approve. A motion to pass the minutes was made by Robert Graff and seconded by Timothy Vickey. The motion carried by a voice vote and passed unanimously.

**MEETING SUMMARY: (This narrative provides a summary of the discussions that took place during the meeting. It is not a transcript of the proceedings.)**

### **DEP Climate Outreach Overview**

Lindsay Byron, Energy Programs Office (EPO), DEP, gave an update on the Climate Outreach Initiatives. Ms. Byron directed the members to the Climate Change Story Map on the DEP website, which outlines why climate change is occurring, the impacts it has in Pennsylvania, and actions being taken to mitigate and adapt to a changing climate. Ms. Byron also showcased the Climate Action Plan (CAP) Booklet, a condensed, easy to consume summary of the Pennsylvania CAP 2018, which was released in April 2019.

Heidi Kunka, EPO, DEP, provided an update on DEP's outreach efforts to local governments. EPO is developing a project to pair college students with local governments who wish to compile community-wide greenhouse gas inventories and local climate action plans. EPO has contracted with ICLEI to utilize the organization's ClearPath inventory tool, develop training materials, draft a climate action plan template, and provide technical assistance. The project's goal is to help 20 local governments draft greenhouse gas inventories and climate action plans, and to provide college students with valuable experience.

Also detailed were other EPO initiatives related to local government outreach including; energy assurance training for local governments, energy codes training, building operator certification trainings, as well as energy efficiency outreach to wastewater treatment plant operators.

### **C-PACE Update**

John Costlow, President of Sustainable Energy Fund (SEF), gave a presentation on Commercial Property Assessed Clean Energy (C-PACE). Mr. Costlow explained that C-PACE is an innovative financial product that funds energy efficiency and renewable energy projects, repayable through assessments placed on a commercial property.

Nationally, approximately \$893 million in loans have been provided for energy efficiency, renewable energy and resiliency projects. Around 1,866 projects have used C-PACE funding, and approximately 13,395 jobs have been created due to these projects. Nationally, the average amount financed with C-PACE is \$250,000 per project. Mr. Costlow explained that, while California leads the total number of PACE projects, it wasn't until Connecticut and Texas made advancements in the program that it really took off.

Act 30 of 2018, signed by Governor Wolf, permits local governments to establish C-PACE districts and establishes a framework for assessments and the role of local government, which was outlined: Adopt resolutions that establishes a district, notify municipalities, collect and remit loan repayment on property tax bill, and enforce delinquent repayment.

Mr. Costlow gave a summary of the C-PACE program guidelines, dubbed "C-PACE in a box," that were developed through a stakeholder engagement process led by SEF, Keystone Energy Efficiency Alliance (KEEA), Philadelphia Energy Authority (PEA) and the City of Pittsburgh.

SEF will act as the statewide administrator for Pennsylvania's C-PACE programs. Benefits of 3<sup>rd</sup> party C-PACE program administration is that it requires no credit exposure or general obligation funds from

local government. It also provides a uniform program which is applied consistently across the state, which helps promote scalability by simplifying participation. It also serves as a single point of access and a go-to contact for stakeholders, in addition to ensuring project compliance. A final benefit is that it creates an open market wherein qualified private lenders provide property owners competitive rates and financing terms.

Mr. Costlow spoke of some of the advantages of implementing C-PACE, which could help redevelop older building stock in downtown areas and provide opportunities for local jobs.

Steven Krug requested the record reflect that the committee acknowledges the efforts of SEF, KEEA and partners in advancing Pennsylvania's C-PACE program. The committee approved this acknowledgement.

### **Passive House Presentation**

Jeremy Avellino, principal of architectural firm, Bright Common, presented on Passive House construction. Bright Common is a Philadelphia-based sustainable architectural studio, focusing on carbon neutral buildings.

The city of Philadelphia's housing stock is primarily single-family rowhomes, with about 400,000 such buildings. Each of these existing buildings can be retrofitted, and Bright Common has completed six such retrofits to date with low carbon and nontoxic materials. The firm is working with affordable housing developers to do this work on larger scale. Funding this type of development is a challenge.

Mr. Avellino described the anatomy of a Passive House, which uses energy modelling to optimize insulation. Air-sealing is important for energy efficiency of these buildings, as are high performance (triple pane) windows. These tightly-sealed homes require constant ventilation and make use of energy recovery ventilation (ERV/HRV). Newly constructed buildings can also be sited to optimize solar gain.

Mr. Avellino also discussed the importance of using building materials with low embodied carbon, which is the emissions generated from the manufacture of those materials. A net zero building built with high embodied carbon materials may take up to a century in some cases to operate at zero energy and offset its embodied carbon.

Mr. Avellino presented two case studies showing Passive House designs in Philadelphia. The first building, House 8, cost approximately ten percent more than homes of similar size in the city, however, cost parity could be achieved by building multiple homes together. Bright Common designs houses to be all electric, which allows them to be net-zero ready. He stressed the importance of working closely with builders to ensure proper air-tightness. Blower-door testing was also described. Passive House requires no more than 0.6 air changes per hour (ACH) at 50 Pascals, whereas the 2015 code allows 3 ACH for residential buildings. Bright Common has had a 100 percent success rate with achieving air-tightness standards for Passive House. Mr. Avellino also espoused the benefits of ERV systems for indoor air quality and occupant health.

Bright Common is moving away from rigid and spray foam insulation to rigid mineral wool, which has a lower global warming potential. They are also starting to use rigid wood fiber insulation, which has the potential to be carbon sequestering. Passive House design also maximizes the availability of natural light, which thereby reduces energy use. Installation of solar panels could bring this house to

net-zero.

The second house, the Dubbel, is a duplex designed to Zero Energy Ready Homes standards, which Mr. Avellino describes as a step above Energy STAR, yet below Passive House standards. The Zero Energy Ready Homes standard was chosen due to limitations of the site, as 15-foot property width didn't allow for thick enough walls to achieve Passive House standards. However, Mr. Avellino notes that if they could have built 4-5 units in a row, wall thickness would not have been a limitation for meeting Passive House standards.

Mr. Avellino notes that vapor control is important in Passive House construction, especially below grade. Proper sequencing of vapor barrier/sheathing wrap is important for achieving Passive House standards. This house achieved 0.3 ACH after drywalling.

Solar will be installed on the roof of the Dubbel and is expected to supply the energy needs of one and one half of the duplex units.

Some new projects are building resiliency into their design. For example, one multi-family home is being designed with an "islandable microgrid" that contains a battery bank to supply critical systems during power outages.

Addressing questions from the committee, Mr. Avellino stated that increased air tightness of a building allows you to control indoor air quality and is ideal for areas with radon concerns. He also stated that locally harvested sustainably managed timber is one example of a low embodied carbon building material.

**Public Comment(s):**

There were no public comments at this meeting.

**PHFA Presentation on Energy Efficiency Incentives for Affordable Housing:**

Stan Salwocki, Manager of Architecture & Engineering at the PA Housing Finance Agency (PHFA), gave a presentation on the history of energy efficiency incentives for affordable housing projects in Pennsylvania. PHFA's focus on energy efficiency came from a need to reduce operating costs in the early 2000s. This desire led PHFA to become the first HFA in the country to encourage new construction to meet Passive House standards in 2015.

Mr. Salwocki gave a brief overview of how the Low-Income Housing Tax Credit (LIHTC) process helps increase developer buy-in by allocating points for energy efficiency. A timeline of energy efficiency additions to the LIHTC selection and threshold criteria was shared, beginning with criteria that awarded points for a 10 percent exceedance of International Energy Conservation Code (IECC) insulation standards in 2003-2004. Program year 2005 selection criteria expanded to include air tightness standards and ENERGY STAR appliances, and in 2006-2007, a minimum Home Energy Rating System (HERS) index of 85 was added as selection criteria. The 2019 program threshold criteria require ENERGY STAR lighting, appliances, and equipment; exceedance of IECC insulation standards by 10 percent; and an ENERGY STAR rating for homes and multi-family high-rises. Selection criteria include Enterprise Green Communities, Leadership in Energy & Environmental Design (LEED) or National Green Building Standard (NGBS) certification and; a reduced HERS index, Zero Energy Ready Home Certification, or Passive House certification. Statistics were also presented on the number of

applications for LIHTC that met these criteria. In 2019, 76 eligible applications were received, and 11 of those applications propose to meet Passive House standards. Awards have not yet been granted for the 2019 program year. Statistics were also shown for Passive House projects awarded in 2015. Of seven projects awarded tax credits in 2015, three were certified Passive House, one passed all requirements but wasn't certified due to cost, and three failed to qualify for Passive House certification by one or more measures.

Data was also shown on the construction cost of Passive House projects and how it compares to other projects awarded credits in the program. Data appears to show that Passive House construction achieves cost parity or near cost parity with non-Passive House construction for 2015.

The presentation closed with examples of new construction and renovation projects in Pennsylvania, including PHFA's Harrisburg office renovation, which is seeking LEED and Passive House certification.

### **Pittsburgh 2030 District:**

Isaac Smith, Data and Performance Director of the Green Building Alliance (GBA), presented on the Pittsburgh 2030 District 2018 Progress Report. GBA has been doing work in western PA for over 25 years and has advanced certifications including LEED. GBA also provides technical consulting and general education programs. They are focused more on building occupant health and wellness.

Pittsburgh adopted the 2030 District program in 2012, when development was slow. Focus was on existing building energy efficiency and water conservation, as well as transportation emissions. The 2030 Challenge goals for existing buildings are a 50 percent reduction in energy use, water use, and CO<sub>2</sub> emissions from transportation from national baselines. Goals for new construction were geared toward carbon neutrality by 2030. Pittsburgh also has an indoor air quality metric. Pittsburgh was the first 2030 District to start incorporating renewables (mostly, renewable energy certificates, or REC purchases) into their program metrics.

Pittsburgh is the largest of 22 established and two emerging Districts in North America and was the third city to join the effort. Erie is one of the two emerging Districts. In 2012, Pittsburgh's 2030 District included 81 committed buildings and 27.8 million square feet, which accounts for 25 percent of the District. In 2019, the District has expanded to 540 committed buildings and 8,408 million square feet, or just under 76 percent of the district committed.

The Pittsburgh 2030 District includes 106 partners, including property owners, utilities, community partners, and resource partners that provide data and technical support. Over half of the building square footage in the District consists of office spaces and university properties. Office buildings are the strongest cohort participant. There are ten partner meetings per year, where best practices are shared.

Mr. Smith explained how they set energy and transportation baselines, as well as historic water averages, so that performance can be measured over time. Overall, Pittsburgh's energy avoided continues to increase year after year. Pittsburgh is on track to exceed their 2020 target goals for energy and water. They have conducted transportation surveys to measure performance and assess commuter modes, as well as behaviors. They will continue to do the survey once every two years. For indoor air quality, they are doing tests in eight buildings for particulate matter (PM) and other

parameters via assistance from the University of Pittsburgh. Walk-off mats, air filters, green cleaning programs are best practices for improving indoor air quality.

Tim Vickey inquired about Erie being an emerging District, since he was not aware of this fact. Mr. Smith said the launch of Erie as an official district will hopefully occur later this year and that he is attending a meeting with the County later this week. Mr. Vickey now plans to attend.

Mrs. Kunka asked Mr. Smith to share information about how Pittsburgh was recently selected by the United Nations for participation in a high-performance building program. Mr. Smith explained that the UN, under their Sustainable Development Goals, is starting a few Centers of Excellence throughout the world, and Pittsburgh will be one of them. This selection means there will be a focus on high-performance building research, workforce development, and training in Pittsburgh, as well as the creation of case studies. The formal launch of the Center for Excellence will occur this fall.

### **CAP Comment Letter Themes:**

Ms. Byron shared major themes in the CAP comment letters from the CCAC. These letters are included as Appendix B in the final CAP. DEP received many comments from the CCAC on natural gas and its role in reducing greenhouse gas (GHG) emissions in PA. The switch to natural gas in PA has helped the Commonwealth reach our GHG reduction goals. There were concerns about the assumptions used in modeling methane emissions reductions. CCAC members expressed that they wanted more balance amongst sectors addressed in the CAP, specifically a focus on transportation is needed. Ms. Byron said the most comments were received on costs. It was recommended that there be further analysis of the costs and benefits to businesses and citizens. There were also concerns about the metrics used to measure economic impacts in the CAP, specifically, the social cost of carbon. Terry Bossert said his concern was that this metric should not be used as the be-all-end-all measure for economic impact, and Mr. Hammond stated that there should have been more of an explanation as to why that particular social cost of carbon figure was chosen. He also re-iterated his thoughts from his comment letter that he felt the consultant had more input and influence on the final CAP than the CCAC. Mr. Henderson re-iterated the biggest point from his letter that DEP needs to better articulate what the tangible benefits of these policy decisions are to PA citizens, if DEP is going to continue speaking about the perils of climate change. He feels that DEP should not use data to alarm, but rather to inform. Kerry Campbell, EPO, DEP, noted that there were a few metrics in the CAP that spoke of economic benefits. Mr. Hammond clarified Mr. Henderson's suggestion that we should put GHG emission reduction goals into context. For instance, Mr. Henderson said to include the number of averted premature deaths, lower healthcare costs, and lessening saltwater encroachment up the Delaware River as benefits of reducing GHG emissions.

### **Preliminary Discussion on Next CAP:**

Mr. Bossert mentioned he would like to see a focus on transportation in our next CAP. Mr. Krug said he'd like to see more of a focus on net-zero buildings, and noted that GHG reductions resulting from the switch from coal to natural gas will eventually wane.

Mr. Hammond opened the discussion up as to when the next CAP is due. Mr. Campbell said DEP is looking at 2021 for the next CAP, but the exact date hasn't been decided. Thus, Mr. Hammond stated that October 2021 would be the exact deadline, if DEP keeps issuing it once every three years.

Mr. Hammond also invited a discussion on what the next plan will cover. He noted that the next plan should zero in on certain strategies, while also meeting the requirements of the statute. Mr. Bossert

agreed that DEP should focus on certain strategies in the next CAP. Mr. Krug said that the request for proposals (RFP) must state what strategies DEP wants to focus on. Mr. Sherrick suggested that DEP drill down into certain sectors that have the greatest emissions, such as transportation. He also said the consultant DEP hires should follow prescribed methodologies, as emissions reductions from combined heat & power (CHP) were not calculated appropriately in the 2018 CAP. Mr. Hammond agreed that methodology was an issue in the 2018 CAP. Mr. Graff asked whether the next CAP should look at adaptation. Mr. Hammond noted that adaptation is not part of the statute. Mr. Graff also stated that it is much easier to define benefits for adaptations. Mr. Krug wants to make sure that the CCAC has ample opportunity to give their input on the next CAP. Discussion followed regarding the role of the CCAC during the preparation of previous Plans, including the formation of subcommittees. Mr. Sherrick suggested subcommittees be formed for each area of focus in the upcoming Plan. Mr. Campbell thanked everyone for their recommendations and suggested that we focus on near-term efforts.

**New Business:**

August 27<sup>th</sup> is the next scheduled CCAC meeting. Mr. Krug asked if we knew anything about the Auditor General's report. There were no updates to provide. Mr. Hammond requested that provide follow-up information on the DGS presentation from the April meeting. Mr. Hammond suggested cancelling the August meeting due to summer vacations. Mr. Henderson recommended the Regional Greenhouse Gas Initiative (RGGI) as a topic for discussion at the next CCAC meeting, and Mr. Graff added that the Transportation and Climate Initiative (TCI) would be a good one as well. Mr. Krug suggested having a couple PA businesses, such as Arcelor Mittal and Saint Gobain, speak at the next meeting about what sustainability initiatives they have led. He said they may give us ideas of what is practical and implementable for businesses. Mr. Campbell reminded everyone that the industrial sector has the largest share of GHG emissions in PA. Mr. Sherrick agreed that a focus on RGGI at the next meeting would be appropriate.

**Adjournment:**

A motion to adjourn was made by Joe Sherrick and seconded by Robert Graff. The motion carried, and the meeting was adjourned at 2:51 p.m.