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Submitted Electronically

Department of Environmental Protection
Policy Office, Rachel Carson State Office Building
Post Office Box 2063
Harrisburg, PA 17105

RE: Comments on 2015 Draft Climate Change Action Plan Update

To Whom It May Concern,

In response to the Department of Environmental Protection and the Climate Change Advisory Committee's request for comments on the *2015 Draft Climate Action Plan Update*, the Pennsylvania Chapter of The Nature Conservancy offers the enclosed set of comments.

Please contact me if you have any questions or require additional information.

Thank you,

William W. Kunze
Pennsylvania Executive Director
The Nature Conservancy

Comments by the Pennsylvania Chapter of the Nature Conservancy

on the Draft 2015 Climate Change Action Plan Update

In response to the request for comments from the Pennsylvania Department of Environmental Protection (DEP) regarding the draft *2015 Climate Change Action Plan Update*, the Pennsylvania Chapter of The Nature Conservancy offers the following observations and recommendations.

We commend the Climate Change Advisory Committee (CCAC) and the DEP for developing a carbon reduction strategy for Pennsylvania. We also applaud the Committee for the rigor of its analysis of the cost and benefits of many of the prescribed actions. While we believe the recommendations contained in the Action Plan represent a reasonable starting place for carbon reduction, we think more can, and should, be done, especially given that Pennsylvania ranks third among states for carbon emissions. We encourage the CCAC and the DEP to increase both the breadth and depth of the Action Plan, including developing a more aggressive action menu and incorporating additional adaptation and resilience-related activities and work plans.

The comments we provide below offer suggestions to refine the existing work plans and policy recommendations; increase capacity through partner engagement; and further develop the work plan and policy menu. Our focus includes opportunities to broaden the scope of the Climate Change Action Plan to incorporate adaptation strategies and assess opportunities to include nature-based solutions as practical components of the Plan, supporting both human and natural systems.

On the implementation level, **we recommend that the CCAC consider taking steps to engage a broader cross-section of topic-appropriate stakeholders in refining and implementing action plans**.

The Advisory Committee has identified a variety of work plans and recommended actions associated with carbon reduction goals. These plans cover a wide breadth of topics from coal-bed methane recovery to energy efficiency finance. Our primary concern associated with these plans is how best to make them actionable. We suggest the DEP and the Advisory Committee target and engage stakeholders already working on these issues who are likely well positioned to follow up on implementation steps by refining and deploying the recommended strategies.

Pennsylvania is home to many industry organizations, non-profit entities, trade groups, academic institutions, foundations, and economic development organizations. Many of the work plans set forth in the Action Plan are relevant to the missions of these groups and may align with efforts currently underway by these groups. Initiating a process by which these groups could be engaged to refine and implement the work plans will result in making the plans actionable over a more immediate timeframe, while conserving time and financial resources. This process can be initiated through a Request for Proposal (RFP) process and/or the convening of stakeholder groups tasked with advancing elements of individual work plans.

For example, for Work Plan 7: High-Performance Buildings, there is a set of Pennsylvania-based organizations that are currently executing activities, or have missions directly relevant to this work plan. These organizations include, but are not limited to, the following:

- The Green Building Alliance and their associated Pittsburgh and Oakland "2030 District" efforts
- Delaware Valley Green Building Council
- United States Green Building Council of Central Pennsylvania
- Carnegie Mellon University

For Work Plan 11: Semi-Truck Freight Transportation, stakeholders who are likely to respond to opportunities for direct engagement include those associated with the Department of Energy's Clean Cities programs in Pennsylvania, including but not limited to:

- Eastern Pennsylvania Alliance for Clean Transportation (EP-ACT)
- Pittsburgh Region Clean Cities
- Pennsylvania Motor Truck Association (PMTA)

This approach may also facilitate opportunities to expand capacity and identify additional work plans.

We are encouraged by the inclusion of recommendations associated with deployment of solar and other distributed energy resources. The Pennsylvania Chapter of the Nature Conservancy is particularly interested in opportunities to accelerate use of distributed renewable energy systems as a carbon reduction strategy. An emphasis on distributed sources delivers multiple benefits to Pennsylvania's ratepayers and has the potential to direct more energy-related construction and production to already developed locations (*e.g.*, rooftops and parking lots). Benefits to ratepayers include the reduction of overall line losses and reduced congestion. Distributed generation has the potential to provide additional value by adding capacity during periods of peak demand, a phenomena known as peak shaving, which also drives down energy costs. In some cases, distributed renewable deployment, coupled with targeted energy efficiency, may also forestall the need for new transmission and distribution infrastructure, further reducing costs to ratepayers while increasing reliability.

We recommend that the DEP and CCAC **consider a separate work plan focused on the deployment of solar energy**, and include strategies for engagement with solar energy industry representatives as well as other knowledgeable stakeholders.

We commend the DEP for its recent announcement of steps to implement a methane reduction strategy for Pennsylvania. **We would challenge the DEP and the CCAC to develop additional methane-related work plans that help Pennsylvania address leaks from oil and gas operations and natural gas transmission and distribution, as well as legacy issues associated with abandoned oil, gas, and coal development sites.**

We suggest the DEP and CCAC **consider including policy recommendations and a separate work plan associated with the establishment of a Pennsylvania Green Bank**. A more robust build-out of this recommendation serves both the energy efficiency and renewable energy sectors, and may provide opportunities to finance other beneficial infrastructure. As noted in the Plan, the formation of a Green Bank in Pennsylvania can rapidly grow clean energy markets with minimal public expenditure, while making energy cleaner and cheaper for citizens. In addition to growing clean energy markets, Green Banks can also produce a number of additional benefits including:

- Low-Cost Market Growth – Green Banks aim to make energy cleaner *and* cheaper, and do it by providing opportunities for low-interest financing.
- Private Sector Leverage – Green Banks seek to "crowd-in" private investment currently on the sidelines and can leverage $10 of private capital for each public dollar used.
- More Efficient Government – Green Banks can create opportunities to leverage public investment by partnering with state and local governments, providing systems to preserve and recycle public dollars through financing services.
- Job Creation & Economic Development – 100% financing reduces barriers to demand, so investment in energy efficiency and in-state renewables means more jobs and growing businesses to meet that demand.
- More Money Back in Citizens' Pockets – Green Bank financing allows more citizens to lower energy bills through deep efficiency retrofits, and offers a way for government to lower reliance on expensive grants.

Connecticut created the first Green Bank in the country in 2011, and has already achieved tremendous growth. In FY15, the Connecticut Green Bank facilitated $365 million in total clean energy investment. This is a 10-fold increase in total investment in the state in only four years.[1] Given the potential benefits, we suggest amending the Action Plan to provide greater emphasis on the potential deployment of this tool.

The Plan makes a legislative recommendation associated with energy use disclosure at time of property sale. We believe that this recommendation is a positive step in promoting energy efficiency. However, we suggest that the Committee also **consider building a programmatic approach and work plan to supplement the policy recommendation and encourage the recognition of energy efficient features in property values**.

Pennsylvania has many real estate Multi-Listing Services (MLS), each serving either a regional or local real estate market. These listing services are the conduits by which property features are assessed and assigned a value based on comparable sales. For instance, a new property listing in a neighborhood is valued based on a comparable property in the same neighborhood with similar features. Some MLS organizations in Pennsylvania have taken the step of "greening" their service to include information on energy consumption, energy efficient features, and other "green" attributes. Comprehensive efforts sponsored by the National Association of Realtors (NAR) are underway to increase adoption of this practice.[2] We suggest including in the plan a recommendation to convene stakeholders involved in this effort and encourage MLS updates that recognize energy efficiency. Colorado engaged in a similar activity in 2012 with great success. See documentation related to that effort here: https://www.naseo.org/Data/Sites/1/documents/committees/buildings/calls/2013-06-13-colorado.pdf.

The Pennsylvania Chapter of the Nature Conservancy applauds the Action Plan for identifying options to reduce greenhouse gas emissions in Pennsylvania. In addition, we urge that the Action Plan be expanded to include **comprehensive consideration of ways to build resilient and adaptive systems** in the face of a changing climate, both for our communities and for the

[1] http://www.coventryct.org/AgendaCenter/ViewFile/Item/2936?fileID=3729

[2] http://www.greenthemls.org/

natural systems that serve them, including our waterways, forests, and other natural spaces. Use of natural systems as a tool to build resilient human communities and maintain services is a cost-effective approach to mitigating impacts associated with a changing climate in Pennsylvania. Finally, Pennsylvania's Climate Change Action Plan should also account for the value and cost-effectiveness of carbon sequestration via natural systems.

As noted in Pennsylvania's Climate Change Impacts Report,[3] the Commonwealth faces two fundamental threats related to climate: 1) Sea level rise and its impact on communities and cities in the Delaware River Basin, including the city of Philadelphia; and 2) more frequent extreme weather events, including large storms, periods of drought, heat waves, heavier snowfalls, and an increase in overall precipitation variability.

The way we have engineered many of our human-scale systems assumes that weather events will occur with a frequency that follows a predictable path based on historical data. Climate change threatens that predictability and therefore threatens the predictive functions (*i.e.*, useable life, maintenance schedules, replacement frequency) of the infrastructure that supports our commerce, communities, and citizens.

In 2010, at the urging of the Climate Change Advisory Committee, DEP issued the *Climate Change Adaptation Planning Report: Risks and Practical Recommendations*.[4] In preparing this report, several working groups charged with issuing recommendations were convened. Topics for these working groups included:

- Infrastructure (transportation, energy, water, buildings, communications, land use);
- Public Health and Safety (public health, emergency management);
- Natural Resources (forests, freshwater, plants and wildlife, agriculture); and
- Tourism and Outdoor Recreation (fishing, boating, sports, adventure, golf, skiing, gardening).

The stakeholder groups identified several cross-cutting principles to inform adaptation planning:

1. *Green infrastructure practices are no-regrets strategies that have multiple benefits for improved capture of stormwater, water conservation, decreased sedimentation and pollution to waterways, and less adverse impacts to the built environment and wildlife. This innovative approach increases resilience to impacts resulting from climate change, such as greater precipitation and more frequent severe storm events, heat waves and droughts. Green sustainable practices include broad adoption of rain barrels and rain gardens, wetland development, green roofs, and bio-retention and green streetscapes to retain runoff and filter pollutants cost effectively.*

2. *Walkable communities, particularly sidewalks, trails, and bike lanes, are growing in popular support and demand.*

3. *Conserve wildlife and fish habitat by building resilience to the impacts of climate change. Some conservation, agriculture and outdoor recreation measures already underway should be reviewed for their potential to help meet the challenges of a changing climate.*

[3] http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-108470/2700-BK-DEP4494.pdf

[4] http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-103584/2700-RE-DEP4303%20Combined.pdf

Cross-cutting examples include use of riparian stream buffers, increasing native plantings, small dam removals, and providing areas for refuge and connecting habitat corridors for species migration.

4. *Integrate adaptation and mitigation strategies as part of planning and operations of government agencies, non-profit organizations, businesses, farms and academic institutions. These can provide cost savings while also resulting in numerous other benefits.*

5. *The CCAC should include climate adaptation, including public health response, as a key component of future climate change action plans. Adaptation planning plays a key role for Pennsylvania in its climate change strategy.*

6. *In order to be successful with implementation, the stakeholders of all four working groups recommend that the commonwealth should support the establishment of a climate adaptation team within state government to provide technical expertise, resources and enlist the services of stakeholders needed to implement plans for each of the sectors.*

The Nature Conservancy believes that **these recommendations identified in the 2010 Adaptation Planning Report are still very relevant and deserve consideration in the *2015 Climate Change Action Plan Update*.** We strongly urge the Advisory Committee to pick up where the 2010 effort left off and take steps to update, improve, and make actionable any recommendations that emerge.

As the DEP is aware, since 2010, additional examples of resilience and adaptation planning have been undertaken by Pennsylvania communities and agencies. In addition, clearinghouses have emerged for coordinated, state-wide planning and implementation efforts and recommendations for best practices in executing those efforts. The Committee and DEP should consider tracking these efforts and seek opportunities to learn from stakeholders and understand the tools and protocols used to make the assessments.

Recent examples of this progress include the following:

The City of Pittsburgh: Pittsburgh was named to the Rockefeller 100 Resilient Cities Network in 2014. Since then, the City has undertaken efforts to encourage internal, cross-department collaboration on how best to deal with heat-related stresses, riverine flooding, and impacts associated with stormwater management. The community has taken steps to identify and convene non-government related assets and organizations that would benefit from operational literacy as it pertains to city services, as well as coordinating collaborative planning in the community. Further documentation of Pittsburgh's efforts can be found at this link: http://www.100resilientcities.org/cities/entry/pittsburgh#/-_/.

The City of Philadelphia: Philadelphia issued a comprehensive vulnerability assessment in its Climate Adaptation report, "Growing Stronger: Toward a Climate Ready Philadelphia." The analysis identified risks and vulnerabilities associated with heat waves and flooding - including sea level rise, storm surges, and increased heavy precipitation events. The report identified these risks and vulnerabilities through the lens of directing smart investments that the city can implement now in order to improve the resiliency of systems and services to

respond to climate related vulnerabilities in the future. A copy of that report can be found at this link: http://www.phila.gov/green/PDFs/Growing%20Stronger.pdf.

City of Chester: In 2013, the Chester Hazards and Climate Adaptation Project Team conducted a vulnerability assessment of the City of Chester's critical assets using existing plans and relevant spatial and demographic data, to examine the city's vulnerabilities to extreme heat, severe storms, flooding, and sea-level rise. Chester's climate action plan can be found at the following link: http://www.chestercity.com/wp-content/uploads/2015/09/2014-06-25_Vision_2020_Climate_Adaptation_Elements.pdf.

SEPTA (Southeastern Pennsylvania Transit Authority): In 2010 and 2011, SEPTA participated in a Federal Transportation Administration (FTA) pilot effort to formalize the process of considering disruptions related to extreme weather in decision making; inform existing adaptation efforts with climate science and risk analysis; better understand costs and impacts; and develop a comprehensive strategy that could be applied across the entire system. The pilot effort involved an analysis of SEPTA's current and future risk over several types of extreme weather events. ICF International, SEPTA, and the Delaware Valley Regional Planning Commission collaborated to carry out this work. A copy of SEPTA's study is available at through the following link: https://www.fhwa.dot.gov/environment/climate_change/adaptation/case_studies/septa/index.cfm.

Other Pennsylvania entities that are engaged in adaptation and resilience planning or risk assessments include PennDOT, the Pennsylvania Department of Health, DCNR, and PEMA.

In addition to local efforts, the Committee can reference the comprehensive list of guidance, resources, and examples provided by Georgetown University through its Climate Central initiative and "Adaptation Clearinghouse™". This index provides examples and progress reports from every state that has engaged in adaptation planning efforts and execution of those plans. Pennsylvania is included in the index due to the above mentioned efforts: http://www.georgetownclimate.org/adaptation/overview:

Most relevant to Pennsylvania may be California's efforts and accompanying report, "Safeguarding California: Reducing Climate Risk - Update to the 2009 CA Climate Adaptation Strategy." As the title suggests, California built this plan as an update to an earlier effort started in 2009. It stands out in addressing all sectors and departments and for identifying a comprehensive set of actions. A copy of California's plan can be found at the following link: http://www.georgetownclimate.org/adaptation/state-information/overview-of-californias-climate-change-preparations.

As mentioned previously, **nature-based solutions deploying natural infrastructure are a cost-effective way to build resilience and protect communities**. These solutions often have the additional benefit of sequestering carbon - a cost-effective strategy to augment carbon reduction goals. Solutions that deploy natural infrastructure support ecosystem health while adding economic, recreation, and scenic value. The following are some examples of how stakeholders in Pennsylvania, and elsewhere, are deploying nature-based solutions. Many of the methods discussed below have the dual benefit of allowing natural systems to thrive while improving the resiliency of infrastructure to climate related impacts.

As clean water is a critical resource for community health, and may be an even more critical asset in the face of increased heat events, droughts, and other climate-related impacts, **we urge the Committee to identify opportunities related to resilience and adaptation needs associated with waterways and watershed systems**. Strategies that build resilience into these systems provide greater flood management and mitigation potential. Specific examples of actions may include:

- **Building / retrofitting of more flood-resilient infrastructure, specifically culverts and bridges**. Massachusetts has an excellent statewide program that assesses and prioritizes road/stream crossings for redesign, using a set of design standards that enable aquatic organisms to move freely and reduces the risk that the redesigned structure will be damaged in future floods.

    - The Climate-Friendly Stream Crossings Toolkit describes how assessment, prioritization, design, and training are used to improve stream habitat in Massachusetts: https://streamcontinuity.org/resources/crossings_toolkit/index.htm.

    - Aquatic Connectivity and Flood Resilience focuses on the mutual benefit of designing for aquatic organism passage and flood resiliency.

- **Reducing risk of flood damage to waterways.** As the frequency and severity of floods increases, understanding which areas in the river corridor are most at risk to flood damage will help prepare for floods and design restoration that mitigates future hazards.

    - The Association of State Floodplain Managers (ASFPM) recently produced a white paper that outlines the benefits of assessing riverine erosion hazards: http://www.floods.org/ace-images/ASFPMRiverineErosionWhitePaperFeb2016.pdf.

    - Indiana and Vermont have good examples of state-level programs that address flood damage. Indiana: http://feh.iupui.edu/about-feh/natural-processes/; Vermont: http://floodready.vermont.gov/flood_protection/river_corridors_floodplains#Problem.

- **Increasing the extent of forest cover along streams and rivers.** In addition to providing shade to reduce thermal impacts, forested riparian areas can help prevent erosive damage to stream channels during flood conditions. Increasing the amount of riparian forest buffer should be part of a climate adaptation plan. The strategy has the dual benefit of providing carbon sequestration.

- **Incorporating climate projections into planning for water use and availability.** In addition to risks posed by increased flooding under future climate scenarios, there is an increased likelihood of local water stress and increased demand for water during summer months, which is typically the driest season. The Nature Conservancy and many other agencies in the Commonwealth have invested in scientific research to determine the habitat needs of fish and other aquatic species of concern. This information, coupled with improved predictions of how stream flows are likely to change under future climate scenarios, should be used in assessing ecological risks associated with water usage and for land development planning to minimize climate impacts.

- **Including natural infrastructure as one of the options for reducing risk of flood damage.** New York State's Local Flood Analysis addresses flood risk planning at the local level using a suite of options including natural infrastructure: http://catskillstreams.org/lfa/**.**

We support inclusion in the Action Plan of forest-related content and a work plan associated with encouraging urban tree-cover through the deployment of DCNR's TreeVitalize program. As the Action Plan correctly identifies, forests play an important role in mitigating the impacts of climate change. However, the Plan may overlook additional opportunities to develop beneficial policies and actions to encourage the cost-effective sequestration of greater amounts of carbon through healthy forests. **The Committee should consider building a work plan to address this opportunity and assess the costs and benefits of additional forest related strategies.**

For example, the Pennsylvania Chapter of The Nature Conservancy has leveraged voluntary carbon credit demand to drive best management practices on 30,000 acres of privately-held forest lands through our Working Woodlands program. The credits come from increasing the sequestration potential of the forests on those lands via best management practices. The program applies Forest Stewardship Council (FSC) certification and performs third-party audits to determine the potential for improved management practices to increase the carbon sequestration potential of these lands. Landowners receive financial reward via the carbon credits and FSC-related harvesting activities.

Other recommendations include:

- **Recognize the value of forest carbon sequestration as a cost-effective carbon reduction strategy in the report.** We applaud the recognition of forests as a vital carbon sink in the plan, but recommend the Committee and DEP work with DCNR to consider evaluating the sequestration potential of deploying best management practices across both public and private forested lands in Pennsylvania, and the cost effectiveness of such activities. DCNR has already identified that our forests have the potential to absorb 5% of our annual greenhouse gas emissions using USDA Forest Service tools such as Forest Inventory Assessment (FIA) tool .It may be advantageous to see additional scenarios that assess the potential for Pennsylvania forest lands to play a larger role in cost-effective forest-carbon sequestration.

- **Recommend programs that provide tools and incentives for private landowners to manage for forest health.** In addition to the Working Woodlands program mentioned above, Wisconsin's Certified Family Forest program stands out as an example**.** This program, administered by the Wisconsin Department of Natural Resources, allows private landowners to join in a single FSC certification. In the offing, private landowners embrace management practices that increase the health of the forested tracts and increase their carbon sequestration potential: http://dnr.wi.gov/topic/TimberSales/mfl.html.

- **Align cross-agency programs and practices to encourage forest health.** In order to maintain healthy forest systems in the face of a changing climate, the fundamental qualities of forest system complexity and connectivity need to be reinforced. Practices that encourage these qualities become even more critical. Examples include: improving regeneration, preventing forest fragmentation, conserving vital wildlife corridors, and encouraging broader adoption of forest certifications.

We thank the DEP and the members of the CCAC for this opportunity to provide input. We look forward to engaging in this effort as it continues to evolve.