Prepared Testimony of Seth Blumsack, Ph.D. before the Pennsylvania Senate Democratic Policy Committee, on the topic of Energy Affordability for Consumers, March 31, 2025

Senator Miller and Senator Flynn, thank you for the opportunity to speak today and for holding this hearing on a topic of importance to all Pennsylvanians. I am speaking today as the co-director of Penn State University's Center for Energy Law and Policy.[1] The Center was founded in 2018 with a mission to harness the breadth and depth of faculty and student expertise across Penn State's multi-campus system, to collaboratively research and address energy challenges where law and technology play equally essential roles. The work of Penn State's Center for Energy Law and Policy spans all aspects of the energy sector, including work on conventional and emerging fuels; electric power grids; changing energy demands, and many other topics. We are glad to be an independent and expert voice to inform energy policy decisions in Pennsylvania and beyond.

Governor Shapiro's "lightning plan" for Pennsylvania energy is quite broad and covers a lot of ground. Today, I would like to highlight a few additional energy policy areas that could be addressed to support clean and affordable energy for all Pennsylvanians. These include energy efficiency, rules governing solar energy development, and the regulatory environment for low-carbon fuels. My remarks today are based on work conducted through the Center for Energy Law and Policy at Penn State.

<u>Energy efficiency can reduce energy burdens and improve health[2]</u>

First, I would like to touch on ways in which energy efficiency deployment could be improved in the Commonwealth. Policy can support making buildings more energy-efficient, particularly in lower-income and rural areas where energy costs may be more economically burdensome. Policy can also support improving the efficiency of the technologies that we use to heat and cool buildings.

Pennsylvania has mandatory and voluntary energy efficiency and conservation programs, including requirements for electric utilities under Act 129 and the Low Income Usage Reduction Program or LIURP. These programs create many opportunities for homeowners but we have found that they can present a fragmented and sometimes confusing landscape for individuals or organizations looking to implement energy efficiency

[1] More information on the Center for Energy Law and Policy, along with copies of research work cited in this testimony, is available at https://celp.psu.edu.

[2] Information on how the Center for Energy Law and Policy has studied energy efficiency is available at https://celp.psu.edu/projects/energy-efficiency/.

solutions.[3] Low-income areas present special challenges because of a lack of easy-to-use information on energy efficiency. The large number of organizations offering information on energy efficiency can breed confusion and mistrust.[4] There is no simple solution, but efforts to promote coordination and communication among the many energy efficiency programs in Pennsylvania could help to resolve some of these challenges.

Pennsylvania could also take advantage of the important connection between energy efficiency improvements and health. Efficiency improvements such as weatherization and insulation can also help to address indoor air quality problems such as mold and dust, reducing the health burdens from asthma or other respiratory conditions. Our work at the Center for Energy Law and Policy has identified potential avenues to use funds from Medicaid and the Children's Health Insurance Program (CHIP) to support energy efficiency investments that can also support better health outcomes.[5] A few other states, including New York, North Carolina and Vermont, have programs underway to create both energy-efficient and healthier homes.

Pennsylvania could also find ways to encourage technologies that make the heating and cooling process itself more energy efficient. Clean and efficient thermal energy technologies such as geothermal heating and cooling have broad potential in Pennsylvania and are reflected in some aspects of Governor Shapiro's lightning plan. They could also be integrated into existing energy efficiency frameworks such as Act 129. As discussed in a recent report on the future of geothermal energy in Pennsylvania, the distribution of heat via thermal energy networks is a highly energy efficient way to provide heat and hot water to large numbers of users in city blocks, neighborhoods and commercial parks.[6] My campus at Penn State has its own thermal energy network, as does a portion of the Oakland neighborhood in Pittsburgh. Establishing thermal energy networks as a recognized utility service in Pennsylvania, whether provided by existing utilities, municipalities or other entities, would be a beneficial step towards improving the efficiency of thermal energy use in the Commonwealth.

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[3] "Coordinating and Accessing Low-Income Energy Efficiency Programs," Center for Energy Law and Policy white paper, October 2023. Available at https://celp.psu.edu/wp-content/uploads/2023/11/Energy-Efficiency-White-Paper-Final-11-2023.pdf.

[4] "Expert Insight Workshop on Coordinating Access to Low-Income Energy Efficiency Programs," report from the Center for Energy Law and Policy, November 2022. Available online at https://celp.psu.edu/wp-content/uploads/2023/12/Center-for-Energy-Law-and-Policy_Energy-Efficiency_Charette-Final-w-Cover-Page-11-28-22.pdf.

[5] "Coordinating and Accessing Low-Income Energy Efficiency Programs," section II.

[6] "The Future of Geothermal Energy in Pennsylvania" is a multi-contributor report which was coordinated by Project Innerspace. The report is available at https://celp.psu.edu/pageothermal.

Navigating the regulatory environment for solar energy in Pennsylvania[7]

The second area I would like to highlight is related to solar energy regulations. Solar energy faces different challenges in Pennsylvania, including backlogs in the PJM interconnection process, public opposition, and siting challenges. Governor Shapiro's lightning plan would establish a statewide energy siting board as many other states already have. Our work at the Center for Energy Law and Policy has focused on the local siting aspects of solar energy development.

With over 2,500 municipalities and 67 counties, local governments in Pennsylvania are the gatekeepers for solar energy development. We have researched zoning and other ordinances in each of these local entities related to solar energy development and have found wide disparities in local regulatory approaches. These disparities include aspects such as required setbacks, access road construction requirements, and financial liability requirements. Some requirements are more favorable towards solar energy development than others.[8] Even with a statewide siting board, local decision-makers in Pennsylvania will still play an important role. The establishment of information resources and best practices for local solar-related ordinances can improve what may currently be a confusing market for solar developers.

Pennsylvania needs to be ready for alternative fuels[9]

I will conclude by saying a few words on alternative fuels such as hydrogen, renewable natural gas and sustainable aviation fuel. The Governor's lightning plan would support alternative fuel technologies on the supply side, and we have identified three broad but additional steps needed to create a cohesive policy environment for these fuels.[10]

First, ensure that low-carbon fuels can be produced cleanly. In some cases, as with blue hydrogen, this may mean developing complementary policy around emissions control and the capture, transportation and long-term storage of greenhouse gas emissions. Second, Pennsylvania needs well-defined safety standards for the transportation, use and above-ground or below-ground storage of these fuels. In some cases, Pennsylvania could review

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[7] Work from the Center for Energy Law and Policy related to solar energy in Pennsylvania is available at https://celp.psu.edu/pa-solar-ordinances/ and at https://www.rural.pa.gov/publications/research-reports.
[8] A searchable and downloadable database of Pennsylvania local solar-related ordinances is available at https://celp.psu.edu/pa-solar-ordinances/.
[9] Work from the Center for Energy Law and Policy related to alternative fuels covers hydrogen energy (https://celp.psu.edu/projects/hydrogen/), renewable natural gas (https://cchange.research.iastate.edu/ and https://drive.google.com/file/d/1sVjFZguMfNWCXowmTU_Uj2-f9KZkYrQI/view), and sustainable aviation fuel (https://www.frontiersin.org/journals/energy-research/articles/10.3389/fenrg.2021.750514/full).
[10] "Growing a Hydrogen Economy in Pennsylvania," Center for Energy Law and Policy briefing, available at https://celp.psu.edu/projects/hydrogen/.

existing safety standards for infrastructure such as pipelines. In other cases, Pennsylvania would need to create entirely new regulatory frameworks. For example, Pennsylvania has few if any existing regulations on fueling stations that would use some alternative fuels. Third, Pennsylvania will need to consider how or whether it wants to encourage the re-use of existing energy infrastructure for alternative fuels or carbon dioxide transportation, and how that can be done in a safe manner.

Thank you again for the opportunity to speak today, and I look forward to questions from the committee.