October 21, 2019

Ms. Kimberly Bose
Federal Energy Regulatory Commission
Office of the Secretary
888 1st Street, NE
Washington, DC 20428

Re: Comments Regarding Environmental Assessment for the Proposed PennEast Pipeline Project Amendment, Docket No. CP19-78-000

Dear Ms. Bose,

The Delaware Riverkeeper Network ("DRN") is providing the following comments to be considered by the Federal Regulatory Commission ("FERC" or "Commission") with respect to its Environmental Assessment ("EA") issued on September 20, 2019, for the proposed PennEast Pipeline Project Amendment involving the construction and operation of facilities by PennEast Pipeline Company, LLC ("PennEast") for the PennEast Pipeline Project ("Project"). PennEast's changes to the proposed Project and resulting environmental impacts are significant. The Commission should have evaluated these changes in an Environmental Impact Statement ("EIS") for the proposed pipeline as it is currently conceived, rather than in an EA that purports to address only the Project changes. DRN attaches and incorporates the comments it submitted on FERC's EIS for the proposed Project, FERC Dkt. No. CP15-558-001, as well as the briefs filed in its D.C. Circuit challenge to the PennEast Certificate.

The size and scope of the construction activity for this pipeline, stream crossings, and other water resources impacts associated with the project will have a damaging effect on the health and vitality of the Delaware River Watershed. FERC's conclusion in the EA that "approval of the Amendment Project, with appropriate mitigating measures, would not constitute a major federal action significantly affecting the quality of the human environment" is not supported by the information on the record or within the EA itself. FERC's characterization of the EA as evaluating an "Amendment Project" is a misnomer -- the EA is evaluating changes to the proposed PennEast Project, which has not yet been built. By isolating these "Amendment Project" impacts in an EA, instead of performing a new EIS, or significantly revising and supplementing the existing EIS for the proposed Project, the Commission is unlawfully segmenting its National Environmental Policy Act ("NEPA") analysis for the proposed Project. This segmentation results in an EA that takes a constrained view of impacts and alternatives and, thus, does not comply with NEPA.

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Nevertheless, DRN has evaluated the EA and found many significant issues. Through the submission of this comment, DRN identifies critical impacts of the proposed route changes and of the PennEast Pipeline Project as a whole that have been ignored, excluded, downplayed, or misrepresented in FERC's EA. PennEast's original Application and Amendment Application materials are missing information and misrepresenting impacts. These omissions have resulted in FERC producing an unacceptable EA that has not properly considered or addressed the true, significant, and detrimental impacts of the Project. Given the Project's numerous significant impacts, the Commission must prepare an EIS. Once the Commission has performed a completed evaluation that complies with NEPA, it will be clear that, in light of these impacts, the Project and Amended Project Certificate must be denied.

Project Summary

The original PennEast Pipeline Route involves:

- 115.1 miles 36-inch diameter pipeline from Luzerne County, PA to Mercer County, NJ
- 2.1 mile Hellertown lateral, a 12 inch diameter pipe in Northampton County, PA
- 0.1 mile Gilbert lateral, a 12 inch diameter pipe in Hunterdon County, NJ
- 1.5 mile Lambertville lateral, a 36 inch diameter pipe in Hunterdon County, NJ
- 47,700 horsepower compressor station in Kidder Township, Carbon County, PA driven by 3 gas powered Solar Mars 100 units rated at 15,900 hp each
- 8 meter and regulator stations for interconnects
- 11 mainline valve sites
- 4 pig launcher/receiver sites

Construction of the originally proposed Project was estimated to impact 1,613.5 acres of land (1,065.2 acres for pipeline facilities, 110.1 acres for access roads; 372.3 acres for pipe and contractor ware yards, 31.1 acres for above ground facilities). Cutting through 255 waterbodies (including 159 perennial, 45 intermittent, 40 ephemeral, 11 open water), 633 acres of forest, 91 acres of wetlands, impact "several" vernal pools, and infringe upon and damage habitat for threatened and endangered species of bat, sturgeon, snake, turtle, mussels and more.

On February 15, 2019, the Federal Energy Regulatory Commission issued a Notice of Application for Amendment to amend the Certificate of Public Convenience and Necessity for the PennEast pipeline. PennEast proposes to amend their Certificate Order issued January 19, 2018 with four modifications outside the certificated route. The route changes consist of:

- Saylor Avenue Realignment, Plains Township (Twp.), Luzerne County (MP 8.5R3 tp MP 8.9R3);
- Interstate 81 Workspace Adjustment Plains Twp., Luzerne County (MP 10R2 to 10.4R2);
- Appalachian Trail PPL Electric Utilities Crossing Realignment, Lower Towamensing Twp. Carbon County, Eldred Twp. Monroe County, and Moore Twp. Northampton County (MP48.6R2 to 53.6R3); and
- Freemansburg Ave. Realignment Bethlehem Twp., Northampton County (MP 69.7R3 to 70.8).

The Delaware Riverkeeper Network submitted comments to FERC during the scoping period detailing the significant gaps and misrepresentations in PennEast's application materials, including:

- Threatened and endangered species surveys are incomplete for the Amended Application Materials;
- Bog Turtle occupied wetlands should be identified and assessed as Exceptional Value Wetlands;

- FERC and PennEast must include an analysis of impacts to all wetland along the full length of the proposed route and the route modifications, especially EV wetlands specifically protected under PA Regulations;
- Cumulative Environmental Impacts of Project along the full length of the proposed route and the route modifications must be analyzed in the context of past, current, and foreseeable future projects;
- Cumulative Impacts analysis must account for the impacts the Project will have on climate change and greenhouse gas emissions that will result from construction and operation of the project, including the reasonably foreseeable downstream uses of natural gas that will be transported by the Project and the upstream impacts of fracking induced by the Project;
- FERC and PennEast must adequately analyze the public health and safety impacts and risks for communities along the route;
- Economic Impacts of the project should be analyzed giving due consideration to known losses and benefits of the Project;
- FERC must re-evaluate whether actual need for the Project still exists; and
- Impacts from the New Alignments must be fully account for and examine.

Despite the numerous and substantive comments submitted to FERC by the DRN and others, FERC released an EA on September 20, 2019 that, as is detailed further in these comments, ignores these deficiencies previously noted on the record and raises additional concerns over the deficiency of FERC's environmental analysis and the significant impacts resulting from the project. The known impacts and blatant deficiencies in the Project materials and EA clearly demonstrate that an EIS is required to account for all impacts along the Right of Way for the full length the Project, incorporating the changes that will occur due to route modifications to ensure a full environmental review.

I. FERC Has Violated NEPA By Segmenting the Route Modifications From the Complete Project and Must Complete an EIS that Evaluates All of the Proposed PennEast Project's Impacts Together

In the EA, FERC fails to adequately assess the impact of this Project by segmenting the route modification impacts from the rest of the project, continuing its illegal practice of segmentation.
"Under applicable NEPA regulations, FERC is required to include 'connected actions,' 'cumulative actions,' and 'similar actions'" in its NEPA analysis.[1] In *Delaware Riverkeeper Network v. FERC*, the D.C. Circuit found that "in conducting its environmental review of the Northeast Project without considering the other connected, closely related, and interdependent projects on the [the same pipeline], FERC impermissibly segmented the environmental review in violation of NEPA."[2]
FERC's segmentation with respect to the proposed PennEast Project even goes beyond what the D.C. Circuit found to be violative of NEPA in *Delaware Riverkeeper Network v. FERC*. Here, FERC begins by calling this the "Amendment Project" -- a complete misnomer that seeks to describe the route changes and other modifications as separate and distinct from the proposed PennEast pipeline. To the contrary, the "Amendment Project" is actually a series of significant changes to the proposed pipeline, which has not yet been constructed. FERC completed an EIS for the proposed PennEast pipeline, which is deficient[3] in and of

[1] *Del. Riverkeeper Network v. FERC*, 753 F.3d 1304, 1308 (D.C. Cir. 2014) (quoting 40 C.F.R. § 1508.25(a)).
[2] 753 F.3d at 1309.
[3] DRN's judicial challenge to FERC's EIS for the proposed PennEast Project is pending.*See DRN v. FERC*, No. 18-1128 (D.C. Cir.).

itself. Now, instead of completing a new EIS or supplementing and revising the existing EIS for the proposed Project, FERC is shirking its NEPA obligations with this EA.

Nowhere does FERC explain why it has chosen an EA and not an EIS. PennEast is seeking an amendment to its Certificate, but when the Commission amends certificates, it layers the amended certificate on top of the original—without disturbing the force or effect of the initial Certificate order.[4] This questionable practice nonetheless underscores that this so-called "Amendment Project" is actually part of the entire PennEast Project that FERC is approving. The proposed pipeline has changed significantly from when it was first conceived. By segmenting these impacts from the whole, and failing to complete and EIS, FERC is not meeting its NEPA obligations.

NEPA demands a thorough environmental review of a project's impacts. As FERC has already stated that the modifications on this new route are outside of the existing Certification, this means that FERC must reevaluate the proposed PennEast Project as it is now conceived. Taking into account already known impacts of the Project, the certain environmental degradation that will come as a result of it, and the inadequate analysis that has occurred so far, FERC must complete a robust EIS that complies with NEPA.

It is clear that the PennEast pipeline will inflict irreparable harm on the environment and communities of both Pennsylvania and New Jersey. Yet, PennEast has repeatedly submitted inadequate information and been rubberstamped through the FERC review and certification process, as is once again demonstrated by the EA. FERC must stop this practice and prepare a full review of the entire project, including the route modifications, in a full EIS that is not plagued with misinformation, missing information, inaccuracies and false information which cannot support complete and accurate decisionmaking.

II. The Environmental Assessment Prepared to Review the Project is Woefully Inadequate. The Project Will Cause a Substantial Impact on the Environment and Therefore Should Be Reviewed Through an Environmental Impact Statement.

This comment, along with others, demonstrates that the EA issued by FERC cannot be said to fulfill its legal obligations pursuant to the National Environmental Policy Act (NEPA), and that instead an Environmental Impact Statement (EIS) with an associated comment period and public hearings is required. Absent taking such a step FERC will be in violation of the law.

NEPA is our "basic national charter for protection of the environment." 40 C.F.R. § 1500.1(a). As such, it makes environmental protection a part of the mandate of every federal agency. *See* 42 U.S.C. § 4332(1). NEPA requires that federal agencies take environmental considerations into account in their decision-making "to the fullest extent possible." 42 U.S.C. § 4332. Federal agencies must consider environmental harms and the means of preventing them in a "detailed statement" before approving any "major federal action significantly affecting the quality of the human environment." Id. § 4332(2)(C).

This Project requires an EIS under NEPA and Natural Gas Act Regulations. Under 18 C.F.R. § 380.6(3), any "[m]ajor pipeline construction projects under section 7 of the Natural Gas Act using rights of way in which there is no existing natural gas pipeline," require an environmental impact statement. PennEast is proposing to amend their Project, a 115.1 miles 36-inch diameter pipeline project using rights of way in which there is no existing natural gas pipeline, including changes to "the design, alignment, workspace, and

[4] *See e.g.*, *Millennium Corporation Pipeline*, Order Amending Certificates, 117 FERC ¶ 61,319, P. 29 (2006) (authorizing a route change, among other project changes, of more than two hundred miles under the same certificate, as amended).

construction methods," requesting an amended certificate of public convenience and necessity from FERC under section 7 of the Natural Gas Act, and is therefore required to have an EIS. While FERC has failed to take this step, it is obvious, from the numerous unknown impacts and gaps in the EA, that the impacts from this project will significantly affect the environment and require an EIS under NEPA as well as the NGA. The project will significantly impact the surrounding environment during construction and operation, and will encourage and continue the unhealthy reliance on natural gas, which when extracted and consumed destroys landscapes and releases greenhouse gases (GHGs) and other toxic emissions.

III. FERC Needs to Extend the Comment Period and Hold Hearings to Ensure the Public has an Opportunity to Meaningfully Review and Comment on the Project, and that All Public Comments are Considered by the Agency

There is no doubt that the breadth of harm to be inflicted by the proposed PennEast pipeline on waterways, wetlands, groundwater, habitats, species, people, and communities is significant and severe. The goal of the public comment process is to provide an opportunity for the public to provide complete and meaningful review and comment.

While FERC has allowed for a 30 day comment period, that is insufficient time for all impacted and interested parties to meaningfully review and comment on the issues identified in the EA and in other comments and supplemental filings on the record. Additionally, given the significant changes, public hearings should have been held in locations that were accessible for those who live in or near impacted and interested communities. FERC needs to afford those who live in communities that will be impacted by this pipeline the opportunity to voice their concerns by providing public hearings in convenient locations along the proposed route and in downstream communities and allowing the public a full 90 days to submit their scoping comments.

The 30 day comment period provided by FERC on the Amended Project's EA was particularly inadequate given the overlapping comment period noticed soon after, under FERC Docket No. RP20-41-000, also regarding significant implications for the PennEast Pipeline Project. On October 10, 2019, the Federal Register issued FERC's public notice (Docket No. RP20–41–000) in response to PennEast's petition submitted October 4, 2019, pursuant to Rule 207 of the Commission's Rules of Practice and Procedure, 18 CFR 385.207 (2019). PennEast Pipeline Company, LLC, filed a petition[5] for declaratory order (petition) and for expedited action requesting that the Commission issue an order interpreting the Natural Gas Act's eminent domain authority in Section 7(h), and concluding that: (1) **Under NGA Section 7(h), a certificate holder's authority to ''condemn the necessary right-of-way to construct, operate, and maintain a [natural gas] pipeline'' and the ''necessary land or other property, in addition to right-of-way, for the location of compressor stations [and other associated equipment],'' applies to property in which a state holds an interest**; (2) in NGA Section 7(h), Congress delegated the federal government's eminent domain authority to certificate holders; and (3) in delegating the federal government's eminent domain authority in NGA Section 7(h), Congress necessarily delegated to certificate holders **the federal government's exemption from claims of state sovereign immunity**, all as more fully explained in the petition. (emphasis added).

[5] Petition for Declaratory Order and Request for Expedited Action of PennEast Pipeline Company, LLC under RP20-41. October 4, 2019. Available from: https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=15371610

At the expense of states' rights and preservation of public lands, once again, FERC is slicking the wheels of the fracked gas pipeline permitting process, and infringing on due process and the public's rights in this matter by rushing the public comment period and the opportunity for the public to submit a motion to intervene. The October 10 Federal Register notice states, "In light of the petitioner's request for expedited treatment, and the significance of the issues presented, the comment due date is 5:00 p.m. Eastern Time on October 18, 2019." A mere five business days for the public to comment and intervene is a blatant example of FERC attempting to penalize the states for standing up to this carpetbagger fossil fuel industry to sacrifice public lands that have been protected with NJ taxpayer dollars and private funds. The Delaware Riverkeeper Network has also intervened and filed comments on this matter[6] . As a result of these significant, overlapping, and expedited comment periods, the already deficient amount of time to review and comment on the EA was even further diminished for anyone concerned with the PennEast Pipeline Project--including impacted residents and community members, states, and state and federal agencies. FERC should extend the time to comment on this EA.[7]

1. **FERC has failed to respond to the majority of public comments it received in violation of NEPA and NGA mandates**

NEPA regulations require that "environmental information is available to public officials and citizens before decisions are made and before actions are taken. . . . [P]ublic scrutiny [is] essential to implementing NEPA."[8] NEPA "guarantees that the relevant information [concerning environmental impacts] will be made available to the larger audience," including the public, "that may also play a role in the decision-making process and the implementation of the decision."[9] As NEPA's implementing regulations explicitly provide, "public scrutiny [is] essential to implementing NEPA."[10] The opportunity for public participation guaranteed by NEPA ensures that agencies will not take final action until after their analysis of the environmental impacts of their proposed actions has been subject to public scrutiny. [11]

NEPA is an "environmental full disclosure law."[12] It requires that an agency obtain and consider detailed information concerning environmental impacts, and it "ensures that an agency will not act on incomplete information, at least in part, by ensuring that the public will be able to analyze and comment on an action's environmental implications."[13] NEPA "guarantees that the relevant information [concerning environmental impacts] will be made available to the larger audience," including the public, "that may also play a role in

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[6] Comment, Protest, and Opposition of Delaware Riverkeeper Network under RP20-41, October 21, 2019. Available at: https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=15385383

[7] *See, e.g., Fund for Animals v. Glickman*, Civil Action No. 99-245, Tr. Hr'g Mot. for T.R.O. at 59-60 (Feb. 12, 1999) (holding that, where an environmental assessment was prepared in six days, and the public comment period was approximately eight working days, "those kinds of time frames do not allow for any meaningful input even though a couple of dedicated people may have managed."); *Save our Ecosystems v. Clark*, 747 F.2d 1240, 1247 (D. Or. 1984) (holding five day public comment period on a portion of an EA insufficient, remanding for further public comment)

[8] 40 C.F.R. § 1500.1.

[9] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989).

[10] 40 C.F.R. § 1500.1(b).

[11] *See N. Plains Res. Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1085 (9th Cir. 2011) (noting that where "data is not available during the EIS process and is not available to the public for comment," the process "cannot serve its larger informational role, and the public is deprived of their opportunity to play a role in the decision-making process") (quoting *Robertson*, 490 U.S. at 349).

[12] *Monroe Cnty. Conservation Council, Inc. v. Volpe*, 472 F.2d 693, 697 (2d Cir. 1972).

[13] *Ohio Valley Envtl. Coal. v. U.S. Army Corps of Eng'rs*, 674 F. Supp. 2d 783, 792 (S.D. W. Va. 2009) (internal quotation marks and citations omitted).

the decision-making process and the implementation of the decision."[14] As NEPA's implementing regulations explicitly provide, "public scrutiny [is] essential to implementing NEPA."[15] The opportunity for public participation guaranteed by NEPA ensures that agencies will not take final action until after their analysis of the environmental impacts of their proposed actions has been subject to public scrutiny. [16]

NEPA is an "environmental full disclosure law."[17] It requires that an agency obtain and consider detailed information concerning environmental impacts, and it "ensures that an agency will not act on incomplete information, at least in part, by ensuring that the public will be able to analyze and comment on an action's environmental implications."[18]

Although FERC "received 319 comment letters on Docket No. CP19-78-000, which includes 86 letters from Pennsylvania residents, 163 letters from New Jersey residents, and 70 letters from residents in Colorado, Delaware, West Virginia, and other states,"[19] it did not prepare a "response to comments" clearly showing where and how it responded to the issues raised by various commenters. Instead, FERC prepared a table listing a handful of "Issues Identified During the Scoping Period,"[20] which fails to list most of the issues DRN raised in its scoping comments and is continuing to raise below. The table is very general in nature, and does not reference any specific comments or commenters. FERC goes on to cryptically state that "[s]ince the Amendment Project is specific to the four modifications in Pennsylvania, the EA addresses all comments relative to this scope," going on to state that " we acknowledge the receipt of several comment letters regarding Docket No. CP15-558-000, which are not addressed in the EA since the areas discussed are outside the scope of the four modifications in the Amendment Project." It is not clear whether FERC only considered comments from PA submitters. Such a decision would be arbitrary and capricious for many reasons, including that what FERC is calling the "Project Amendment" is really part of the whole proposed PennEast pipeline, not some separate Pennsylvania only project. Nevertheless, even if it were a Pennsylvania-only project, which it is not, it could certainly have out of state environmental effects and there is no justification for limiting commenters based on geographic area or any other reason. The project clearly directly impacts New Jersey, many other states, and the global environment, especially including, but not limited to issues related to climate change. FERC staff's review of comments and the resulting EA ultimately inform the Commissions public interest determination -- The Commission cannot make an informed decision on the public interest, and properly weigh the project harms against its public benefits, when the staff has ignored over 2/3 of the comments on the record. FERC needs to consider all comments and provide a full and complete response. Its failure to do so violates NEPA.

IV. The Environmental Assessment Fails to Properly Assess the Project's Potential Impacts to Threatened and Endangered Species

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[14] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989).

[15] 40 C.F.R. § 1500.1(b).

[16] *See N. Plains Res. Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1085 (9th Cir. 2011) (noting that where "data is not available during the EIS process and is not available to the public for comment," the process "cannot serve its larger informational role, and the public is deprived of their opportunity to play a role in the decision-making process") (quoting *Robertson*, 490 U.S. at 349).

[17] *Monroe Cnty. Conservation Council, Inc. v. Volpe*, 472 F.2d 693, 697 (2d Cir. 1972).

[18] *Ohio Valley Envtl. Coal. v. U.S. Army Corps of Eng'rs*, 674 F. Supp. 2d 783, 792 (S.D. W. Va. 2009) (internal quotation marks and citations omitted).

[19] EA at 4.

[20] EA at 5.

Although most of the route changes are within 0.25 mile of the previously certified route (with the exception of the Appalachian Trail Crossing Realignment), the action area of the construction has shifted and therefore the impacts to state and federally threatened and endangered species need to be reexamined. While the EA states that PennEast is in the process of having new surveys completed and is in consultation with state and federal agencies, the surveys nevertheless remain incomplete and therefore valuable information regarding the affected species are unknown and FERC cannot possibly adequately assess the Project's impacts on these species. For example, there are outstanding eastern small-footed bat surveys along the Revised PA Route, which includes five small areas of potential roost habitat within the Saylor Ave Realignment workspace. In fact, Phase 2 emergence surveys are only 82.8% complete for the Revised PA Route**.** PennEast indicates that if mitigation is pursued in lieu of or in response to emergence survey results, it would include removing the roost habitat from the workspace (between November 15 and March 31) or excluding bats from the potential habitat areas using impermeable covering (e.g., tarp, landscape fabric) prior to April 1 to prevent bats from using the roost.

Summer roosts for this bat species include caves and mines, hollow trees and under bark, cracks and crevices in rock walls, and ridge-top talus fields. It is assumed that "removing the roost habitat from the workspace" would involve cutting down hollow trees or removing loose bark. Removing trees and bark, even in the winter, would destroy any future summer roosting habitat and could have severe long-term detrimental effects on the natural behavior of the bats. Similarly, blocking the roosts with an impermeable tarp could confuse or disorient bats attempting to access the crevices that they are used to utilizing. These serious and significant impacts to bat species that are already impacted by so many threats and harms will be compounded by the proposed construction and activities of PennEast. In addition, PennEast conducted Phase 1 eastern small-footed bat and Allegheny woodrat surveys along the Appalachian Trail PPL Crossing Realignment in 2017 and 2018. Potential habitat for both species were identified between MP 51.3R3 and MP 52.5R3. While these surveys did not document Allegheny woodrat occupancy at that time, PennEast was instructed to coordinate with the Pennsylvania Game Commission's (PGC) right-of-way (ROW) liaison, Nate Havens, in order to determine whether mitigation will be necessary for impacts to unoccupied suitable habitat for Allegheny woodrat on State Game Lands. This consultation is ongoing and the final determination regarding Allegheny woodrat presence remains incomplete.

Furthermore, the PGC asked PennEast to reduce the ROW in areas of forested wetlands to less than 45 feet near MP 27.7 and MP 32.1 so northern flying squirrels can cross. However, PennEast asserted that they are unable to reduce their workspace to 45 feet in areas of forested wetland due to constructability constraints and so this important concern and requested modification remains outstanding at this time. While PennEast has co-located their proposed ROW with an existing pipeline ROW in this area to reduce fragmentation of habitat and total tree clearing, primarily for safety reasons, PennEast asserts that they are not able to operate heavy construction equipment on the maintained 40-foot ROW of the existing utility. Therefore, PennEast takes the position that in order to complete their wetland crossings, they would be working from one side of the trench and thus would require the full 75-foot corridor to build their pipeline in this area. As a result, the requested workspace reduction is being denied by PennEast and will have ramifications for the northern flying squirrel. The wider corridor PennEast is insisting upon would increase habitat fragmentation and would make it too wide for flying squirrels to cross as they can only glide for short distances.

The PennEast failure to provide for protection of the northern flying squirrel as requested by the state agency and experts requires FERC to deny this proposed modification. PennEast could in fact reduce their workspace as requested, they are simply choosing not to do so – we have seen many workspace accommodations during pipeline construction in order to protect natural resources and species; there is no reason why PennEast cannot do the same other than they don't want to. In addition, it is unclear why HDD through this forested wetland is not being considered since increased clearing of mature trees will lead to thermal impacts, exacerbating the opening beyond the electric utility line. In other pipeline ROW's, technical advancements to work within an existing ROW have been accomplished; Penneast should be required to do the same here in order to avoid harm to the sensitive forested wetland habitat at risk. At the very least, more information and elaboration needs to be provided pertaining to the "safety reasons" PennEast currently states to justify such an expansion of the ROW in sensitive public and forested wetland areas in order to allow more informed evaluation of this unsupported and untenable position. The EA also states that,

"PGC requires a northern flying squirrel mitigation plan related to the loss of this species habitat as a result of the Amendment Project. This plan may include, but is not limited to, the replanting of temporary right-of-way areas with various conifer species, monitoring of five years to ensure 80 percent survival and the installation of glide poles to facilitate passage across the cleared right-of-way. PennEast has not yet developed this plan but has committed to working with the state agencies to develop this plan."

and

"The Habitat Mitigation Plan, developed with PGC, will be sufficient to protect the northern flying squirrel."

PennEast has failed to develop a Habitat Mitigation Plan and this is another example of PennEast providing incomplete or insufficient information. It is impossible for the plan to be sufficient when it does not even exist yet.

There are also areas newly affected by the proposed route modifications that have not been studied under previous PennEast surveys. The Appalachian Trail PPL Crossing Realignment crosses into Eldred Township, Monroe County, a township and county that were not previously affected by the Project. During wetland delineation surveys, PennEast biologists observed one dead timber rattlesnake within the Project study area in Monroe County. The rattlesnake appeared to have been killed by an all-terrain vehicle (ATV), as it was partially crushed and found within the tire tracks of a frequently utilized ATV/Jeep trail. This finding demonstrates how easily timber rattlesnakes can be crushed by vehicles such as the numerous trucks and construction equipment that would be present at this site. In addition, if PennEast is allowed to be constructed, it will create a new preferred pathway for ATVers providing permanent and ongoing impacts to timber rattlesnake habitat and likely resulting in ongoing ATV-caused deaths to the species. In addition, PennEast delineated two areas of potential timber rattlesnake denning habitat totaling 43 acres and 28 acres of potential gestating habitat, all of which is vulnerable to construction impacts despite the best mitigation measures. Studies indicate rattlesnakes are very reliant on their home ranges and den sites and any disturbance to these areas can mean subsequent harm to the species. If HDD were employed, less harm may result to this sensitive species. But HDD has not received due consideration. In the absence of consideration of this less harmful approach to construction and its ramifications for the timber rattlesnake, FERC cannot agree to these proposed modifications.

Furthermore, according to the EA,

"PennEast has committed to only conducting initial tree clearing activities between November 1 and March 31 in order to protect federally-listed bat species. This commitment would minimize impact from vegetation clearing on both avian and bat species."

The EA incorrectly lumps bats and birds into the same tree-clearing window. While bats may benefit from a seasonal timing restriction of November 1 to March 31, this is the prime breeding and nesting window for bald eagles. For bald eagles, the EA states that,

"A linear distance buffer of at least 330 feet (100 meters) would be maintained between areas with active construction and eagle nests (including alternate nests that are not actively used that year). If an existing activity that is similar in kind and size is closer than 330 feet and has been tolerated by eagles, the distance buffer for the PennEast construction activity would be the same or greater than that of the existing tolerated activity."

However, the National Bald Eagle Management Guidelines describe noise impacts as (emphasis added),

"*Category H. Blasting* ***and other loud, intermittent noises****. Avoid blasting* ***and other activities that produce extremely loud noises within 1/2 mile of active nests****, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.*"

A linear distance buffer of 330 feet is much less than ½ mile (2,640 feet). Any loud noise from construction may disturb nesting bald eagles and may cause them to abandon their nest. Any activity that disturbs a bald eagle or causes it to alter its natural behavior is considered a form of take.

V. The Environmental Assessment Fails to Account For the Project's Threats to Water Quality

There are a variety of threats to water quality that will result from the PennEast pipeline, including from construction, operation, and maintenance over the lifetime of the project.

The EA fails to consider or misrepresents numerous impacts of the pipeline project, including the proposed route modifications, on water quality. Other threats that are not properly addressed in the EA include a necessary and complete review of the karst geology the Project will be constructed over and its implications for water quality (see Section VII of comment for more detail).

1. The EA Fails to Adequately Assess the Effects of Sediment Pollution on Streams

As detailed in our scoping comments, studies documenting the effects of stream crossing construction on aquatic ecosystems identify sediment as a primary stressor for construction on river and stream ecosystems.[21] During the construction of pipeline stream crossings, discrete peaks of high suspended sediment concentration occur due to blasting, trench excavation, and backfilling.[22] Excavation of streambeds can generate persistent plumes of sediment concentration and turbidity.[23] This sedimentation has serious consequences for the benthic invertebrates and fish species whose vitality is crucial for healthy aquatic ecosystems. There have been documented reductions in benthic invertebrate densities, changes to the structure of aquatic communities, changes in fish foraging behavior, reductions in the availability of

[21] Scott Read, *Effects of Sediment Released During Open-cut Pipeline Water Crossings*, Canadian Water Resources Journal, 1999, 24: (3) 235-251.

[22] *Id.*

[23] *Id.*

food, and increases in fish egg mortality rates.[24] In addition to the stream crossing construction activity itself, the associated new road construction increases the risk of erosion and sedimentation.[25]

For Open Trench burial of gas pipelines, sedimentation results from the actual crossing activity itself as well as the removal of vegetation and activity that takes place on the stream-adjacent (riparian) lands. While dam and pump methods can reduce sediment loadings associated with a wet cut method, there are still sediment releases at levels of concern and impact, and the diversion of the water creates impediments to fish and flows that also have impacts on waterways. Additionally, this method of crossing takes longer, and so it results in longer-term direct impacts to the stream and sediment releases over a prolonged period. Sediment carried in the water column is abrasive and can result in increased erosion downstream.[26] Deposited sediment from construction activities can fill in the interstitial spaces of the streambed, changing its porosity and composition, and thereby increasing embeddedness and reducing riffle area and habitat quality.[27] Furthermore, deposited sediment has the potential to fill in pool areas and reduce stream depth downstream of the construction area.[28]

Sediment pollution is a known and demonstrated impact that needs to be seriously considered for a project of the size and magnitude of PennEast. Increased sedimentation in streams causes well-known negative impacts to fish such as trout. In an experimental study in 1983, researchers introduced bedloads of sand sediment to a brook trout stream in Michigan over a period of five years. They found that increasing the bedload 4 to 5-fold resulted in a significant reduction of trout and trout habitat and even small sediment concentrations of 80 to 100 ppm had profound effects on the trout and their habitat.[29] These effects included a decrease in survival rates, particularly from the egg to fry and/or the fry to fall fingerling stage of the life cycle. Additionally, sand deposition aggravated the streambed and eliminated most pools, and both water velocity and summer water temperature increased.

Increased turbidity impacts fish by direct mortality or by reducing their growth rate, lessening their resistance to disease, preventing successful development of eggs and larvae, modifying natural movements and migrations, and reducing the amount of food available. Turbidity also affects the growth rate of algae and other aquatic plants in streams and lakes because increased turbidity causes a decrease in the amount of sunlight for photosynthesis. Without enough sunlight, aquatic plants cannot grow properly and will eventually die. Turbidity can also increase water temperature because suspended particles absorb more heat. Increased water temperature may cause stress to fish and other aquatic benthic organisms, particularly in the summer months. These factors may lead to a decrease in dissolved oxygen, creating stagnant water conditions detrimental to aquatic life and potentially a change in structure to benthic diversity.

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[24] James Norman, et al., Utility Stream Crossing Policy, ETOWAH AQUATIC HABITAT CONSERVATION PLAN, July 13, 2008, at 9-10.

[25] *En Banc* Hearing of the Pennsylvania Public Utility Commission on Jurisdictional Issues Related to Marcellus Shale Gas Development, Docket No. I-2010-2163461.

[26] Pipeline Associated Watercourse Crossings, 3rd Edition, publication prepared for CAPP, CEPA, and CGA by Tera Environmental Consultants.

[27] Read, *supra* note 1, at 235-251.

[28] Norman, at 9-10.

[29] Alexander, G.R., & Hansen, E.A. (1983). Effects of sand bedload sediment on a brook trout population. Michigan Department of Natural Resources Fisheries Division, Fisheries Research Report No. 1906.

Finally, rain events could help transport drilling fluids into streams and other nearby waterbodies. Erosion and sediment control measures such as silt fences, compost socks, mulching, hay bales, sand bags, fiber rolls, and gravel berms frequently fail and cannot be relied upon as effective protection. The Delaware Riverkeeper Network has documented countless occasions during pipeline construction projects where sediment control structures were damaged, insufficient, overwhelmed, not functioning correctly, or where sediment was directly discharging offsite into adjacent lands, nearby streams, wetlands, or storm drains that connect to a body of water.

Meliora's March 2019 expert report[30] notes the Construction Sequence for the PennEast pipeline is described as an "assembly line flow" where there are separate crews conducting different portions of the pipeline installation process.[31] This means steps in the construction are sequential and are not happening all at once. This leaves large gaps in time where one process may lag behind another in the pipeline assembly flow. This is critically important with how and when erosion and sediment control procedures are implemented. By disturbing the CWA and not immediately installing the pipeline, the construction sequence allows for long periods of earth disturbance to be exposed to weather and erosive conditions. DRN has observed this phenomenon along multiple pipelines in the past first-hand. Previous experience with oil and gas pipeline construction projects has shown that as much as 6 months can pass between site clearing and grading and pipeline trenching. This allows for an excessive amount of time for the site to be left disturbed. The minimum design requirement for E&S practices is to control runoff from the 2-year 24-hour storm. It is likely that a storm that exceeds the design standards for the temporary E&S controls will occur during this time and cause practices to fail, which leads to sediment pollution leaving the CWA and entering wetlands and waterbodies. The likelihood of a storm that exceeds design standards for the temporary E&S controls is magnified by the weather instability caused by climate change. NOAA has documented the extreme weather events plaguing the U.S., including Pennsylvania, the increase in flood severity is a missing part of the PennEast analysis and data.

Despite the Delaware Riverkeeper Network providing FERC with this detailed, research-backed information and expert analysis during scoping, FERC concluded in the EA that while the Project's [p]otential effects on surface waters may include … increased runoff and the rate of in-stream sediment loading," these "[i]mpacts on waterbodies during construction would be short-term and not significant. This conclusion is not supported by the information on the record or the experiences from the similar construction practices of other pipelines.

Furthermore, the EA asserts that,
"Crossings employing HDD or conventional bore technologies would not be expected to impact TSS/total dissolved solids or turbidity levels in the open channel of waterbody and wetland areas."
However, inadvertent returns of bentonite drilling fluids are common and unpredictable as demonstrated by Mariner East II. Although non-toxic, bentonite runoff into streams and wetlands increases turbidity levels and can have negative impacts to fish and aquatic wildlife.

2. **The EA Fails to Assess Pipeline Construction Impacts on Trout**

[30] *Review of PennEast Pipeline Application for Chapter 102 and 105 Permits*, Michele Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, March 2019.
[31] *Review of PennEast Pipeline Application for Chapter 102 and 105 Permits*, Michele Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, March 2019.

Pipelines often cite temporary and permanent work spaces near and adjacent streams and wetlands, and the same is being proposed by PennEast in their application and Final EIS, which leads to increased stormwater runoff and soil compaction which in turn can impact water quality and temperatures for trout. Trout require cold stream temperatures and pipeline cuts often denude and cut down the riparian buffer of streams they cross unless horizontal directional drilling (HDD) or another trenchless crossing method is employed. PennEast is only proposing 16 HDD crossings for its entire pipeline project. FERC fails in the EA to consider these impacts to trout or to consider alternatives that could avoid them, such as HDD drilling in sensitive areas. The EA also fails to fully consider cumulative impacts of pipeline construction and maintenance on stream and stream ecosystems. The use of HDD crossings can offset long-term impacts to the forest, riparian area, soils and streambed in many ways if conducted with stream and upland forest health in mind.

3. **The EA Fails to Assess Impacts on Special Protection Streams**

According to Meliora's March 2019 expert report, PennEast plans do not adequately protect sensitive environmental resources such as EV wetlands and HQ/EV streams within Pennsylvania.[32] The pipeline traverses through 37.7 miles of HQ and 9.5 miles of EV watersheds in PA, which include impacts to 22.25 acres of PEM, PSS, and PFO wetlands, 86 crossings of HQ streams, and 18 crossings of EV streams. Many of these features are shown to be impacted by construction practices despite narrative and details suggesting alternative practices to minimize these impacts in PennEast's materials. This lack of coordination between the narratives, details, and plans will cause confusion in the field for the contractor and best practices will not be followed. Despite being alerted to this conflicting information, FERC fails in the EA fails to clarify these critical details.

The EA asserts that,
"Impacts on waterbodies during construction would be short-term and not significant."
and
"In-stream construction activities, especially trenching and backfilling of the trench, would temporarily increase the amount of sediments mobilized downstream. The extent of the impact would depend on sediment loads, stream velocity, turbidity, bank composition, and sediment particle size. These factors would determine the density and downstream extent of sediment migration."
If the extent of the impacts depends on a variety of factors such as stream velocity and bank composition, there should be an analysis of these factors. It seems that such calculations are beyond the scope of an EA and should be required as part of an EIS. In addition, the EA lists the Appalachian Trail realignment as crossing 11 HQ/EV streams but there is no further information on which streams or what is being done to comply with their special designations.

4. **The EA Fails to Fully Consider Groundwater Impacts**

Pipelines can serve as conduits for diverting groundwater from its natural path. According to expert observation, pipeline trenches can divert groundwater and as a result "permanently alter the hydrologic cycle in the vicinity of the pipeline right-of-way. This alteration will decrease the water resources available to support wetland hydrology and stream base flow in the summer and fall dry season."[33] For example,

[32] *Review of PennEast Pipeline Application for Chapter 102 and 105 Permits*, Michele Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, March 2019.
[33] Affidavit of Peter M. Demicco, DRN v. PA DEP an TGP NEUP, 2012.

observations of the Tennessee Gas Pipeline's 300 Line Upgrade project by a hydrologist determined that "pipeline trenches intercepted shallow groundwater in places, creating preferential paths for dewatering shallow groundwater not just in the disturbed construction areas, but also in areas surrounding the right-of-way, further negatively impacting ground water resources and wetlands."[34] As a result, it was observed that the 300 Line Upgrade pipeline project had "already resulted in permanent changes to wetlands…."[35]

As also recognized by an expert report by Princeton Hydro[36]:
"often overlooked impact caused by pipelines (whether wastewater, stormwater or gas/oil) is that their construction can actually alter the movement of groundwater. Essentially, when the pipe and pipe trench intercept the shallow aquifer, groundwater flows can be prevented from flowing normally leading to changes in base flow conditions or the hydrologic properties of adjacent wetlands. The pipeline and pipeline trench can function as a subsurface diversion forcing groundwater away from vital stream and wetland resources."

Groundwater is also impacted by soil compaction associated with pipeline construction and maintenance. The compacted soils resulting from pipeline construction increase rainfall runoff and reduce groundwater infiltration. This can cause further negative impacts on wetland hydrology and stream baseflow in the area of the pipeline.[37] "Increased runoff as a result of compacted soils, and increased drainage of shallow ground water" around a pipeline, due to previous and proposed construction practices, can increase "surface water flow and groundwater discharge in the wet winter and spring seasons and decrease summer and fall groundwater discharge which supports wetland hydrology and stream base flow."[38] The result of reduced groundwater discharge during the dry summer and fall months can be to decrease the size of supported wetlands. So the result is too much or too little depending on the time of year. Another result of the altered flows can be to decrease stream base flow that supports aquatic life and trout habitat in headwater streams in the dry summer and fall period. FERC states in the EA that,
"If a groundwater seep would be affected by construction, PennEast would document the hydrologic characteristics of the seep prior to installation of the pipeline, including identification of the source or cause of the seep. If possible, the seep would be temporarily redirected around the construction area. Restoration of the seep would include restoration of the pre-construction topography, and a determination whether a perching layer would need to be restored."
If a seep is temporarily redirected around the construction area, the water will revert back to its original flow once construction is completed but it will have nowhere to go if the pipeline is in place. Therefore, any alteration of seeps should be considered a permanent impact.
Expert reports done on the impact of the PennEast pipeline have noted this issue, even though FERC and PennEast are yet to fully analyze the impacts of it.
"Pipeline construction will affect groundwater recharge and flow, thereby affecting surface water flow and wetlands water balances. It can affect water quality by providing transport pathways for contaminants to reach wetlands or surface water. PennEast does not analyze any of these impacts as required by 25 Pa. Code § 105.15(e)(1)(x). Specifically, proposed project could affect "water quality" by transport contaminants into

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[34] Affidavit of Peter M. Demicco, DRN v. PA DEP an TGP NEUP, 2012.
[35] Affidavit of Peter M. Demicco, DRN v. PA DEP an TGP NEUP, 2012.
[36] *The Short and Long-Term Consequences of the Construction of the PennEast Pipeline– A White Paper*, Princeton Hydro, LLC, July 2015.
[37] Affidavit of Peter M. Demicco, DRN v. PA DEP an TGP NEUP, 2012.
[38] Affidavit of Peter M. Demicco, DRN v. PA DEP an TGP NEUP, 2012.

streams or nearby groundwater, "stream flow" by diverting groundwater or preventing recharge, "aquatic habitat" by decreasing flow during baseflow conditions which would eliminate aquatic habitat, and "instream and downstream water use" by decreasing flow or contaminating it."[39]

The attached expert report from Tom Myers[40] discusses in detail the failure of PennEast to provide necessary information regarding geology and groundwater. As noted in Myer's report:

- "The PennEast application completely failed to consider how pipeline construction will affect water availability for recharge into bedrock by not considering how compaction will prevent water from accessing fracture zones."
- PennEast's materials "should provide a table of bedrock aquifers that includes relevant properties, including specific capacity statistics or well yields, and conductivity where available. If properties for a given bedrock aquifer have not been published, it is reasonable for PennEast to complete the analyses for existing wells."
- "The application did not consider how pipeline construction and operations could affect recharge and shallow groundwater flow in aquifers near the proposed pipeline. Areas where the pipeline compacts soils over critical recharge areas, especially on ridge tops and valley bottoms, would increase runoff and decrease recharge."[41]

The EA glosses-over or ignores these impacts and deficiencies in PennEast's materials, concluding, without adequate substantiation that the "proposed Amendment Project would not significantly impact groundwater quality or quantity during construction or operation."

5. **The EA Fails to Adequately Assess Impacts to Benthic Invertebrates, Fish Communities, Aquatic Ecosystems, Wildlife**

Benthic invertebrates can have higher drift rates during stream crossing construction and reduced densities following open trench cut methods of crossing. Reduced densities can be the result of both the higher drift and the increased sedimentation that affects suitability of habitat resulting from the pipeline installation.[42] Changes in downstream diversity and structure of benthic invertebrate communities can also result. While, in time, the benthic community generally restores, that does not diminish or negate the ecosystem effects during the time of damage including the other cascading effects to other ecosystem services otherwise provided by the invertebrates – including as food for other dependent species, the water quality benefits provided by invertebrates helping with nutrient breakdown, and the breakdown of instream detritus creating food for other species.[43] These serious and cascading impacts are ignored in the EA.

6. **The EA Fails to Adequately Assess Open Trench Cut and Stream Impacts**

[39] See Attachment of Tom Myers Technical Report for full discussion.

[40] Technical Memorandum, Review Application Materials, Proposed PennEast Pipeline, Dr. Tom Myers, June 6, 2016

[41] See Tom Myers Technical Report for full discussion.

[42] Pipeline Associated Watercourse Crossings, 3rd Edition, publication prepared for CAPP, CEPA, and CGA by Tera Environmental Consultants at 235 – 251.

[43] See e.g. Sweeney, B. W., et al. 2004. Riparian deforestation, stream narrowing, and loss of stream ecosystem services, PNAS, September 2004; 101: 14132-14137

There are numerous environmental risks associated with open trench burial of gas pipelines (wet, dry, slurry). Open trench burial involves the excavation of sediments for pipeline installation perpendicular to or across streams and their sometimes wide floodplains, along with removal of riparian vegetation and well-established ecosystems. Disruption of the stream channel and banks can cause destabilization of the stream's natural flows, causing channel migration and erosion that are harmful to the stream. [44] The open trench cut method of crossing streams results in sedimentation, impacts to benthic habitat, and can result in changes to stream morphology that can further affect downstream habitats.[45]

Using the open trench cut method of crossing can also affect fish, including direct harm but also by reducing the suitability of habitat including for eggs, juveniles and overwintering.[46] Fish exposed to elevated suspended solids levels can experience reduced feeding rates, physical discomfort or damage from the abrasive materials on their gills, decreased instream visibility, reduced food supply, and increased competition as fish attempt to move to cleaner waters.[47] Many of the streams to be cut by the pipeline are designated Class A or wild trout streams which are an important natural and recreational resource for the state – as such many of these streams with native Class A or Wild Trout designations have EV wetlands hydrologically connected to their flow.

The filling of riffles not only can have adverse impacts for invertebrates and fish, in terms of taking important habitat, but it can also diminish the ability of the riffles to help create oxygen important for aquatic life.[48] Over time these impacts can depress the immune system of fish, result in lower growth rates, result in increased stress on individuals and populations, cause damage to the gills – all of which can result in a decline in fish and population health and survival rates.[49] This of course all gets compounded by adverse effects to the suitability of habitat for eggs and juveniles necessary to support the overall community and population.[50] Additionally, downstream sedimentation and also disruption of flows during crossing activities can result in areas of the stream that are shallower or dewatered, thereby taking preferred habitat.[51]

"Pipeline construction could affect hydrology in ways that could affect vegetation or aquatic life, in addition to the simple construction impacts. The application does not analyze how the pipeline would affect any specific area with important vegetation types or aquatic species. There are broad statements about temporary impacts during construction, but there is no analysis of the change in groundwater flow patterns as described herein."[52] In addition, impacts to aquatic life and wildlife are discussed throughout the expert reports attached and are the result of the many impacts discussed in this cover comment as well. The EA states that,

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[44] Expert Report from HydroQuest, attached.

[45] See Effects of Sediments Released During Open-Cut Pipeline Water Crossings, Canadian Water Resources Journal, Vol. 24, No. 3, 1999.

[46] Id 1.

[47] Pipeline Associated Watercourse Crossings, 3rd Edition, publication prepared for CAPP, CEPA, and CGA by Tera Environmental Consultants.

[48] Ibid.

[49] Ibid.

[50] Pipeline Associated Watercourse Crossings, 3rd Edition, publication prepared for CAPP, CEPA, and CGA by Tera Environmental Consultants

[51] Ibid.

[52] Technical Report, Tom Myers, June 2016

"Per our Procedures, PennEast would limit routine vegetation mowing or clearing adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high-water mark, to permanently revegetate with native plant species across the entire construction right-of-way."
A riparian buffer of 25 feet is not nearly wide enough to be protective of streams and wildlife. Since buffers have a water and an upland edge, narrow buffers are essentially all edge habitat. Riparian buffers should be 100 feet as a minimum to benefit wildlife such as birds and reptiles as well as protect streams from runoff.

VI. The EA Fails to Fully Examine Impacts from New Alignments.

The route modifications present several new implications for waterways and natural resources that are not fully examined. For example, the EA states that PennEast is in the process of identifying the locations of water wells and springs that were not previously crossed by the Certificated Route in both Pennsylvania and New Jersey. Until these new wells and springs are identified, this information is incomplete. Additionally, the Revised PA Route would also cross 13 additional Wild Trout Waters compared to the Certificated PA Route – this is a significant increased adverse impact.

Cumulative impacts are also not fully understood nor addressed in the EA. The Appalachian Trail PPL Crossing Realignment extends approximately 3.3 miles from the Certificated PA Route, which exceeds the Cumulative Impact Assessment Area for several types of resources. This particular realignment would also expand the existing ROW by approximately 20 feet, further increasing the negative impacts associated with the harmful footprint of this project. The Project as a whole would already affect 220.6 acres of interior forest during construction and 63.6 acres during operation. The proposed changes will expand that footprint of harm. Expert analysis demonstrates that for every cut through an interior forest, there are an additional 300 feet of impact on either side[53] to the adjacent forest that must be considered. Additionally, the Project would have an indirect impact (through edge effects, potentially resulting in avoidance of habitats or decreased habitat quality) on 1,725 acres of interior forest.

The EA maintains that most of the impacts are temporary and that PennEast will restore disturbed areas. However, PennEast admits that all impacts on forested habitats will be considered long-term because of the time required to restore woody vegetation to preconstruction conditions (i.e., more than 30 years, and possibly hundreds of years for some forested areas). Hundreds of years of lost habitat would have a permanent effect on generations of local wildlife. Compaction of soils and soil disturbance of "temporary work spaces and alternate temporary work spaces", scalding of adjacent forest trees from opening additional areas with clearing, thermal changes, soil changes, wind throw, invasive species, and other forest fragmentation impacts must be fully weighed and considered when PennEast proposes to disrupt interior forest in such a detrimental way.

VII. The Environmental Assessment Fails to Account For The Impacts On The Right Of Way Along The Full Length Of The Project.

The EA fails to adequately assess impacts to stream quality and health resulting from the Project, including erosion and sedimentation, loss of riparian vegetation, habitat loss and fragmentation, air quality impacts, safety concerns, groundwater impacts, soil compaction, increased stormwater runoff, stream quality impacts, wetland degradation, lost groundwater recharge, and cumulative environmental impacts along the

[53] Nels Johnson, et al., Natural Gas Pipelines, The Nature Conservancy, 1 (December 2011).

length of the project. These impacts to the environment are not limited to the time period in which the right-of-way is disturbed, but can result in long lasting consequences. In the EA, FERC has failed to consider these issues cumulatively. A cut here or there perhaps can be mitigated, but the huge multitude of cuts, mass areas of compacted soils, thousands of acres of earth disturbance and lost trees etc., cannot be remedied and will have unavoidable impacts. In the case of PennEast we are talking about a massive pipeline project with a wide geographic and physical footprint that directly and indirectly impacts a huge number of ecological systems – the cumulative impacts are significant and long lasting and yet this analysis remains largely ignored. With the proposed route changes, the cumulative impacts on the environment and ecology of the water courses and waterways it cuts through must be considered in an EIS.

Melioras's 2019 expert report[54] notes that PennEast's E&S narrative only specifies topsoil segregation during pipeline construction for residential, agricultural, or wetland land uses. This limits the reestablishment of vegetation within all other land uses as topsoil is disregarded and stockpiled with mineral subsoils. When the ROW area is reestablished following pipeline construction, plant growth is inhibited due to a lack of topsoil which contains the organic matter, nutrients, and microbial/fungal communities necessary for plant reestablishment. Limited revegetation leads to more pollution events possibly entering nearby streams in the form of sediment laden water. The attached Meliora expert report notes the Recommended Seed Mixtures for Stabilizing Disturbed Areas (Table 11.5) proposed in the PCSM and Site Restoration Plan General Notes is identical to the Recommended Seed Mixtures for Stabilizing Disturbed Areas (Table 11.5) in the E&S General Notes. While this seeding will eventually establish coverage and reduce active erosion of soils, it will not establish the hydrologic conditions of a native meadow, as required by Pennsylvania Law and as should be required by FERC.[55]

Open cuts are long lasting since part of the pipeline ROW is required to remain clear for maintenance, according to pipeline company claims. These cuts bring with it management strategies that involve killing woody growth along the pipeline every few years – often adding herbicides to the mix of contaminants impacting these tributaries. Invasive plants often colonize along these stream corridors with pipeline cuts and studies on benthic health conducted by Stroud Water Research show that many benthics, like mayflies, do not thrive where plants like multiflora rose reside along the stream buffer. These stands of monotypic invasive plants can translate to less food variety for benthic macroinvertebrates which impacts diversity in the stream and in turn this impacts nutrient cycling conducted by these stream animals.

It is important to note in regard to required restoration, that along a Delaware County section of Sunoco pipeline/ME2 located on NLT preserved lands, a variety of native shrubs were planted throughout the entire pipeline Right of Way bordering a High Quality stream and along the entire hillside adjacent the stream. The ROW and all of the temporary work spaces were planted with container sized native trees and shrubs, mulched with fabric to control weeding naturally and preserve moisture, and protected with wire shrub shelters and planted on top of the pipes themselves. These native shrubs are shallow rooted species that could be required to be planted on other pipeline ROWs instead of the standard grass mixes often employed, especially when trees and natural shrubs are cut during pipeline construction.

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[54] *Review of PennEast Pipeline Application for Chapter 102 and 105 Permits*, Michele Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, March 2019.

[55] Chapter 102.

Vii. The Environmental Assessment Fails To Account For Land Transformation Effects That Will Result From Construction And Operation Of The Pipeline.

A Princeton Hydro Whitepaper[56] examining land impacts noted that:

- The massive land clearing and alteration, including loss of vegetation as well as soil compaction, is among the very egregious elements of the proposed pipeline project. This land transformation causes immediate harms, as well as inflicting "major changes to the overall condition of the affected areas and set the stage for other acute impacts…."[57]

- "The literature suggests at a minimum once cleared of native vegetation it will take five (5) years for recovery of pre-existing vegetation cover and diversity for grassland communities. The recovery time for shrubland forest communities is at least ten (10) years. But it must be stressed that although cover densities may approach pre-site-clearing conditions, some of the native grasses and understory vegetation may never recover due to changes in sunlight exposure, soil porosity, soil compaction and changes in soil moisture content. Also, none of the trees once growing within the ROW will ever be replanted. Thus as noted above, the acute impact of land clearing sets the stage for longer-term impacts that trigger multiple negative effects on the area's biota and ecological functionality."[58]

FERC fails to adequately identify and account for these significant and long term effects of the land, vegetation and habitat transformation that would result from construction and maintenance of the PennEast pipeline project in its EA.

VIII. FERC's Analysis Fails to Adequately Consider the Impact of Geological Hazards, Including Karst Terrain, Sinkholes, Abandoned Coal Mines, and Landslides.

Sinkholes are a serious risk for pipeline construction in Pennsylvania. Sinkholes can be related to underlying karst terrain in which a pipeline is installed or mine subsidence—both of which are present along the proposed route of PennEast, including the amended route.

Mapping subterranean voids can be a major process, and it requires extensive on-the-ground surveying work. Starting construction without doing the proper surveying can lead to catastrophe. For example, the Department approved Sunoco's plans for horizontal directional drilling at Lisa Drive in West Whiteland Township, Chester County for the Mariner East 2 pipelines. Sunoco estimated in its risk assessment for the HDD site that the risk of drilling fluid spills was "low" and the bedrock was "silty sand."[59] No mention was made in any application materials of subsurface voids at the site. Nonetheless, after Sunoco began construction at the site, multiple drilling fluid spills occurred, and eventually a series of sinkholes opened up in the suburban backyards of the site. These sinkholes rendered a house unlivable and undermined and

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[56] Princeton Hydro White Paper

[57] Princeton Hydro White Paper

[58] Princeton Hydro White Paper

[59] *See* risk assessment for HDD PA-CH-0256.0000-RR at: http://files.dep.state.pa.us/ProgramIntegration/PA%20Pipeline%20Portal/MarinerEastII/Chester/12%20-%20E&S%20Plan/Tab%2012C%20-%20IR%20Assess%20PPC%20Plan/Appendix%20C/App%20C%20IR%20Risk%20CH/PA-CH-0256.0000-RR.pdf.

exposed an operating highly volatile liquids pipeline. The threat this posed led the Pennsylvania Public Utility Commission to have to take the unprecedented step of shutting down the lines to prevent catastrophe.[60]

This was by no means the sole instance of sinkholes merely from this one construction project. At another residential HDD site in Cumberland County, for example, Sunoco's construction "caused a massive sinkhole to collapse part of Appalachian Drive."[61] This was one of a series of sinkholes at the site, "eventually causing the road to be closed during the summer and into the fall." At the Appalachian Drive HDD crossing, Sunoco in fact *had* noted that the ground was limestone—therefore possibly void-bearing. It wrote in its risk assessment that "Additional inspection is recommended due to the limestone substrate."[62] Still, that was not enough.

Work on Mariner East 2 has also opened up the earth in areas of underground mining. The *Post-Gazette* recently did an in-depth article profiling some of those instances, which have caused massive problems in parts of Western Pennsylvania.[63]

The PennEast route includes what it has documented as 13.8 miles of potential karst terrain.[64] Though PennEast has generated a Karst Mitigation Plan, it is incomplete.[65] The purpose of the plan is spelled out in its introduction: "The Karst Mitigation Plan reported herein has been prepared to identify areas of karst terrain across the pipeline alignment, identify all current desktop and field surveys completed to investigate these areas, and to address potential impacts and hazards related to local karst formations crossed by the proposed Project."[66] However, large areas of potential karst remain uninvestigated.[67] As of the date of FERC's certificate issuance, only about 50% of the surveying in identified karst areas had been completed.[68] As of the EA, PennEast's Karst Mitigation Plan is still incomplete and PennEast continues to conduct field surveys. Without knowing whether there are voids at the sites, PennEast cannot responsibly plan to build there.

The PennEast route also contains significant areas of abandoned underground coal mines. As the Final EIS explains, "In the Wyoming Valley of Luzerne County, Pennsylvania, there are a number mapped [sic] underground mines and there is potential that many more small mines exist that are unmapped and

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[60] *See* Emergency Order of March 7, 2018, Pennsylvania Public Utility Commission Docket No. P-2018-3000281.

[61] Zack Hoopes, "Silver Spring Township road to be closed 2 months for pipeline installation," *The Sentinel*, March 4, 2019, available at https://cumberlink.com/news/local/communities/mechanicsburg/silver-spring-township-road-to-be-closed-months-for-pipeline/article_fabdd8b1-1a6c-5d86-b06d-cd206159507b.html.

[62] *See* risk assessment for HDD PA-CU-0136.0020-RR at: http://files.dep.state.pa.us/ProgramIntegration/PA%20Pipeline%20Portal/MarinerEastII/Chester/12%20-%20E&S%20Plan/Tab%2012C%20-%20IR%20Assess%20PPC%20Plan/Appendix%20C/App%20C%20IR%20Risk%20CU/PA-CU-0136.0020-RR.pdf.

[63] Anya Litvak, "Unstable Ground," *The Pittsburgh Post-Gazette*, October 22, 2018, available at https://newsinteractive.post-gazette.com/mariner-east-2-pipeline-subsidence/.

[64] FERC Final Environmental Impact Statement at page 4-10, available at http://penneastpipeline.com/wp-content/uploads/2017/04/PennEast-FERC-Final-EIS.pdf.

[65] *See* PennEast Karst Mitigation Plan, attached.

[66] *Id.* at page 3.

[67] *See id.* at Attachment 1.

[68] FERC Order Issuing Certificates, 162 FERC ¶ 61,053 (Jan. 19, 2018), at ¶ 106, available at https://www.ferc.gov/CalendarFiles/20180119195524-CP15-558-000.pdf

unknown, as they predate accurate records kept on the subject. Other pipelines, like Transco's Atlantic Sunrise Pipeline also experienced these problems when cutting through unmapped anthracite mining areas. Old abandoned mines are expected to be of the room and pillar type. Based on the long and extensive history of underground coal mining in the Wyoming Valley area, localized surface subsidence caused by mine collapse is a potential hazard." Along a six-mile stretch toward the northeast end of the planned PennEast route, PennEast has identified 27 abandoned or reclaimed mines within a quarter mile of the alignment.[69] Two are directly under the workspace.[70]

The only physical investigation that PennEast has said it will do to better understand the risk from mine subsidence near identified mines is to do borings at the location of *working* mines.[71] Almost all of the identified mines have been retired and are not working mines. Moreover, as noted above, "there is potential that many more small mines exist that are unmapped and unknown." PennEast's plans to avoid mine subsidence are inadequate and present a looming pipeline integrity threat.

The EA states:
"The Interstate 81 Workspace Adjustment resulted from additional geotechnical studies that provided information on the historical mining that has occurred near the proposed drill. For the Amendment Project, PennEast proposes to use a shallower HDD design profile than was approved for the Certificated Project in order to reduce the risk of potentially encountering mining voids...The primary risk during construction involves loss of drilling fluids within stress induced joints or fractures within the bedrock materials overlying the coal seams."

Abandoned mine drainage, sinkholes, possible dewatering of streams, mine subsidence, mine fires, and other hazards are also concerns in areas the pipeline would cut where anthracite mining has been conducted. An HDD drill release or loss of drilling fluids could impact groundwater located within deep mines and voids causing potential irreparable harm to streams, wetlands, and groundwater resources. The EA notes, "PennEast held meetings and exchanges with the PADEP Bureau of Abandoned Mine Land Reclamation to discuss subsidence issues. In general, the results of these talks indicate the mitigation and remediation measures presented in previous environmental reports and submittals, including as analyzed for the Certificated Project, to reduce the risks associated with underground mines would be adequate for the modifications of the proposed Amendment Project."

More information about these discussions and generalities are needed for the public to have confidence in these assertions related to the short term and long term risks of a pipeline being cut amidst abandoned mine areas.

Additionally, the EA states that:

"portions of the Amendment Project would be susceptible to landslides.The Saylor Ave Realignment (MPs 8.5R3-8.9R3), and Interstate 81 Workspace Adjustment (MPs 10.0R2-10.4R2) in Luzerne County and between MPs 48.6R2-53.6R3 in Carbon, Monroe, and Northampton Counties along the Appalachian Trail

[69] FERC Final Environmental Impact Statement at Table 4.1.4.1.
[70] *Id.*
[71] *Id.* at page 4-11.

PPL Crossing Realignment (MP 51.3R3 and MP 52.2R3) have a relatively high susceptibility to landslides with moderate incidence according to the USGS Landslide Potential maps and supplemented with additional desktop and onsite evaluation."

Yet FERC's only discussion of this series risk is that "[t]he risks and conclusions that were presented for the Certificated Project remain unchanged. Further, Environmental Condition 15 of the Certificate Order would also be applicable to the Amendment Project, which requires PennEast to file a completed Geohazard Risk Evaluation Report and pipeline design geotechnical report."

Landslides also mean likely sedimentation to streams when BMP's subsequently fail which the record shows they do and has been documented in Pennsylvania time and time again along slopes from prior pipelines including the Tennessee Gas Pipeline, Mariner East 2, Atlantic Sunrise Pipeline and others. In the early 2000's DRN documented and has on record landslides from massive rain events in the Upper Delaware. Since that time many more have occurred and are on record with the Conservation Districts.

These geological hazards are serious and could have devastating impacts on the environment and on human health and safety if any one of these issues is encountered. Yet according to the EA,

"PennEast continues to update the Karst Mitigation Plan for the Certificated Project to include current information regarding ongoing field surveys, geophysical surveys, and geotechnical borings conducted to support identification and mapping of karst features along the Amendment Project alignment."

It is not acceptable for FERC to accept incomplete surveys as adequate documentation and unsafe HDD drilling practices, and a route that knowling cuts through areas with "high susceptibility to landslides" as acceptable risks. These are clearly issues that pose significant adverse effects on the human environment.

IX. The Environmental Assessment Fails to Adequately Assess the Projects Impacts on All Wetlands identified as EV according to Pennsylvania Department of Environmental Regulations as EV Wetlands Are Given Additional and Specific Protections Under Pennsylvania Law.

Pennsylvania provides additional protections for waterbodies that have been identified as exceptional value by the state. If FERC and PennEast fail to identify and account for any existing uses of EV wetlands, as required by Pennsylvania Code Chapter 93, there is no way to make a reasonable determination that the EV wetlands' existing uses can be "maintained and protected" as required by Pennsylvania law.[72] Moreover, these protections mandate that only "water dependent" projects may encroach upon exception value wetlands and that an exceptional value wetland that is destroyed from a project must be mitigated by providing/creating a similar wetland that can help to deter the loss of ecosystem services from the original wetland.

Pennsylvania regulations identify exceptional value ("EV") wetlands and afford them special protections as part of the State's antidegradation laws and regulations. EV wetlands are categorized as such based on having one of the following characteristics:[73]

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72 *See* 25 Pa. Code § 93.4a(b).

73 https://www.pacode.com/secure/data/025/chapter105/s105.17.html

(i) Wetlands which serve as habitat for fauna or flora **listed as ‘‘threatened’’ or ‘‘endangered’’ under the Endangered Species Act of 1973** (7 U.S.C.A. § 136; 16 U.S.C.A. § § 4601-9, 460k-1, 668dd, 715i, 715a, 1362, 1371, 1372, 1402 and 1531—1543), the Wild Resource Conservation Act (32 P. S. § § 5301—5314), 30 Pa.C.S. (relating to the Fish and Boat Code) or 34 Pa.C.S. (relating to the Game and Wildlife Code).
(ii) Wetlands that are hydrologically connected to or located within 1/2-mile of wetlands identified under subparagraph (i) and that maintain the habitat of the threatened or endangered species within the wetland identified under subparagraph (i).
(iii) Wetlands that are located in or along the floodplain of the reach of a wild trout stream or waters listed as exceptional value under Chapter 93 (relating to water quality standards) and the floodplain of streams tributary thereto, or wetlands within the corridor of a watercourse or body of water that has been designated as a National wild or scenic river in accordance with the Wild and Scenic Rivers Act of 1968 (16 U.S.C.A. § § 1271—1287) or designated as wild or scenic under the Pennsylvania Scenic Rivers Act (32 P. S. § § 820.21—820.29).
(iv) Wetlands located along an existing public or private drinking water supply, including both surface water and groundwater sources, that maintain the quality or quantity of the drinking water supply.
(v) Wetlands located in areas designated by the Department as ‘‘natural’’ or ‘‘wild’’ areas within State forest or park lands, wetlands located in areas designated as Federal wilderness areas under the Wilderness Act (16 U.S.C.A. § § 1131—1136) or the Federal Eastern Wilderness Act of 1975 (16 U.S.C.A. § 1132) or wetlands located in areas designated as National natural landmarks by the Secretary of the Interior under the Historic Sites Act of 1935 (16 U.S.C.A. § § 461—467).

The wetland mitigation put forth so far by PennEast failed to identify and account for the destruction of these specific EV uses. FERC failed to include a proper assessment of these impacts in the EA, as EV wetlands are the most ecologically important wetlands, and provide irreplaceable functions protecting and improving human health and the environment. The EA explains the criteria for EV wetlands, but there is no table showing how many EV wetlands will be crossed or impacted by the realignments. This is a significant oversight because EV wetlands have the strictest protection requirements and at least two wetlands (occupied bog turtle sites) are crossed by the realignments and should be considered EV.

1. **The EA Fails to Ensure that the EV Wetlands Are Not Harmed by the Project As Only “Water Dependent” Projects May be Constructed in EV Wetlands.**

Under Pennsylvania law, the Pennsylvania Department of Environmental Protection may not approve a water obstruction or encroachment into “exceptional value” wetlands where the project is not “water-dependent.”[74] The language of this critical provision provides a threshold for whether a project may obstruct or encroach EV wetlands—water dependency. The law and courts of Pennsylvania have established that if this water dependent threshold cannot be met, the Project cannot be constructed.[75]

[74] 25 Pa. Code § 105.18a(a)(2).

[75] *See Eagle Environmental, L.P. v. DEP*, 1998 EHB 896, 937 (Pennsylvania Environmental Hearing Board recognized Chapter 105 permits are properly denied when a project is proposed in an EV wetland but **not** “water dependent.”) (emphasis added); *see also Hatchard v. DER*, 612 A.2d 621, fn. 2 (Pa. Commw. 1992) (finding that a “dock” would be an example of a water-dependent project).

Pipeline projects are not "water dependent" activities as contemplated by the Pennsylvania Code, or any other body of law within the Commonwealth. "A project is water-dependent when the project requires access or proximity to or siting within the wetland to fulfill the basic purposes of the project."[76] The purpose of a pipeline project is to "simply move product from one location to another."[77] They do not require to be near a wetland in order to fulfill this purpose. Indeed, many projects have seen pipelines take steps to avoid wetlands and waterways through routing around them and drilling under them. Therefore, similarly to a residential dwelling, which the department has determined is not water-dependent as it "does not need to be built in wetlands to fulfill the purpose of a dwelling,"[78] a pipeline does not need to be built on wetlands to fulfill the purpose of transporting.

Even if pipeline projects could in some instances be classified as "water dependent," due to product or the need to reach a certain destination, this specific Project does not require such access or proximity water resources, and therefore is not water dependent.[79] FERC completely ignores this violation of Pennsylvania law in its EA.

2. **FERC's EA Fails to Accurately Account for All Effects on EV Wetlands.**

FERC's EA fails to assess the impacts of the Project on EV wetlands in Pennsylvania and thus mischaracterizes and fails to properly analyze the actual impacts of the Project.

Pennsylvania's antidegradation program applies to all surface waters.[80] Surface waters include perennial and intermittent streams, rivers, lakes, reservoirs, ponds, springs, natural seeps, estuaries, **and wetlands**.[81] Specifically, Section 93.1 identifies that a "[s]urface water of exceptional ecological significance" is covered by the antidegradation program, which specifically includes "[w]etlands which are exceptional value wetlands under § 105.17(1)."[82] One component of Pennsylvania's anti-degradation program requires the "maint[enance] and protect[ion]" of the water quality of exceptional value waters ("EV").[83] And states that one way in which degradation may be found with regard to an EV water is when "there is **any** lowering of water quality."[84] Therefore, PennEast is required to identify existing uses of EV Wetlands and how the Project will avoid and/or mitigate harms to them.

The PennEast Project will have an adverse impact on numerous EV wetlands and other wetlands in Pennsylvania. The Project will result in numerous acres of wetlands permanent or temporary conversion from Palustrine Forested Wetlands or Scrub-Shrub Wetlands to Emergent Wetlands, resulting in a significant loss to the values and functionality of those EV wetlands.

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[76] 25 Pa. Code § 105.18a(a)(2).

[77] CAC v. DEP, Sunoco, *See* transcript of the Deposition of Ken Murin ("Murin Dep.") at 103, lines 22-23 ("a pipeline is to generally transport some material from point A to point B")

[78] CAC v DEP, Sunoco Environmental Assessment, E45-501, Murin 0305 (Exhibit 2)

[79] Cite to regulation defining this

[80] *See* 25 Pa. Code § 93.4a(a).

[81] 25 Pa. Code §§ 92.1 and 93.1.

[82] 25 Pa. § Code 93.1.

[83] 25 Pa. Code § 93.4a(d).

[84] *Id*. at *16 (citing 25 Pa. Code § 93.4a(d)) (emphasis original).

The information provided by PennEast about the Projects Impacts on wetlands is incorrect, missing, misleading, and sourced from unreliable methods. A review of the materials from Schmidt & Company found that the classification of wetlands as "exceptional value" or "other" by PennEast is neither consistent nor credible. Due to inaccuracies and gaps in the data, the report concluded that while most (69%) of the wetlands to be affected by the PennEast project in Pennsylvania are acknowledged to be "exceptional value" wetlands. It is likely that the number of exceptional value wetlands along the PennEast route actually is higher than the applicant currently acknowledges.

For example, only two wetlands identified along the entire route are classified as "exceptional value" because of criterion "iv" (located along an existing public or private drinking water supply).[85] PennEast reportedly relied on the Pennsylvania Groundwater Information System database (PAGWIS) for identifying private wells near the proposed PennEast pipeline routes. PAGWIS is known to be a partial and incomplete dataset. For example, the PAGWIS database currently available from PASDA (Pennsylvania Spatial Data Access) contains about 123,000 separate features statewide, yet it is estimated that there are more than 1 million private water wells across the Commonwealth. Given the known inadequacies of the PAGWIS data, it is reasonable to assume that there may be many hundreds more private water wells in close proximity to wetlands along the PennEast pipeline.

Efforts and stakeholder input for guidance are underway at the state level and are being considered to help mitigate the various wetland harms inflicted on these sensitive habitats in past pipeline projects after a settlement was reached with the Commonwealth of Pennsylvania and plaintiffs that included Clean Air Council, Delaware Riverkeeper Network, and Mountain Watershed Association. It is critical these issues are addressed thoroughly in FERC's environmental review to ensure wetlands are protected. One of the recommendations is that all wetland delineations along the route are checked by the Army Corps to ensure gaps as uncovered by Schmid & Company are not missed along the entirety of the path.

3. **FERC's EA Fails to Identify Bog Turtle Occupied Wetlands as Exceptional Value**

Since the USFWS issued its Biological Opinion (BO) in 2017, an additional 53 Phase 1 bog turtle surveys have been conducted in support of the proposed realignments. An additional 16 Phase 2 surveys have been conducted in habitats identified as potential bog turtle habitat during the Phase 1 surveys. The Appalachian Trail PPL Crossing Realignment crosses an occupied bog turtle habitat in Carbon County as discussed in the 2017 BO but the realignment does not result in avoidance of bog turtle habitat, it simply changes the location where the cut through and harm will be inflicted. Through surveys and consultation with the USFWS, PennEast identified a second bog turtle population in Northampton County along the proposed Project route. Due to the documented presence of the federally threatened bog turtle at these two sites, all of the associated wetlands should be considered Exceptional Value (EV) wetlands, but this is never mentioned by PennEast or FERC. At the Northampton County site, PennEast has proposed minor pipeline adjustments in this area that they assert would avoid wetland impacts and route the pipeline through narrower crossing points and what they consider to be marginal habitat. However, no maps or alignment sheets were provided that reflects these adjustments unlike those provided for the four route modifications. Although these adjustments in Northampton County may be, according to PennEast, minor, they still differ from the

[85] *Impacts of the Proposed PennEast Pipeline on Exceptional Value Wetlands in Pennsylvania Supple, Supplemental Report, Prepared for the Delaware Riverkeeper Network,* Schmid and Company, March 2019.

alignment that was previously approved and should be viewed as another route modification like the other four. Alignment sheets and maps should be made available as well.

On May 7, 2018, PennEast bog turtle consultants met with representatives from USFWS, PFBC, and USACE to discuss the known bog turtle population at the Appalachian Trail PPL Crossing Realignment. There is a section of mucky soil at this site which, it is asserted, makes mitigation more difficult. It is asserted that silt fencing and exclusion barriers are not a good option due to the depth of the muck and the 3-dimensional (hummocked) nature of the wetland. Constructing the fence in such deep muck would be more challenging, and bring with it a high risk of failure. There is also a high chance of flooding due to the fact that the wetland is in a floodplain, which would destroy the silt fencing barrier. Options were discussed that would allow turtles to pass through rather than being diverted into the creek or having their travel along the wetland interrupted. Among these options was the potential to cross the core habitat and streams using aerial spans to the greatest extent possible. However, aerial spans would likely not be feasible for all the required aspects of the construction. The heavy operating equipment hoisting the aerial spans would also likely sink in the mud even with matting. During this meeting, it was explained that the old crossing location had less suitable habitat than the new crossing. Due the open-ended nature of the 2017 BO issued by USFWS, PennEast's consultants believed, incorrectly, that the new activities were still covered because they do not represent a significant change in the type or amount of impacts to a federally listed species. However, USFWS has since recommended that FERC reinitiate consultation to modify the 2017 BO under the minor change process. Re-initiation will result in a consultation update letter which addresses route amendments and updated survey results. The recommendation of re-initiation was made due to the changed action area resulting from proposed route modifications.

The USFWS issued an amended BO for the route modifications on July 30, 2019, but PennEast has failed to develop and submit a final bog turtle mitigation plan. Until this plan is submitted, data gaps exist that make it impossible for FERC and the public and sister agencies to accept these route modifications without more detail, information, understanding, and assessment. In addition to the incomplete bog turtle and EV wetland information, there are incomplete surveys for other threatened and endangered species, unresolved consultations between PennEast and state and federal agencies, incomplete surveys for water wells and springs, 13 additional Wild Trout Waters crossed, a widened ROW, missing alignment sheets, and new implications for additional cumulative impacts. NJDEP rejected PennEast's permit applications due to incomplete information, and this FERC application, as well as the Chapter 105 permit application with PADEP, has the same missing information and more due to the new route changes in PA.

4. **FERC Must Demand A Mitigation Plan that Actually Restores Actual Wetland Losses, Regardless of Whether or Not They Are Classified as EV.**

Construction and operational activity for the proposed Project will result in the permanent conversion of numerous "Exceptional Value" forested wetlands to emergent (nonforested) wetlands. Such a conversion will result in significant adverse impacts across the state.

For example, certain waterfowl and other wildlife will inhabit a forested wetland but not a scrub shrub or emergent wetland. Additionally, the environmental review must consider loss of trees in a watershed and the impacts to EV wetlands. Even when there exists a buffer between the tree cuts and the creek, can still have direct impacts on water quality. A seven-year long hydrological study on water quality demonstrates that

cutting trees can increase turbidity in nearby water bodies even if the trees and vegetation are left in place.[86] Another study, also involving leaving cut trees/vegetation in place, demonstrates that even five months after deforestation, nitrates had increased and pH was altered in a water body, adversely impacting water quality.[87] For example, temperature study by Delaware Riverkeeper Network along the TGP pipeline route located in Delaware State Forest lands documented sustained thermal temperature increases in wetlands after pipeline construction.[88]

As observed by Meliora Engineering in their attached report:
"Construction activities of this pipeline such as clearing, grading, trenching, and backfilling, all could adversely affect soil resources by causing accelerated erosion, compaction, and introduction of rock or fill material to the surface. Current regulations rely upon construction plans that focus on temporary erosion and sedimentation controls to protect water quality standards. While temporary erosion and sedimentation measures may help to limit the transport of eroded soils during construction activities, they cannot fully eliminate the acceleration of erosion or soil compaction caused by construction over the long-term operation of a pipeline project. Once sediment reaches a stream or wetland, changes to the habitat of plants, fish, and insects will take place. Sediment from accelerated erosion smothers fish eggs and covers spawning areas with fine sediments, thus inhibiting fish reproduction. Increased turbidity in streams and wetlands prevents light penetration into the water column and increases water temperatures. All of these impacts make meeting water quality standards and the Clean Streams Law nearly impossible. Environmental damage to surface waters does not stop when construction ends if soils are severely damaged and their function in the natural environment is destroyed by compaction."[89]

PennEast is proposing to mitigate wetland impacts through replacement. But it has not ensured that this replacement will actually be of high enough quality and in a good enough location to actually replace the wetland that is being destroyed. PennEast's proposal so far fails to replace area and function and value of the wetlands permanently altered at the appropriate ratio. As Meliora's March 18, 2019 expert report indicates of the 22.25 acres of PEM, PSS, and PFO wetlands impacted by the PennEast pipeline construction, PennEast has proposed 10.37 acres of wetland mitigation, about 47% of the wetland impacts.[90] The wetlands will be addressed on a County-scale, so the wetland mitigation could occur anywhere within the county, which means that it could occur within a different watershed. As a result, the impacted habitat is degraded and the wetland function is removed from the HQ and EV watersheds.

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[86] *See* Marryanna, L. et al, "Water Quality Response To Clear Felling Trees For Forest Plantation Establishment At Bukit Tarek F.R., Selangor," Vol. 18[1] Journal of Physical Science 33-45 (2007) (experimental plot was clear cut, left in place with a 65.6 foot wide buffer next to river, and river's turbidity increased on-average by 279%).

[87] *See* Likens, G.L. et al., "Effects of Forest Cutting and Herbicide Treatment on Nutrient Budgets in the Hubbard Brook Watershed-Ecosystem" 40 Ecol. Monogr. 23-47 (1970) (study also showed large increases for all major ions, except for ammonium, bicarbonate, and sulfate).

[88] See *Thermal Impacts to Exceptional Value Waterbodies in Pennsylvania Cut by Gas Pipeline Projects*, Delaware Riverkeeper Network, September 25, 2016, attached.

[89] Meliora Design Memorandum.

[90] *Review of PennEast Pipeline Application for Chapter 102 and 105 Permits*, Michele Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, March 2019.

Certified wetlands specialists have found a measurable "decrease" or "loss" in functionality as a result of the permanent conversion of forested wetlands to emergent wetlands.[91] For example, a functional conversion of wetlands from forested wetlands to emergent wetlands generally results in decreases to above ground biomass, structural diversity of the wetland, and local climate amelioration.[92] The conversion will also result in a loss of forest interior habitat, visual and aural screening from human activity, suitability of shade-loving plant species, and the production of mast (such as acorns) for wildlife.[93] Moreover, these conversions also result in increased wetland exposure to wind, ice and sun, as well as the localized effects of global warming on biota.[94]

Wetland functions involving drainage patterns, water quantity, and water quality will also be adversely impacted by a functional conversion of forested wetlands to emergent wetlands. Specifically, emergent wetlands provide decreased soil stabilization, streambank anchoring against erosion, nutrient storage, and temperature maintenance when compared to forested wetlands.[95] As a result, erosion and sedimentation can be expected to increase as a result of the conversion.[96] The function of storm damage shielding can also be expected to decrease as a result of this conversion.[97] For more information on these impacts, the attached wetlands reports demonstrate the ways in which permanent, or even temporary, conversions of wetlands results in adverse impacts to those wetlands.

Additionally, a supplemental report by Schmid & Company found that:[98]

- In the current PennEast pipeline route, only 9 wetland crossings involve trenchless methods (5 HDD crossings and 4 conventional bores), and none of those necessarily is proposed primarily to avoid wetland impacts.
- While avoidance of wetlands is mentioned as a general consideration in the pipeline siting and alternatives analysis, specific areas where identified exceptional value wetlands were avoided is nowhere discussed.
- PennEast is unclear and inconsistent when calculating how much permanent conversion of PSS and PFO wetlands is proposed to occur (they fluctuate between 30 feet and 10 feet; see PennEast statements below).
- "A 30' wide ROW will be maintained through PFO and PSS wetlands, resulting in the conversion of PFO and PSS to PEM wetlands."
- "In accordance with FERC guidelines PennEast will .... maintain a 10-foot-wide corridor centered on the pipeline for operational purposes."
- "A permanent 10-foot wide cleared corridor will be maintained through wetland resource areas in accordance with FERC's Plan and Procedures."

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91 *See*, The Effects of Converting Forest or Scrub Wetlands into Herbaceous Wetlands in Pennsylvania: A Report to the Delaware Riverkeeper Network, Schmid and Company, Inc., Consulting Ecologists (2014). (Hereafter Schmid Wetlands Report)

92 *The Effects of the Proposed PennEast Pipeline on Exceptional Value Wetlands in Pennsylvania, Prepared for the Delaware Riverkeeper Network,* Schmid and Company, July 2016 (hereinafter "Schmid Wetlands Report")

93 Schmid Wetlands Report

94 Schmid Wetlands Report

95 Schmid Wetlands Report

96 Schmid Wetlands Report

97 Schmid Wetlands Report

98 *Impacts of the Proposed PennEast Pipeline on Exceptional Value Wetlands in Pennsylvania Supple, Supplemental Report, Prepared for the Delaware Riverkeeper Network,* Schmid and Company, March 2019.

In addition, FERC asserts that,
"Based on field surveys conducted within the Amendment Project area between September 2014 and July 2018, vernal pools were identified in the survey corridor, but not within the proposed Amendment Project's disturbance footprint."
Although apparently not within the disturbance footprint, vernal pools were identified in the survey corridor but there is no mention of how many or where they are. Also, the upland habitat surrounding vernal pools is equally important to the ecological function of the vernal pool. Obligate amphibian species spend the winter in the surrounding uplands and then migrate to vernal pools in the spring to breed. If the vernal pool is left undisturbed but the surrounding upland habitat is destroyed, it can still have devastating impacts to amphibian species since a critical component of their spatial ecology is being removed.

X. FERC's Environmental Assessment Fails to Account for Impacts and Losses of Forest Along the Full Path of the Project

PennEast maintains that most of the impacts are temporary and that they will restore disturbed areas. However, PennEast admits that, "all impacts on forested habitats will be considered long-term because of the time required to restore woody vegetation to pre-construction conditions (i.e., more than 30 years, and possibly hundreds of years for some forested areas)." Hundreds of years of lost habitat would have a permanent effect on generations of local wildlife. Compaction of sensitive forest soils and soil disturbance of "temporary work spaces and alternate temporary work spaces", scalding of adjacent forest trees from opening additional areas with clearing, thermal changes, soil changes, wind throw, invasive species, and other forest fragmentation impacts must be fully weighed and considered when PennEast proposes to disrupt interior forest in such a detrimental way.

The Project as a whole would already affect 220.6 acres of interior forest during construction and 63.6 acres during operation. The proposed changes will only expand that footprint of harm. Expert analysis demonstrates that for every cut through an interior forest, there are an additional 300 feet of impact on either side[99] to the adjacent forest that must be considered. Additionally, the Project would have an indirect impact (through edge effects, potentially resulting in avoidance of habitats or decreased habitat quality) on 1,725 acres of interior forest. FERC must ensure that this environmental assessment will examine the full impacts PennEast's construction and maintenance will have due to loss of riparian Forests, disturbances along the ROW, and consequences the losses will have across the whole watershed.

1. **The Environmental Assessment Fails to Evaluate the Impacts that Will Result due to the Loss of Riparian Forest.**

Pipeline construction results in the loss of riparian (streamside) vegetation.[100] No matter the technique involved in constructing the pipeline, there is always a resulting loss of vegetation and foliage associated with clearing the stream banks.

Riparian vegetation is an important part of a healthy ecosystem and protects the land adjoining a waterway which in turn directly affects water quality, water quantity, and stream ecosystem health. A reduction in

[99] Nels Johnson, et al., Natural Gas Pipelines, The Nature Conservancy, 1 (December 2011).
[100] James Norman, et al., *Utility Stream Crossing Policy*, ETOWAH AQUATIC HABITAT CONSERVATION PLAN, July 13, 2008 at 8.

healthy and mature streamside vegetation reduces stream shading, increases stream temperature and reduces its suitability for incubation, rearing, foraging and escape habitat.[101] While horizontal directional drilling may move the construction footprint further away from the stream, it too results in vegetative losses and soil compaction that can have direct stream impacts. The body of scientific research indicates that stream buffers, particularly those dominated by woody vegetation that are a minimum 100 feet wide, are instrumental in providing numerous ecological and socioeconomic benefits.[102]

The loss of vegetation also makes the stream more susceptible to erosion events, exacerbating the sedimentation impacts of construction. In crossings that result in open forest canopies, increases in channel width, reduced water depth, and reduced meanders have persisted in the years after using an open cut method of installation.[103] In addition, according to Princeton Hydro speaking directly to the PennEast Pipeline project and the streams targeted for crossing:

"Clearing of the forest canopy and vegetation growing adjacent to these streams alters their thermal properties and nutrient and sediment loading dynamics thereby threatening their ability to sustain a trout fishery. These changes to the adjacent stream corridors can also affect the food chain dynamics of the system by altering the composition of the benthic and aquatic insect communities and increasing the propensity for algae blooms."[104]

2. **The Environmental Assessment Must Evaluate the Impact of Forest Loss Along the ROW which Results in the Loss of Vegetation and Soil Compaction**

When a pipeline cuts its path through a forest there are impacts in the direct footprint of the right of way (ROW) of the pipeline as well as impacts 300 feet into the forest on either side of the ROW.[105] Therefore, damage to the forest ecosystem for a 1 mile section of a 50 foot wide pipeline ROW will directly impact 6 acres of forest, and it will damage an additional 72 acres of adjacent forest by transforming it from interior habitat to that of forest edge habitat[106] (i.e. an additional 300 feet of forest on either side of the ROW is impacted). This means that when a forest cut is made, for every 1 mile of pipeline (assuming a 50 foot ROW as PennEast has asserted it will primarily rely upon) at least 78 acres of forest habitat are impacted. In areas with a construction footprint that is wider, the impacts are, of course, greater. Temporary and additional temporary work spaces used by the pipeline company also need to be included in this harm since they are so abundant throughout the area of the pipeline and are often located near sensitive habitats, streams and wetlands.

The destruction of forest, including riparian habitat, results in increased stormwater runoff to neighboring streams and wetlands. In addition, the construction of the project will result in soil compaction, which based

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101 Canadian Association of Petroleum Producers, Canadian Energy Pipeline Association, and Canadian Gas Association, *Pipeline Associated Water Crossings*, 1-4 (2005).

102 Ibid.

103 Ibid.

104 Ibid.

105 Cara Lee, Brad Stratton, Rebecca Shirer, Ellen Weiss, An Assessment of the Potential Impacts of High Volume Hydraulic Fracturing (HVHF) on Forest Resources, The Nature Conservancy, Dec. 19, 2011.

106 Nels Johnson, et al., Natural Gas Pipelines, The Nature Conservancy, 1 (December 2011).

on testing, experience and review of proposed project documents will not be properly mitigated, and as a result will result in increased stormwater runoff and prevent vegetation regrowth, both of which will have stream and groundwater impacts.
"Heavy equipment used in the construction of the pipeline will inherently compact work areas to depths deeper than conventional surface tilling will reach. These lasting impacts include increased runoff to streams and wetlands due to a reduction in infiltration capacity and difficulty in re-establishing vegetation. Infiltration capacity becomes limited when soils lose their porosity and soil structure, resulting in increased runoff volumes to streams. Excessive runoff changes stream geomorphology due to an increase in both volume and velocity. Streambanks and riparian areas are impacted by changes to the stream channel due to the increases in peak flow volume and rate. Streams with more flow also have higher energy. More energy means more in-stream erosion and sediment transport. Compaction also creates conditions where bulk densities of soils are so high that the soils inhibit the germination of plants and plant root growth. The establishment of vegetative cover within the pipeline ROW will be more difficult once surface soils are compacted. If vegetation regrowth is limited within both the temporary and permanent ROW, the likelihood of accelerated erosion will be increased."[107]

PennEast's application and materials proposes, among other things, an unnecessarily oversized set of ROWs both for construction as well as for operation and maintenance. Both during construction as well as in terms of the permanent ROW maintained for the project, ROWs significantly smaller than those proposed by PennEast are viable and available options. In addition to the oversized footprint, PennEast proposes typically invasive construction practices, such as open stream cuts, that also maximize adverse impact and minimize the opportunity for successful mitigation and/or restoration. If HDD is not employed in sensitive areas, FERC should require minimization of the ROW to the greatest extent possible to minimize fragmentation, soil compaction and other impacts. As stated earlier, PennEast asserts that it is unable to reduce the ROW to less than 45 feet for northern flying squirrels, but other pipelines have demonstrated that this is possible. Pipelines located in residential areas and highly developed and urban areas operate in minimal with ROWs; there is no reason that natural forests and communities that are more rural and less urbanized should be sacrificed when they clearly do not need to be, especially in light of the ecological value these rural landscapes provide.

For example in Morris County, NJ, a pipeline company was required to limit its ROW to 34 feet to avoid and minimize harm and to run the ROW along an existing road to decrease fragmentation. Stove piping, HDD, smaller side booms, wood chips to cushion equipment, and sod pillows can all be deployed by PennEast to greatly minimize harm and the amount of time to have the site restored on a faster timeframe, but this appears to be completely ignored by PennEast.[108]

The additional runoff and permanent loss of vegetation can contribute to erosion, higher damaging peak flows, habitat impacts/loss, loss of shade for protecting stream temperatures, and direct contributions of pollution particularly from pipeline rights of way where herbicides have been used to keep vegetation down. Even in temporary rights of way where, post construction conditions are supposed to restore both in terms of soil compaction and vegetation, compacted soils and denuded landscapes can and do persist.

107 Memorandum from Meliora Design re: Proposed State Water Quality Certification – PennEast Pipeline Project, June 9, 2016

108 Achieving Higher Quality Restoration Along Pipeline Rights of Way, Leslie Sauer

After reviewing the impacts of the Tennessee Gas Pipeline Company's construction of the 300 line, engineering expert Michelle Adams determined
"It is my opinion, given with a reasonable degree of scientific and engineering certainty that the conditions created as a result of the completed 300 Line Upgrade construction have resulted in significant and permanent increases in stormwater runoff volumes, rates, pollutant discharges, and frequencies of discharge, and a corresponding decrease in infiltration volumes. As a result, existing streams and wetlands, including exceptional value streams, have been adversely impacted by stormwater discharges and the discharge of sediment."[109]

There is every reason to believe that the same impacts will result here. Yet, PennEast has not undertaken the data collection, review or planning necessary to support Chapter 105 decision-making:
"The PennEast Pipeline Project needs to fully evaluate conditions that may increase the likelihood of compaction for the most common land uses found along the pipeline. Areas that contain specific fine textures and high water tables are highly susceptible to compaction. Without identifying these areas for both the ROW and temporary ROW and across all land use categories, no determination during project review of potential impacts can be made due to a lack of information being provided. Extensive areas being crossed by this pipeline will fall into the category of susceptible to compaction."[110]

"Impacts to resources located outside of the permanent ROW are often ignored or characterized as being temporary and short-term. This conclusion is not supported by experience with soil compaction investigations performed by Meliora Design within pipeline work areas. Once a soil's structure is disturbed with heavy equipment, compaction, and removal of surface vegetation, it is very difficult to regain structure that allows for infiltration of surface water or the regrowth of healthy vegetation following construction."[111]

As noted by Princeton Hydro:
"PennEast has used post-development TR-55 runoff curve numbers in an attempt to support their contention that there will not be an increase in runoff following the completion of the pipeline. However, it is well established that following land development, especially development on steep slopes and resulting in forest clearing, peak flows and total runoff volumes will increase. In addition, the time of concentration will decrease. Undoubtedly, there will be both a greater volume of runoff and velocity as the result of pipeline construction. In addition to increasing the volume and velocity of runoff entering stream systems, these conditions will increase the mobilization and transport of pollutants (including sediments and nutrients), increase the likelihood of scour and erosion and decrease the total volume of precipitation infiltrated back into the soil leading to a decrease in the recharge of the surficial aquifer."[112]

In addition, the EA asserts that,
"…the permanent compaction of soils beneath aboveground facilities and access roads would have permanent hydrological impacts on the area, but impacts would be highly localized and minor."
Permanent hydrological impacts are not minor, and even localized compacted soil can have an effect outside of the immediate area. Compacted soil creates an impermeable surface and stormwater runoff can travel

109 Affidavit, Michelle Adams, Meliora Design

110 Meliora Design Memorandum

111 Meliora Design Memorandum

112 Princeton Hydro White Paper

significant distances. Since the impacts are permanent, they will occur even after construction is complete and will likely be worse after construction because there will be no stormwater or erosion and sedimentation controls in place to contain them.
The EA also states that,
"Soil contamination in the area of the Amendment Project could result from at least two sources: new spills of hazardous material or fuel during construction, and/or those occurring before construction in pre-existing contaminated areas that are encountered during construction. Contamination from spills or leaks of fuels, lubricants, and coolant from construction equipment could adversely affect soils. The effects of such contamination are typically minor because of the low frequency and volumes of spills and leaks."
There is no way to quantify frequency and volume of spills and leaks until they happen and it is too late. The Mariner East II spills are an example of how unpredictable spills and leaks can be.

3. **The Environmental Assessment Fails To Adequately Analyze Adverse Impacts to Archeological Sites**

The EA explains that "[t]he SHPO corresponded with PennEast and FERC over the period from 2015 through 2019, expressing concerns about potential impacts and reviewing PennEast responses and survey report results."[113] SHPO concurred that two archaeological sites within the "Amendment Project" are eligible for listing in the NRHP.[114] However, "[b]ased on the impacts to historic properties, FERC submitted a finding of adverse effects to the ACHP on August 15, 2019 and sites 36NM0328 and 36CR0151, which are within the Amendment Project area, were included."[115] While FERC describes that "[a]ll correspondence between PennEast and the SHPO regarding the Amendment Project is filed in the public record under docket CP19-78-000,"[116] it completely fails to explain the significance as it relates to the NEPA analysis. This is an error that should be corrected.

XI. The EA Fails to Fully Evaluates the Cumulative Impacts Along the Full Length of The Project.

FERC's EA fails to account for the actual cumulative impacts of the proposed project. NEPA defines cumulative impacts as "impact[s] on the environment which result[] from the incremental impact of the action *when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal or person undertakes such other actions.*"[117] Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."[118] CEQ has emphasized that cumulative effects analysis includes a "[f]ocus on truly meaningful effects of "past, present, and future actions" as well as "all federal, nonfederal, and private actions."[119] For the current project, this means that a cumulative assessment done properly needs to account and evaluate the effects the project will

113 EA at 69.
114 *Id.*
115 EA at 69.
116 *Id.*
117 Council on Envtl. Quality, Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions 5, 9-10 (Feb. 18, 2010) (emphasis added), available at http://ceq.hss.doe.gov/nepa/regs/Consideration_of_Effects_of_GHG_Draft_NEPA_Guidance_FI NAL_02182010.pdf (notice of availability published at 75 Fed. Reg. 8,046 (Feb. 23, 2010)).
118 40 C.F.R. § 1508.7 (2010) (emphasis added)
119 Council on Envtl. Quality, Considering Cumulative Effects Under the National Environmental Policy Act 11(1997), available at http://ceq.hss.doe.gov.nepa/ccenepz/sec2.pdf

have on climate change, the increase in natural gas acquisition and usage, as well as the cumulative impact of the construction alongside other pipeline infrastructure projects and burdens it will place on environmental justice communities.

1. **The EA Fails to Consider Cumulative impacts of the pipeline construction, operation, and maintenance on impacted ecological systems**

The EA fails to adequately consider the impacts of the Project cumulatively along the length of the PennEast Pipeline and cumulatively across the many pipelines passed, passing, or anticipated to pass through this same impacted region with future pipeline expansions. The impacts that must be considered cumulatively include:

- Sediment pollution,
- Erosion,
- Impacts to wildlife,
- Impacts to waterways, wetlands, marshes and vernal pools
- Loss of forest, forest fragmentation, changes in forest ecology and increased edge effect,
- Soil compaction,
- Increased surface water runoff,
- Reduced groundwater recharge,
- Reduced nutrient cycling capacity and increased algae growth,
- Release of hydrocarbons from heavy equipment leaks and re-fueling,
- Thermal impacts,
- Redirection of groundwater and surface water flows,
- Release of drilling muds,
- Creation of sinkholes,
- Air pollution resulting from methane, pipeline construction equipment, compressor stations, and other air contaminants,
- Failure of remediation/mitigation efforts including efforts to revegetate construction zones,
- Increased acidification of streams from methane pollution and construction equipment and potential decreased buffering capacity of waterbodies,
- Impacts to recreation, aesthetics, property values and property rights,
- Impacts to health, safety and the environment.

FERC failed in the EA to consider the full cumulative impacts along the entire pipeline path as well as pipeline cuts that are within the same watersheds and regions with multiple companies vying for various markets and competing with one another with no concern over the multiple cuts they propose.

2. **The EA Fails to Include a Cumulative Impact Analysis that Includes An analysis of GHG emissions and consequential Climate Change Effects**

FERC is required to consider the cumulative impacts of the Project's direct and indirect greenhouse gas ("GHG") emissions. It is a common consensus that climate change is "a result of human activity" where the "combustion of fossil fuels (coal, petroleum, and natural gas), combined with agriculture and clearing of

forests, is primarily responsible for the accumulation of GHG."[120] Numerous significant environmental impacts are a result of climate change including: an increase in the number of days areas will fail to meet federal air quality standards due to ozone; severe flooding and heavy downpours, a change in the life cycle events of vegetation and wildlife species; and an increase in health risks for vulnerable populations due to heat stress and poor air quality.[121]

The Council on Environmental Quality ("CEQ") draft guidance has noted that "for Federal actions that require an EA or EIS the direct and indirect GHG emissions from the action should be considered in scoping," and these GHG impacts should be considered in the context of the "aggregate effects of past, present, and reasonably foreseeable future actions."[122] Moreover, to reject that notion that climate change does not need to be considered in the EA is a violation of decision rendered by the Court of Appeals for the DC Circuit in which the court determined: "greenhouse-gas emissions are an indirect effect of authorizing this [pipeline] project, which FERC could reasonably foresee, and which the agency has legal authority to mitigate. *See* 15 U.S.C. § 717f(e)."[123] Therefore, in order to conduct a thorough EA, as required under NEPA, FERC must look at the indirect and direct effects of climate change from production of the pipeline materials to the eventual end use of natural gas flowing through it.

While FERC has tried to skip over this responsibility, through asserting that the threshold is not whether it is an "indirect effect" as found by the D.C. Circuit, but a "causal relationship." In a recent decision FERC states that in order to consider GHG emissions of a project a "causal relationship" must exist such that "if the proposed pipeline would transport new production from a specified production area and that production would not occur in the absence of the proposed pipeline (i.e., there would be no other way to move the gas)."[124] Aside from the fact that such a stance is contradictory to NEPA law and recent judicial decisions.[125] There is no doubt that PennEast falls into this category. If not for construction of the PennEast Pipeline, there would be no way to transfer the natural gas. Therefore FERC must consider the GHG emissions and consequential effects on climate change this project will have.

The EA also fails to account for the indirect effects that will occur to frack the natural gas and burn it for fuel. A request to build a pipeline is evidence that natural gas will be fracked, transported, and converted to energy. These facts can be taken as given because otherwise FERC would not find that such projects are required by public convenience and necessity and satisfy the criteria to receive their certification.[126] Since NEPA analyses of GHG sources must take into account all phases of the proposed action, such certain downstream effects of a gas pipeline should be assessed. Moreover, cumulative impact analysis requires that

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120 Adelphia Gateway, LLC, Adelphia Gateway Project Resource Report 1 at 41, FERC Docket No. CP18-46, January 2018.

121 Adelphia Gateway, LLC, Adelphia Gateway Project Resource Report 1 at 42, FERC Docket No. CP18-46, January 2018.

122 Council on Envtl. Quality, Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions 5, 9-10 (Feb. 18, 2010) (emphasis added), available at http://ceq.hss.doe.gov/nepa/regs/Consideration_of_Effects_of_GHG_Draft_NEPA_Guidance_FI NAL_02182010.pdf (notice of availability published at 75 Fed. Reg. 8,046 (Feb. 23, 2010)).

123 *Sierra Club v. FERC*, 867 F.3d 1357, 1373 (D.C. Cir. 2017)

124 Order Denying Rehearing Request, Dominion Transmission, Inc., Docket No. CP14-497.

125 *Sierra Club v. FERC*, 867, F.3d 1357, 1373 (D.C. Cir. 2017).

126 15 U.S.C. § 717f(e). ("the proposed service, sale, operation, construction, extension, or acquisition, to the extent authorized by the certificate, is or will be required by the present or future public convenience and necessity; otherwise such application shall be denied.")

these GHG emissions be considered in the context of GHGs emitted from the aggregate of natural gas that have been and will reasonably foreseeably be extracted from the Marcellus Shale region.

With regards to upstream impacts, increased and ongoing extraction of gas from shale using hydraulic fracturing technology, is not just reasonably foreseeable, it is a known and demonstrable effect of FERC approved pipeline infrastructure that is obvious to any person of ordinary prudence. A request to build a pipeline is evidence that natural gas will be fracked, transported, and converted to energy. These facts can be taken as given because otherwise, there would be no need for FERC to allow for/certify projects.[127] New pipeline capacity enables, supports, and induces operators to advance, accelerate, and complete natural gas drilling and production. In fact, the industry itself recognizes the relationship between pipelines and drilling and relies on new pipeline capacity to accommodate new shale gas extraction.[128] As do those who are looking to expand natural gas production.[129] Finally, but for the construction of an interstate pipeline – whose approval is entirely controlled by the Commission – natural gas producers would simply be unable to access markets across state lines without access to interstate transmission lines.Therefore, there can be no doubt whatsoever that the construction of an interstate natural gas transmission line is causally related to the development of shale gas resources in the Project area.

A proper NEPA analysis must include foreseeable related activities that occur in natural gas exploration, production, and consumption, including the construction and operation of well pads, access roads, gathering lines, compressor stations, and other infrastructure. FERC cannot ignore this responsibility on the basis that it is in determinable. Publicly available maps of permitted gas wells in Pennsylvania show the locations of wells already drilled in the Pennsylvania counties to be crossed by the Project as well as the locations of newly-permitted well sites. Additionally, there is data available on the emissions from conversion of natural gas to energy and estimates of its usage, there is no reason that a reasonably, scientifically-based estimate in order to understand the burdens this project will put on the environment and on public health cannot be provided.

The PennEast pipeline, like other pipelines carrying Marcellus Shale gas and liquids, will be a direct source of methane emissions, in addition to supporting and inducing additional shale gas development and end uses, which are themselves a significant source of methane emissions. Methane is a major contributor to climate change. The September 2018 Revolution Pipeline explosion was the result of massive floods recognized to be among the recent spate of unpredicted storms caused by our changing climate.[130] PennEast

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[127] 15 U.S.C. § 717f(e).

[128] A subsidiary of the Natural Fuel Gas Company, Seneca Resources, stated in a presentation to its investors in 2016 that it had "[l]imited development drilling [in its Eastern Development Area in northeastern Pennsylvania] until firm transportation on [the proposed] Atlantic Sunrise (190 MDth/d) is available in late 2017" and that it had "50-60 remaining Marcellus [drilling] locations" and "100-120 [Geneseo shale] locations" that could not be developed until that pipeline project was underway. National Fuel. Investor Presentation: Q2 Fiscal 2016 Update April 2016. Slide 10. Available at: http://s2.q4cdn.com/766046337/files/doc_presentations/2016/April/20160428_NFG-IR-Presentation.pdf (more examples in dominion comment if wanted)

[129] Greater Philadelphia Energy Action Team, *A Pipeline for Growth*, March 30, 2016. (a report issued by the Greater Philadelphia Energy Action Team advocates for more pipelines in order to induce and support more and new shale gas production finding that "[e]ncouraging the industry to invest in new pipelines and in new distribution system infrastructure … provides additional capacity for increased volumes of gas.")

[130] *Mariner East 2: Sunoco's incidents, fines and shutdowns fuel residents' safety concerns*, Jon Hurdle, StateImpact, September 15, 2018, available at: https://stateimpact.npr.org/pennsylvania/2018/09/25/mariner-east-2s-incidents-fines-and-shutdowns-fuel-residents-safety-concerns/; *PA DEP halts new pipeline permits for Mariner East, cites ongoing violations with Revolution*

has failed to consider how unpredicted and unpredictable weather events such as floods events, could impact its proposed pipeline route and what steps can and should be taken in response. Protection of waterways, natural resources and communities depend upon the construction of pipelines that will not fail and induce accidents, incidents and explosions -- proper planning must consider the impacts of climate change on proposed construction and management practices.

FERC completely fails to consider the cumulative impacts of the Project's direct and indirect greenhouse gas ("GHG") emissions in the EA, instead only acknowledging and discussing the GHG emissions resulting from construction within Pennsylvania.

Another concern that does not appear to be considered and that causes increased subsequent harms to air quality and emissions relates to avoidable practices employed in the field on similar pipeline projects where cold winter temperatures and delays on the pipeline construction led to approved variances by FERC that were extreme in nature. In the case of Atlantic Sunrise pipeline, the operator actually requested a variance to run idle diesel equipment during very cold winter months overnight and unattended. Another variance related to running heaters in tents during welding in extreme winter temperatures (for weld security). These types of practices should be avoided and not approved and at a minimum considered here in the analysis since operators often seem to request such variances with rapid turn around approval by FERC.

3. **The EA Fails to Fully Analyze Foreseeable Cumulative Impacts of Current, Pending, and Future Pipeline Projects**

In addition to looking at cumulative impacts across the length of the PennEast project, FERC must examine cumulative impacts that may stem from "other potential or existing projects".[131]

"The cumulative impacts arise due to the accumulation and synergistic effects of harms across the length of the proposed project, as well as the cumulative and synergistic impact of the proposed pipeline with other past and future pipeline and power transmission projects occurring in the same general region and affecting the same environments as the PennEast Pipeline. Each of the projects has caused, or will cause, similar alterations and impacts to the upland, water, riparian and wetland resources of the Delaware River and its tributaries that have a compounding effect which magnifies the damage inflicted by any one individually."[132]

As Delaware Riverkeeper Network has noted in the past, it is clear that the footprint of the PennEast pipeline within Pennsylvania is larger than captured by the PennEast submittal. Spectra's Texas Eastern Marcellus to Market project and its Greater Philadelphia Expansion project are clearly part and parcel of the PennEast pipeline footprint and the plan that must be fully evaluated under FERC's environmental assessment. In addition, there needs to be a review to determine any associated export from Philadelphia ports that are already under discussion and associated with these pipelines.

pipeline, Susan Phillips, StateImpact, February 8, 2019, available at: https://stateimpact.npr.org/pennsylvania/2019/02/08/pa-dep-halts-new-pipeline-permits-for-mariner-east-cites-ongoing-violations-with-revolution-pipeline/.

[131] 25 Pa. Code § 105.14(b)(14).

[132] Princeton Hydro White Paper

FERC should also examine the cumulative impact of multiple utility and other linear projects that are being proposed or constructed in the Delaware River watershed in the vicinity of the project. For example, there are significant concerns related to the cumulative impacts of the continuous water crossings and wetlands disturbance that pipeline construction activity has on the health and vitality of the Delaware River basin and its tributaries. This is particularly a concern with the PennEast Pipeline, as many of the same subwatersheds subject to development as a result of PennEast were recently, or could be in the future, impacted by construction activity from other pipelines.

Among the pipeline projects that are, will, or have impacted the same subwatersheds as PennEast, are Transco's Leidy line system upgrade projects which include the Northeast Supply Link project, the Southeast Leidy Expansion project and the Atlantic Sunrise project. These projects all upgrade portions of Transco's Leidy line system, which parallels PennEast's proposed project. In addition to the Transco's previous and proposed pipeline projects, there are several other pipeline projects that have been concentrated in the same sub watersheds as the PennEast line, such as: Texas Eastern's TEAM 2014 Project and Columbia's East Side Expansion Project. These projects do not occur in a vacuum. Each project individually depletes the natural and scenic resources of the region, and the combined impact becomes increasingly more severe, unavoidable, unmitigatable, and irreversible.

Furthermore, by creating an entirely new ROW for this Project PennEast is creating a new industrial corridor that will foreseeably be used in the future by the PennEast pipeline company for upgrades. A quick review of other major pipeline corridors in the region support this assertion as natural gas pipeline operators including Columbia, Tennessee Gas Pipeline, Texas Eastern, Millennium and Transcontinental have all within the last three years added looping segments to their pipelines and in some cases additional compression as well.

Streams, riparian native forested buffers, wetlands, soils, and forests adjacent to streams would not only be directly cut and destroyed by this pipeline, but they would also be indirectly harmed by the exacerbated climate change impacts this pipeline would cause, induce and support. At the same time, these habitats are essential, if preserved, in limiting climate harms and serving ecosystem functions that must be fully accounted for in the pipeline review process. These calculations must be part of the review of this project instead of putting resources in boxes – we live in an ecosystem – it is all connected.

4. **The EA Fails to Include Cumulative Impacts Assessment that Considers the Threats And Harms To Life And Property To Residents that Will Reside or Be in Proximity to the Project.**

The "potential threats to life or property created by" the PennEast project demand that the permits not be issued as there are serious risks in locating pipelines in populated areas.[133] Through Accidents, construction and operation impacts to land cover, and impacts on the climate, among others.

1. **The EA Fails to Account for the Likelihood that a Pipeline Explosion, Fire, or similar incident Could Occur as a Result of the Project and Extent of Damage that could result.**

[133] 25 Pa. Code §105.14(b)(1).

Pipelines are a serious source of human harm and property damage. Between 1986 and 2012, "pipeline accidents have killed more than 500 people, injured over 4,000, and cost nearly seven billion dollars in property damages."[134] Looking at this 28-year period, on average pipelines kill or injure 173 people a year causing over $269 million a year ($269,230,769) in property damage. Further, according to the Pipeline and Hazardous Materials Safety Administration[135], in the most recent six years found on PHMSA's data portal for gas transmission lines (onshore) there have been over 100 fatalities or injuries requiring hospitalization and over $880 million in damage as the result of 622 pipeline incidents. When explosions happen, the harm to people, property and the environment can be severe and costly. In addition to the actual physical harm that happens when there is an accident or incident, there is the ongoing psychological burden inflicted by the fear of accident, incident or explosion for those who are forced to live next to a gas pipeline, including those who are forced to live with a pipeline because of the power of eminent domain exercised by a pipeline company. And the hazards of pipelines for human safety and property damage is increasing. According to a report by Pipeline Safety Trust, "The gas transmission lines installed in the 2010s had an annual average incident rate of 6.64 per 10,000 miles over the time frame considered, even exceeding that of the pre-1940s pipes. Those installed prior to 1940 or at unknown dates had an incident rate of 6.08 per 10,000 miles."[136]

2. The EA Fails to Consider the Public Safety Threats Due to Scour and Resulting Degradation of Piping

Pipelines, like PennEast, that traverse through waterbodies create even more likelihood of incidents due to their location. Pipelines are known to rupture as the result of scour from high flow and flood events, and when they rupture the impacts are severe as demonstrated by the recent Revolution Pipeline explosion.[137] The PennEast pipeline is proposing to cross hundreds of streams and wetlands totaling over 1,500 linear feet of waterways in the Commonwealth of Pennsylvania, mostly through open cut methods. This means there will be over 1,500 linear feet of waterways with the PennEast pipeline buried in their bed bringing the real potential of scour and rupture releasing dangerous chemicals into our waterways and on nearby and downstream properties and their owners.

Pipeline construction also creates additional hazards increasing the likelihood of scouring. Because open trench pipeline installations may unnaturally alter both stream bank and streambed (i.e., channel) stability, there is an increased likelihood of scouring within backfilled pipeline trenches. This is because open trenches themselves, when backfilled, may not be compacted to stable pre-trench sediment permeability conditions. Flooding rivers can scour river bottoms and expose pipelines to powerful water currents and damaging debris. Additionally, unusually heavy rains including those associated with climate change, threaten to increase overall stream degradation and channel migration – thereby exposing shallowly buried pipelines. Scour hole development proximal to pipelines is well-documented in both stream and seabed settings.[138] Stream-based pipe *"(f)ailures [have been] caused not only by vertical scour of the streambed*

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134 ProPublica, *Pipelines Explained: How Safe are America's 2.5 Million Miles of Pipelines?*, available at https://www.propublica.org/article/pipelines-explained-how-safe-are-americas-2.5-million-miles-of-pipelines.

135 https://www.phmsa.dot.gov/data-and-statistics/pipeline/pipeline-incident-20-year-trendss.

136 https://www.snl.com/InteractiveX/Article.aspx?cdid=A-33791090-11060

137 Reid Frazier, *DEP orders ETP to fix Revolution Pipeline erosion problems*, October 30, 2018, StateImpact, available at https://stateimpact.npr.org/pennsylvania/2018/10/30/dep-orders-etp-to-fix-revolution-pipeline-erosion-problems/.

138 Fogg, J. and Hadley, H., 2007, Hydraulic Considerations for Pipelines Crossing Stream Channels. Technical Note 423. BLM/ST/ST-07/007+2880. U.S. Department of the Interior, Bureau of Land Management, National Science and Technology Center, Denver, CO. 20 pp. http://www.blm.gov/nstc/library/techno2.htm.

but also by bank erosion, lateral channel migration, avulsions, bridge scour, and secondary flows outside the main channel. … Several of the pipelines in [a] study failed as a result of a meander migration or avulsion of the stream into previously less active or nonexistent channels."[139] Based on field observations and hydraulic modeling for the 100-year design flood, researchers documented maximum vertical scour to 26.6 feet (8.1 meters) and lateral scour to 6,274 feet (2,050 meters) at some failed pipeline crossings.

An expert at HydroQuest[140] has determined that, at a minimum, any pipeline installed using the open trench cut method needs to be installed at least 24 feet below the stream bed in order to prevent exposure from scour.[141] While bridge piers are more readily exposed to stream scouring than pipelines, it is telling that bridge failure analyses have determined that channel scour occurs to depths of up to three times that of maximum river floodwater depth (e.g., scour to 30 feet with a 10 foot floodwater depth).

In addition, a significant health, safety, property and environmental risk associated with both wet and dry trench methods of gas pipeline crossings of rivers and streams is the potential of releasing hydrocarbons or other contaminants directly into surface water and fragile downstream ecosystems, including hydro-carbon laced liquids such as benzene that are part of the gas being delivered by the pipeline.

5. **The EA Fails to Consider the Impacts of ALL Forest Cuts From The Project**

As indicated in past comment and expert reports submitted by DRN, forested wetlands are especially vulnerable to thermal impacts and permanent changes with pipeline cuts. Stream science clearly indicates that when forests (and forested streams) are cut for a pipeline and soils compacted etc. impacts watershed health. The Final EIS indicates that 220.6 acres of interior forest would be affected during construction and 63.6 acres during operation. Science and reports submitted to the DEP by Delaware Riverkeeper Network shows that with these pipeline cuts through forests comes an additional 300 feet on either side of the pipeline cut that impacts that sensitive interior forested habitat. DRN does not believe these numbers are fully nor adequately reflected or included in the materials or FERC's EA.

Efforts by the stakeholder group alternative analysis stakeholder group in Pennsylvania are pushing for reform that includes assuring forests around wetlands are protected from cuts and thermal impacts by suggesting, if possible, HDD be used to preserve forest through these shaded and important habitats. Forested riparian buffers are also important to preserve as well where HDD can be employed since these natural buffers are indicative to protecting water quality and stream temperatures.

6. **The EA Fails to Include a Full and Adequate Analysis of the The Cumulative Impacts of Air Emissions**

Emissions that will occur during the operation of the pipeline must be fully evaluated. Direct emissions may include but are not limited to carbon dioxide (CO_2) and nitrous oxide (N_2O) emissions from compressor

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[139] Doeing, B.J., Williams, D.T. and Bradley, J.B., 1997, Gas Pipeline Erosion Failures: January 1993 Floods, Gila River Basin, Arizona. In Storm - Induced Geologic Hazards, Case Histories from the 1992 - 1993 Winter in Southern California and Arizona; Geological Society of America; Reviews in Engineering Geology, Volume XI (ed. Robert A. Larson).

[140] HydroQuest Memorandum re: Hydrologic and Environmental Rationale to Bury Gas Pipelines using Horizontal Directional Drilling Technology at Stream and River Crossings, 6/8/2012 (Hereafter HydroQuest Report)

[141] HydroQuest Report.

engines, line heaters, and generators, as well as fugitive methane emissions from compressors and pipelines; and black carbon emissions from diesel vehicles and equipment.[142] Additionally the operation of eight blowdowns, will lead to sporadic, intense releases of methane and other chemicals into the air.[143] FERC fails to account for these releases when looking at GHG emissions in the EA.

7. **The EA Fails to Include Cumulative Impacts of this Project and Others in the Area and Impacts on Water Degradation.**

The scientific community has published over 400 peer reviewed papers indicating harm that stems from gas wells, it is critical that FERC consider these beginning of pipe and end of pipe impacts that fracking and related infrastructure is causing. As this issue will only will worsen if these additional pipelines are constructed. According to Physicians for Safe Energy, 72% of these original research studies on water quality indicate potential, positive association, or actual incidence of water contamination; and 95% of all original research studies on air quality indicate elevated concentrations of air pollutants. In addition groundwater contamination of potable water supplies are a key concern.[144]

Since 2011, there has been at least twenty intensive pipeline projects that have crisscrossed the Delaware River Basin and been put into service, with no indication that that the rate of constriction will slow in the coming years. EV and HQ streams and wetlands that remain in Pennsylvania should not be sacrificed for a gas pipeline project like PennEast that exacerbates climate change and causes irreparable direct harm to streams that the path would cut.

8. **The EA fails to adequately represent Environmental Justice Communities**

FERC appears to be parsing out what is an EJ and what is not and mincing words to downplay poverty within the one additional parcel and census block area noted in the current EA in Monroe County. It is also unclear if the Pennsylvania Environmental Justice interactive mapping tool was used in addition to the EPA tool to ensure all EJ areas are properly delineated http://padep-1.maps.arcgis.com/apps/webappviewer/index.html?id=f31a188de122467691cae93c3339469c. This Pennsylvania tool indicates broad bands of EJ areas that are within counties where PennEast would cut. Environmental justice shortcuts were challenged by NRDC and others related to the Atlantic Coast Pipeline. NRDC and nine other groups filed an amicus brief on April 12 2019, challenging FERC's approval of the Atlantic Coast pipeline on environmental justice grounds before the U.S. Court of Appeals for the D.C. Circuit.

XII. The Economic Benefits Asserted By in the EA Are Unsupported, And The Economic Harms Are Overlooked.

142 "The U.S. natural gas transmission network contains more than 279,000 pipeline miles. Along this network, compressor stations are one of the largest sources of fugitive emissions, producing an estimated 50.7 billion cubic feet (Bcf) of methane emissions annually from leaking compressors and other equipment components such as valves, flanges, connections, and open-ended lines." Envtl. Prot. Agency, Lessons Learned from Natural Gas STAR Partners 1 (Oct. 2003), available at http://www.epa.gov/gasstar/documents/ll_dimcompstat.pdf.

143 Summary on Compressor Stations and Health Impacts, Southwest Pennsylvania Environmental Health Project, February 24, 2015.

144 The fifth edition of the Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking was published March 2018 and is available here: https://concernedhealthny.org/compendium/.

FERC's section 7 duty to consider the public interest is broader than promoting a plentiful supply of cheap gas.[145] Rather, FERC must ensure "the [public] benefits of the proposal outweigh the adverse effects on other economic interests."[146] Here, it is clear that the record shows that the net costs resulting from the construction of this pipeline outweigh the alleged public benefits of the Project.

As demonstrated in the attached report by Key-Log Economics, this comment and the comments of others on the docket, the claims of economic benefit advanced by PennEast and adopted by FERC are flawed and indefensible.[147] PennEast

● Overestimates short term impacts due to inherent issues with the models used and the choice of the size of the study region.
● Overestimates long term job "creation" and other impacts due to use of a model empirically proven to have no value as a predictor of economic activity occurring more than a year into the future."

In the EA, FERC asserts that "the cumulative socioeconomic impact would be an increase in temporary employment opportunities during construction of the various projects," despite expert economic reports and projections consistently demonstrating otherwise. And while FERC does acknowledge that "[c]onstruction of the proposed Amendment Project in combination with others could potentially negatively impact tourism and the recreation industry," it falsey qualifies this by claiming "these impacts would be expected to be temporary and isolated, primarily related to construction disturbance in isolated locations." Expert economic reports previously submitted to the record and attached again here demonstrate otherwise.

Below are some specific examples of economic impacts that the EA failed to account for:

1. **The Environmental Assessment Must Consider the Economic Impacts In Terms of Ecosystem Services Lost as Well as PennEast's False Claims of Economic Growth**

Since this pipeline would operate for decades in the state and require continual company oversight for safety and health and the environment and wellbeing of PA waterways and wetlands, it is important that the Department consider the long term health of the operators looking to impact the state and their long term viability as businesses. An April 4, 2016 expert report enclosed here and conducted by Jannette M. Barth, Ph.D., Pepacton Institute LLC, "Review of PennEast Pipeline Project Economic Impact Analysis" cites some of the many considerations needed for these large infrastructure projects and lays out claims made by the operators that are often far from accurate on many accounts citing various pipelines considered in the recent years. The Spencer Philips, Ph.D. report (enclosed), "Economic Costs of the Atlantic Coast Pipeline," February 2016 cites ecosystem services lost and taxpayer expenses over the life of a project from a similar pipeline project in Western and Central Virginia that is being considered by the agencies. In this report findings included:

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145 *See Fla. Gas Transmission Co. v. FERC,* 604 F.3d 636, 649 (D.C. Cir.2010).

146 *AES Ocean Express, LLC,* 103 F.E.R.C. ¶ 61,030 at ¶ 19.

147 In addition to the Key-Log Economics analysis attached she attached report by Jannette Barth challenging the Econsult Analysis. This report was provided on the FERC docket as public comment prior to completion of the DEIS, but FERC clearly chose to ignore this report along with all the other comments you ignored.

- Lost ecosystem service value, such as for water and air purification, recreational benefits, and others accounted for: Over the two-year construction period: between $16.9 and $61.0 million (a one-time cost); and annually for the life of the pipeline: between $4.9 and $17.8 million.
- Annual loss of recreation tourism expenditures of $41.3 million that supports 387 jobs and $7.4 million in payroll and generates $1.8 million in state and $1.3 million in local taxes.

2. **The EA Fails to Independently Evaluate the Economic Claims Put Forth by PennEast.**

As discussed in the attached expert analysis from Dr. Jannette Barth with the Pepacton Institute, the analyses upon which PennEast bases its economic and jobs claims is carefully crafted to exaggerate benefits and ignore costs. A second expert report prepared by The Goodman Group finds similar exaggerations of economic and job claims. With regards to gas prices, in fact, for many customers, the construction of PennEast may result in an increase in gas prices, thereby increasing the economic burden of this new pipeline rather than creating any sort of economic gain.[148]

As revealed by the expert reports included in the attachments to this comment, the assertion that the PennEast pipeline is going to spur economic growth, significant and sustainable jobs, and low energy prices is false and misleading

3. **The EA Completely Ignored Economic Impacts on Property Owners.**

Finally, FERC must consider the detrimental economic impact pipelines have on the surrounding community. One of the benefits of living next to a stream or other natural body of water is the increased property value those riparian rights bring as well as the recreational and quality of life benefits that can be enjoyed. But the cut of a pipeline diminishes all of these rights and benefits of living near a waterway. Property values are demonstrably harmed by the presence of a pipeline.[120] Aesthetic qualities, ecological health of a stream and instream populations such as fish are diminished due to a pipeline's stream cuts and permanent loss of riparian vegetation essential for healthy riparian and instream habitat. Ecological and aesthetic harm translates into diminished recreational enjoyment and opportunities as well as a diminished ability to enjoy the environment and one's property.

XIII. FERC fails to Fully Consider Systems Alternatives in the EA

FERC is required by NEPA to consider alternatives to the proposed project prior to issuing a Certificate. This analysis should include, but not be limited to, examining differences in impacts to wildlife species, wetlands and waterbodies, steep slope topography, land disturbance, forest reduction, re-vegetation potential, and health and safety risks. Such a study ensures that the pipeline expansion projects proceed in the most logical sequence, with the least amount of environmental impact. FERC must also seriously consider viable existing and proposed alternatives in its balancing of the likely public benefit against the adverse impacts associated with the project. If the purpose of the project can be met by existing alternatives, the project provides no public benefit.

[148] *Analysis of Public Benefit Regarding PennEast*, Skipping Stone, March 9, 2016

FERC must consider alternatives that would result in less environmental impact, including an alternative that would avoid Pennsylvania regulated EV wetlands and an alternative that would not cross the Appalachian Trail, among other alternatives recognized by the public and other agencies.

In the EA's Alternative Analysis, FERC improperly defined the "stated purpose of the proposed actions" as only meeting the stated purpose of the four modifications included under the Amended Project, rather than seriously considering system alternatives which could meet the stated purpose of the PennEast Pipeline Project, and there could avoid the project altogether.

1. **In the EA, FERC Violated One of the Most Basic NEPA Requirements By Failing to Consider the No Action Alternative.**

Under NEPA, FERC's analysis must include a "no action" alternative as a benchmark for comparing the impacts of the proposed action to those of maintaining the status quo.[149] Here, the status quo is simply the current state of affairs, *i.e.* conditions as they currently exist ***without*** the PennEast pipeline because the pipeline has not yet been constructed. However, the Commission fails to recognize this most basic concept in the EA. Instead, the Commission's discussion of its purported "no action alternative" is entirely circular. The Commission treats the proposed PennEast pipeline as conceived for the purposes of PennEast's Certificate as the "no action alternative."[150] The Commission's very definition of the "no action alternative" does not comply with NEPA.

The Commission's failure to evaluate the true no action alternative has real consequences for the NEPA analysis. Instead of comparing the proposed PennEast pipeline, including the changes PennEast is now requesting in an amended certificate, with the no action alternative of not building the pipeline, the Commission only compares the original route to the amended route.[151] The Commission concludes that the "no action" alternative would mean "similar and slightly greater impacts could occur as described for the Certificated Project." *Id.* However, the true no action alternative -- not constructing the pipeline -- would mean that none of these impacts would occur. The Commission must revise its analysis to include a fully robust discussion of the true no action alternative of not constructing the pipeline.

The EA's definition and analysis of the "no action alternative" further illustrates the issues inherent in FERC's illegal segmentation of the proposed PennEast pipeline into two separate "projects" -- the "Project" as originally conceived for purposes of obtaining a Certificate and the "Project Amendment" that the Commission is now evaluating in the EA.[152] As explained in Point I above, these are not two separate actions -- it's the same yet-to-be-constructed pipeline and its impacts need to be evaluated together in a

[149] 40 C.F.R. § 1502.14(d).

[150] See EA at 133 ("It is reasonable to expect that if the Amendment Project is not constructed (the no-action alternative), PennEast would instead construct the Certificated Project as authorized by the Certificate Order in Docket No. CP15-558-000.").

[151] See EA at 133 ("[T]he Amendment Project would reduce environmental impacts when compared to the corresponding segments of the Certificated Route and this reduction of impacts would not occur under the no-action alternative.").

[152] See EA at 133 ("We conclude that the no-action alternative does not meet the Amendment Project objective and would likely result in construction of the Certificated Project as authorized in Docket No. CP15-558-000. Therefore, we do not consider it further.").

single EIS. Pipeline crossings, and changes to those crossings, like those proposed by PennEast inflict significant impact on water quality, health and habitat, and inflict impact and threats to people and property, both at the site of the crossing and downstream. Given the significant and long term effects of the water, land, vegetation and habitat transformation that will result from maintenance and construction of the project, FERC is required to consider alternatives, including a correct No Action alternative under NEPA -- evaluating the environmental impacts if the pipeline were never to be built.

2. **FERC Must Consider Alternatives and Other Construction Practices that Would Limit the Impact of the Project.**

Attached is an expert report by Leslie Sauer[121] that lays out numerous construction practices that would limit the construction footprint and impact of the project, limit the permanent and temporary ROW footprints of the project, and that would remediate impacts inflicted during construction. These are available alternatives that have not been given due consideration. Rather than find a way to minimize or altogether avoid wetlands, PennEast relies on mitigation measures and construction modifications, neither of which follows the mandate of the regulations, which is to establish "no practicable alternative."

3. **FERC Must Require An Alternative Analysis that Avoids Crossing EV Wetlands, As Recognized by Pennsylvania Environmental Regulations.**

FERC must conduct and alternative route that avoids EV wetlands in the state of Pennsylvania, as according to the letter of PA state law, a pipeline cannot be constructed in an EV wetlands, as such activities do not require the use of water of the location to operate. For further information on EV wetland regulations in Pennsylvania see section on wetland impacts in prior section of the comment. PennEast's Project, as well as other pipeline projects, are not water dependent as they do not require proximity to or siting within water to fulfill the basic purposes of the project because the purpose of a pipeline project is to "simply move product from one location to another."[122] Because the Project crosses numerous EV wetlands throughout Pennsylvania, FERC and PennEast must show that there is no way to avoid citing the Project in EV wetlands in order to proceed with the current route.

4. **The Commission Must Consider Alternatives to the Appalachian Trail Crossing**

The Commission has failed to analyze alternatives to passing through the Appalachian National Scenic Trail. As discussed above, the Appalachian Trail PPL Crossing Realignment extends approximately 3.3 miles from the Certificated PA Route and expands the existing ROW by approximately 20 feet, further increasing the already negative impacts associated with the proposed project including impacts on forested land that will either never recover or take 30 to 100 years or more. Even under its constrained view of the NEPA action here as the "Project Amendment," the Commission should have taken a hard look at alternative routes that did not cross the Appalachian trail. By not evaluating alternative routes, the Commission falls far short of its obligation to "[r]igorously explore and objectively evaluate all reasonable alternatives."[153]

[153] 40 C.F.R. § 1502.14(a); see also U.S.C. § 4332(C)(iii).

This failure is fatal because, as discussed in detail below, an act of Congress is likely required for Penneast's proposed pipeline to cross the Appalachian Trail. This difficult-to-obtain requirement, combined with the impacts of crossing the Appalachian Trail, necessitate a robust identification and evaluation of alternatives to the crossing.

Evaluation and re-routes of alternatives to pipeline construction in areas that have special recreational value is not a foreign concept. In fact, in past projects in the Upper Delaware where the Tennessee Gas Pipeline Northeast Upgrade Project was to cross the Delaware Water Gap National Recreation Area (NRA), it was decided by NPS and the pipeline operator to reroute a 7-mile detour around the NRA to avoid impacts inside the recreation area. Discussions with the Park indicated that an act of Congress would be required to expand the pipeline path across the NRA, even though an old existing TGP ROW was present at the time https://www.recordonline.com/article/20120601/News/206010352.

XIV. The Commission Artificially Narrows the Scope of the Proproposed Project in the EA and Improperly Conflates PennEast's Financial Need With Its Own Federal Purpose in Undertaking the EA.

NEPA requires that an environmental assessment "[s]hall include brief discussion of the need for the proposal" among other things.."[154] The statement of purpose and need is important because it informs the discussion of alternatives.[155]

FERC explains that "PennEast states . . . the purpose . . . would be to improve construction feasibility, address agency concerns, and minimize the potential for environmental impacts from those previously approved in the Certificated Project."[156] FERC states that its purpose under NGA Section 7(c) is to "consider all factors bearing on the public interest" including "financing, rates, market demand, gas supply, environmental impact, and other issues concerning a proposed project."[157] However, the EA largely adopts PennEast's purpose, which is improper. By focusing on the "Project Amendment" in a vacuum, FERC has violated NEPA by "contriving a purpose so slender as to define competing 'reasonable alternatives' out of consideration (and even out of existence)."[158]

Not only is there no need for the Project, contrary to PennEast's Claims, but data shows we are in a state of pipeline overbuild, with costs that will be passed on to consumers. FERC must assess whether the claims of need given this evidence of overbuild.

1. **PennEast's Claims of Need Are Unfounded.**

PennEast Pipeline company asserts its proposed pipeline is necessary to serve New Jersey and eastern Pennsylvania communities. In fact, there is no compelling public need for the gas. As noted in the attached expert report from Arthur Berman[123]:

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[154] 40 CFR 1508.9(b).

[155] 32 C.F.R. § 989.8(b) (Reasonable alternatives are those that meet the underlying purpose and need for the proposed action and that would cause a reasonable person to inquire further before choosing a particular course of action.).

[156] EA at 1.

[157] EA at 1.

[158] U.S. Army Corps of Eng'rs, 120 F.3d 664, 669 (7th Cir. 1997).

- "Natural gas consumption for New Jersey has been relatively flat for the past four years at average rate of 1.8 billion cubic feet of gas per day (Bcf/d), somewhat below the higher levels of the late 1990s. [] Although consumption increased slightly in 2013 compared to the three previous years, New Jersey cannot be called a growth market…."
- "The proposed PennEast Pipeline would deliver an additional 1 Bcf/d of natural gas to New Jersey potentially creating a 53% supply surplus above the current level of consumption."
- and "…Pennsylvania has no unfulfilled demand…"
- "Because of the lack of demand for Marcellus gas in Pennsylvania and adjacent New Jersey, it is possible that PennEast and its committed suppliers have an unstated intent to send gas to other markets not specified in their proposal…."

A second report done by Skipping Stone similarly finds a lack of need for the capacity of PennEast. According to this report, PennEast obtains many of its clients by commitments to switch from one pipeline to the other, which means unfilled excess capacity, not more needed gas delivered. According to Skipping Stone, similar to Labyrinth Consulting:[124]
"Local gas distribution companies in the Eastern Pennsylvania and New Jersey market have more than enough firm capacity to meet the needs of customers during peak winter periods. Our analysis shows there is currently *49.9% more capacity than needed to meet even the harsh winter experienced in 2013"*

This demonstration of a lack of need is complemented by the predictions and concerns of experts that the industry is proposing an "overbuild" of pipelines from the Marcellus and Utica shales:

- "Speaking to attendees at the 21st Annual LDC Gas Forums Northeast conference in Boston Tuesday, [RBN Energy LLC President Rusty] Braziel said an evaluation of price and production scenarios through 2021 suggests the industry is planning too many pipelines to relieve the region's current capacity constraints."
- "What we're really seeing is the tail end of a bubble, and what's actually happened is that bubble attracted billions of dollars' worth of infrastructure investment that now has to be worked off," Braziel said.[125]

Given the high level of impacts that will be inflicted by the PennEast pipeline on the water resources of Pennsylvania and that the project will necessarily be inflicting unavoidable and unmitigatable harm that will result in a violation of water quality standards, this lack of need for the PennEast pipeline project is of high relevance and significance to the decisionmaking process.

2. **There is Ample Evidence of Pipeline Overbuild.**

An expert report by Cathy Kunkel and Tom Sanzillo in April 2016, "Risks Associated with Natural Gas Pipeline Expansion in Appalachia," is another report that shines the light on considerations and habits such as overbuilding of this industry that need to be considered as FERC weighs more pipeline proposals bringing with it more wetland and stream cuts for this pipeline. To highlight, the report finds:

- *"Existing natural gas pipeline capacity is going underutilized, even as companies propose new pipelines. A 2015 report by the Dept of Energy found that from 1998 to 2013, existing pipelines in the US had an average capacity utilization of 54%".*

- *"Southwestern Energy in the Fayetteville shale of Arkansas and in Appalachia, predicts overbuilt pipeline capacity by 2018. And vice president for Marketing and Midstream Operations for Range Resources, one of the largest Appalachian shale drillers, has stated that Range expects that "the Appalachian Basin's takeaway capacity will be largely overbuilt by the 2016-2017 timeframe".*
- *"FERC facilitates over building…there is a lack of comprehensive planning process for natural gas infrastructure which attracts more capital into pipeline development than is necessary."*
- *"Kelcy Warren, CEO of Energy Transfer Partners (ETP), "the pipeline business will overbuild until the end of time. I mean that's what competitive people do" In a subsequent earnings call, he provided the specific example of the Barnett shale in TX: "there is no question there are certain areas that are overbuilt. For example, we overbuilt in the Barnett shale. The production peaked and it's now down."*

XV. FERC's Review of the Project Must Consider That This project Is Segmented and In Fact A Small Piece of A Bigger Plan

Piecemealing" or "segmentation" is the unlawful practice whereby a project proponent avoids the NEPA requirement that an EIS be prepared for all major federal actions with significant environmental impacts by dividing an overall plan into component parts, each involving action with less significant environmental effects.[159] Federal agencies may not evade their responsibilities under NEPA by "artificially dividing a major federal action into smaller components, each without a 'significant' impact."[160]

The general rule is that segmentation should be "avoided in order to insure that interrelated projects, the overall effect of which is environmentally significant, not be fractionalized into smaller, less significant actions."[161] Without this rule, developers and agencies could "unreasonably restrict the scope of environmental review."[162]

DRN has submitted in the past various considerations to take into account about this project in regard to segmentation and related pipeline projects. It is important and critical with such a proposed build out of pipelines in the Commonwealth to move natural gas abroad and to other markets, and with FERC's track record of this improper segmentation as evidenced in successful litigation brought by Delaware Riverkeeper Network.

XVI. FERC Failed to Fully Account for the Environmentally Important and Critical Lands that the Pipeline Will Go Through.

As stated in the attached expert report by Princeton Hydro[163]:

…along its path in both Pennsylvania and New Jersey, the proposed PennEast Pipeline will cross through environmentally important and critical lands. These include Pennsylvania State Game Lands (#40 and

159 *Taxpayers,* 819 F.2d 294, 298 (D.C. Cir. 1987).
160 *Coal. on Sensible Transp. v. Dole*, 826 F. 2d 60, 68 (D.C. Cir. 1987). *See also* 40 C.F.R. § 1508.27(b)(7)
161 *Town of Huntington v. Marsh*, 859 F.2d 1134, 1142 (2d Cir. 1988).
162 *Fund for Animals v. Clark*, 27 F. Supp. 2d 9, 16 (D.D.C. 1998) ("Fund").
163 Princeton Hydro White Paper

#128), Hickory Run State Park, Boulder Field Natural Area (a National Natural Landmark), Mud Swamp Natural Area, Weiser State Forest, Beltsville State Park, the Kittatinny Ridge, the Appalachian Trail Corridor, the Sourland Mountain Preserve, other State and County parklands, preserved farmland, and areas of cultural significance. Along the route the pipeline traverses steeply sloped areas characterized by erosion prone soils. Many of the affected areas provide critical habitat to a number of threatened and endangered species and species of concern including Bald Eagle, Harrier Hawk, Bobolink and other grassland bird species, Wood Turtle, Bog Turtle, Indiana Bat, Northern Long-Ear Bat, Brook Snaketail Dragonfly and Dwarf Wedge Mussel[164]

Many of the streams to be cut by the pipeline are designated Class A or wild trout streams which are an important natural and recreational resource for the state. In addition, the game lands, parks and natural areas are important to Pennsylvania's recreation and ecotourism driven economy. The Delaware Riverkeeper Network's River values report, attached, provides facts and figures on the wealth of income that is generated by Pennsylvania, as the result of fishing, hunting and wildlife viewing, including in areas to be impacted by PennEast. The report also discusses costs avoided – such as water quality remediation, stream restoration, and stormwater management projects – because of healthy forests, streamside lands, wetlands, etc.[165]

The Delaware Riverkeeper Network's dedicated group of volunteer monitors have witnessed and documented habitats and state threatened and endangered species such as vernal pools and talus slopes throughout the proposed PennEast pipeline route. In Pennsylvania, a volunteer documented an osprey nest on a telephone pole near MP 76.7. Ospreys are a state threatened species in PA. Between MP 43.5 and 44, we had reports of several vernal pools, wood frog egg masses, and springs and seeps.

It is a concern that in early April of 2016, we reviewed a report that PennEast representatives were seeking to gain access to a property to conduct bog turtle trapping. Bog turtle trapping, or Phase 3 surveys, should only be conducted between April 15th and June 15th according to the U.S. Fish and Wildlife Service. In this case, the PennEast representative was seeking to access the property prior to April 15th. In addition, the Delaware Riverkeeper Network has received reports of unmarked vehicles parking near private landowner property and unidentified men near the property claiming they were doing bog turtle surveys. It is our understanding that these men must be accompanied by at least one USFWS qualified bog turtle surveyor at all times. We have confirmed that there is a qualified bog turtle surveyor working at this site, but it is unknown if he is present at all times. When approached by landowners, the unidentified men are largely uncooperative in providing identification. PennEast representatives and their consultants should be providing identification as well as their scientific collecting permit when asked. Unmarked vehicles should also have a sign in the windshield identifying them as contractors when parked. This lack of clear communication arouses suspicion to landowners as they are unable to tell if these unidentified people are legitimate employees or trespassers. Premature granting of permits and limiting public participation in the process emboldens this kind of bad behavior and risks abuses by the pipeline company.

1. **The EA Fails to Adequately Address Impacts and Requirements Associated with PennEast's Proposed Crossing of the Appalachian National Scenic Trail**

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164 *The Short and Long-Term Consequences of the Construction of the PennEast Pipeline– A White Paper*, Princeton Hydro, LLC, July 2015.

165 *River Values: The Value of a Clean and Health Delaware River*, Delaware Riverkeeper Network, April 2010.

Instead of analyzing the requirements for and impacts of the proposed PennEast pipeline's crossing of the Appalachian National Scenic Trail ("ANST"), the Commission's short description in the EA relies almost exclusively on conclusory representations by PennEast and fails to satisfy NEPA. The Commission very briefly describes the proposed pipeline's crossing of the Appalachian National Scenic Trail ("ANST"), stating that "PennEast indicated that it does not require any additional authorizations for the Amendment Project to cross the ANST and acknowledges that construction across the ANST would not occur until all required permits and approvals have been received." EA at 7. These statements in the EA are pulled verbatim from PennEast's response to a FERC information request.[166] Neither FERC nor PennEast cites to any authority to show that the crossing is not on NPS land, an issue raised by DRN in scoping comments. Such unsupported, conclusory statements do not comply with NEPA.

As *Cowpasture River Preservation Association v. Forest Service* made clear, the ANST is NPS land: "Congress designated the ANST as a National Scenic Trail administered by the Secretary of the Interior, who delegated that duty to NPS. Accordingly, the ANST is land in the National Park System."[167] Even FERC has agreed with the noncontroversial point that NPS does not have authority to grant pipeline rights of way across the ANST.[168] NPS recognized as much in its comment letter submitted to FERC on February 27, 2015:[169]

Title 30 of the United States Code (U.S.C.) Section 185, Rights of Way for Pipelines through Federal Lands, specifically excludes units of the national park system and many other specifically protected federal properties from the Secretarial authority to issue rights-of-ways for petroleum product pipelines and associated facilities. The legislative history of the 1973 amendments to the Mineral Leasing Act [MLA] demonstrate that Congress clearly intended that National Park System units be exempt from a general grant of authority to issue oil and gas pipeline rights-of-way. The authorities for the National Park System to issue rights-of-way permits, Title 16 U.S.C. Sections 5 and 79, also do not include petroleum product pipelines as a utility to which a right-of-way permit may be issued. ***The NPS has no authority to permit the proposed pipeline crossing; therefore, the NPS recommends the assessment of existing utility corridors and crossings of the Trail in areas without NPS ownership as potential pipeline route alternatives to the proposed route.***

In *Cowpasture*, the pipeline company, FERC, and the Forest Service believed that, "[t]he MLA . . . prevents NPS from authorizing pipeline rights of way across components of the ANST on National Park System lands, but it does not prevent the Forest System from authorizing pipeline rights of way across components of the ANST on National Forest System lands."[170] However, the Federal Appellate Court disagreed,holding that the "Forest Service does not have statutory authority to grant pipeline rights of way across the ANST

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166 *Response to March 8 Data Request of PennEast Pipeline Company, LLC*, Dkt. No. CP19-78 (March 2019), FERC Accession number 20190328-5307 at Response 4, p. 4.

167 911 F.3d 150, 179 (4th Cir. 2018) (citing 16 U.S.C. § 1244(a)(1)), *cert granted*, 204 L. Ed. 2d 1193, 2019 U.S. LEXIS 4625, 2019 WL 4889930 (2019).

168 *See Cowpasture*, 911 F.3d at 179 (In connection with another proposed pipeline, "after NPS informed FERC that the entire [ANST] corridor [is] part of the ANST park unit and a unit of the National Park System, FERC's FEIS concluded that NPS is the lead federal agency for the administration of the entire ANST and that the ANST is a unit of the national park system.") (internal citations and quotations omitted).

169 *NPS Comment on Notice of Intent to prepare an Environmental Impact Statement for the PennEast Pipeline Project* (Feb. 27, 2017), FERC Accession number 20150227-5385 (emphasis added).

170 911 F.3d at 180.

pursuant the MLA."[171] The Court found that "the MLA concerns the *land*, not the agency" and that "[i]nterpreting the MLA as the Forest Service argues would give the Forest Service more authority than NPS on National Park System land. This defies logic."[172]

It appears, although it is not entirely clear, that NPS, FERC, and PennEast believed the workaround for this ANST crossing issue was a 2017 land exchange between NPS and the Pennsylvania Game Commission ("PGC") such that the proposed PennEast pipeline now crosses the ANST on lands owned by the PGC. EA at 81. However, the Commission fails to explain how this land exchange fares in light of *Cowpasture*. The reasoning of *Cowpasture* seems to apply to the PennEast ANST crossing as well -- neither the NPS nor the PGC would have authority to grant a pipeline right of way across the ANST, regardless of whether there are existing rights of way. Given the *Cowpasture* decision, it is likely that Congress needs to pass legislation to allow PennEast to cross the ANST, regardless of whether the trail crosses PGC lands. The Commission's failure to address this important issue is a NEPA violation that needs to be corrected and will be crucial to FERC's decision-making on PennEast's requested Amended Certificate.

2. **The Penneast Pipeline Proposal Is Not Consistent With The Lower Delaware River Wild & Scenic Designation Or Management Plan.**

While PennEast has carefully selected a reach of the Delaware River that does not yet have Wild & Scenic designation, it is a reach of river that is surrounded, upstream and downstream, by designated reaches. As a result, adverse impacts to the ecological and community health of the corridor and the River inflicted by the PennEast pipeline proposal will have direct impacts on the Lower Delaware River Wild & Scenic designation, which, contrary to PennEast's suggestion, cannot be simply ignored.[173]

The Lower Delaware River Wild & Scenic Management Plan specifically asserts that protection of the non-designation stretches of the Lower Delaware Wild & Scenic Corridor need the same consideration and protection as the designated reaches in order to ensure the important resources of the designated corridor are properly protected:
"To assure the protection of important resources in the corridor, the Study Task Force concluded that the Management Plan should cover a broader reach of the lower Delaware than that included in the area considered for Wild and Scenic River designation. The Task Force decided that one management plan should be developed covering (1) areas eligible for Wild and Scenic designation, (2) the area south of Washington Crossing, PA, and (3) excluded sections."[174]

In addition, the protected area includes all area between the "prominent ridge lines on both sides of the lower Delaware River" not just the River waters and channel itself. Thus as the PennEast Pipeline crosses through the Lower Delaware Wild & Scenic River corridor between the prominent ridge lines in Pennsylvania and New Jersey, it is clear that protection of the Wild & Scenic Lower Delaware River requires that the PennEast pipeline comply with the guidance, goals and vision of the Lower Delaware River Management Plan.

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171 *Id.* at 181.
172 *Id.*
173 25 Pa. Code 105.14(b)(10)
174 Lower Delaware River Eligibility Determination for DRBC Declaration of Special Protection Waters, Delaware River Basin Commission, August 2004.

XVII. Horizontal Directional Drilling Should be the Default Construction Method for Streams, Wetlands, Forests, and Communities

Pipeline projects can use a construction technique called Horizontal Directional Drilling ("HDD") to construct the pipeline underneath waterways and wetlands, avoiding impacts entirely. For this type of crossing, a specialized drill rig is used to advance an angled borehole below the stream or wetland to be crossed and, using a telemetry guidance system, the borehole is steered beneath the stream or wetland and then back to the ground surface. The hole is then reamed to a size, adequate for the pipe to pass through, and the pipeline is then pulled back through the bore hole.

The records are replete with examples of pipeline projects that have utilized this technology. For example, the Tennessee Gas Pipeline Company's use of this technology to construct its Northeast Upgrade pipeline project under the Delaware River. *See* 42 Pa Bulletin 7478-7482. Additionally, the Columbia Gas Pipeline used HDD under Exceptional Value wetlands and at least seven streams for the Eastside Expansion Project. *See* Permit E15-846. Indeed, Tennessee Gas Pipeline Company recently described the viability of HDD technology in its application to the Department for Orion Pipeline Project.

In fact, the PennEast pipeline project will use HDD to avoid impacts to 74% of the 189 road crossings it will encounter, but for the stream crossings, 75% will be accomplished using open cut methods that have the greatest potential to inflict water quality harm, and long term damage to the creek and its riparian buffer. And, of the seventeen stream crossing locations to be accomplished by HDD, only four are not associated with a road crossing – making clear that the reason for the HDD alternative at those locations is the existence of the road, not an effort to protect the creek. Clearly FERC has prioritized protecting roadways over protecting streams.

Forested riparian buffers, mature forested and scrub shrub lands and wetlands, steep slopes, should all be considered for HDD to ensure thermal impacts from cutting mature forest that will take decades or longer to grow back is critical and these habitats should get the same treatment infrastructure and roads receive.

At the same time with HDD, the operator should analyze multiple resources crossings for HDD that are in close proximity. This is a recommendation by the stakeholder group for wetlands in Pennsylvania after the Mariner East 2 spills. Too often the operator will suggest they can drill (HDD) under a road but not continue the HDD through a forested wetland or scrub shrub wetland or forest complex. This type of piecemeal construction cannot be accepted and Pennsylvania is recognizing this point through the recent stakeholder process.

Failing to mandate primary consideration and discussion of an HDD construction alternative for each and every wetland and waterway crossing fails to undertake the alternatives analysis mandated by NEPA. Indeed, in Pennsylvania HDD under exceptional value wetlands is required by the Pennsylvania Code.

Due to harm caused by open pipeline cuts, DRN believes that the use of horizontal directional drilling (HDD) or other trenchless crossing methods underneath the water resources and forests should be employed to greatly minimize harm and disturbance to the surrounding environment. The Final EIS only proposed HDD at 17 locations. The Revised Route removes one of the HDD locations so the total is now only 16. By

requiring HDD or another method of trenchless crossing and limiting soil disturbance, there will ultimately be less potential for erosion and sediment violations to the surrounding waterbodies and less short and long term environmental problems including but not limited to: soil stabilization, increased stormwater runoff, hydrologic changes to wetlands, disturbed soil profiles, changes in micro-topography and micro-habitat, irreparable compaction of soils, destruction and disturbance of benthic and fish spawning habitat, thermal impacts from loss of tree cover, habitat loss, forest fragmentation, invasive species introductions, and disturbance of amphibian activity.

XVIII. PennEast Should be Required to Obtain a NPDES Permit For Construction of the Project

There are numerous instances of unlawful sediment discharges from pipeline construction projects across the US. These discharges trigger then need for pipeline applicants, such as PennEast, to obtain a National Pollutant Discharge Elimination System ("NPDES") permit for construction of the project. Based on PennEast's proposed construction activities, sediment discharges into waters of the United States is inevitable. As such, PennEast must apply for a NPDES permit prior to these construction activities or it is highly likely that it will violate the Clean Water Act, and be exposed to significant civil penalties.

A NPDES permit would provide greater protections for state wasters as opposed to the state permits PennEast is required to obtain for construction purposes. NPDES permits require additional environmental protections, more exact stormwater volume calculations, additional riparian buffer protections, more public participation opportunities, and higher enforcement penalties. NPDES permits also subject permittees to stricter and more publicly accessible record keeping requirements, allowing for the public to inspect and monitor a project's compliance with the Clean Water Act.

Another pipeline, Mariner East II, serves as a cautionary tale. Mariner East II is an industrial-scale natural gas liquids pipeline Sunoco is constructing across Pennsylvania. Throughout the construction of the Project, Sunoco has been responsible for multiple, unlawful discharges of sediment-laden water and other pollutants into the streams and waters of the United States in a number of counties across the Commonwealth of Pennsylvania. These unlawful discharges are documented by hundreds of inspection reports issued by the Pennsylvania Department of Environmental Protection, the county conservation districts and Sunoco itself. Twice the construction of the Project has been shut-down by orders issued by, respectively, the Pennsylvania Environmental Hearing Board and the Department. In its Mariner East II lawsuit,[175] DRN is arguing that Sunoco is required to have an NPDES permit because the CWA requires such a permit when there is a discharge of a pollutant to the Waters of the United States. 33 U.S.C.A. § 1311. As a result of Sunoco's admitted, repeated,continuous violations of water quality standards, the CWA does not afford Sunoco an exception to the NPDES permit requirement for the Project. People of the state deserve assurance that such disastrous impacts to their community and recreational environment will not occur again.

XIX. There are Numerous Gaps in the Data on the Whole Project That the EA Failed to Remedy

The information on the record regarding the proposed Project is completely inadequate for FERC to meaningfully assess, the true scope of environmental and community impacts that the project would inflict. PennEast's applications are missing a tremendous amount of information.

[175] DRN v. Sunoco Pipeline L.P., Case 2:18-cv-02447-PD, (E.D. Pa.).

In addition to the missing and deficient information identified above, Delaware Riverkeeper Network experts have identified a multitude of deficiencies, inaccuracies, and missing information discussed in the attached reports including, but not limited to, the following missing information:

1. The layout of the proposed preferred route and the Bucks County Alternative fails to show the lateral pipeline to the proposed Gilbert Interconnect which requires crossing the Delaware River;
2. Full evaluation of alternatives given their watershed protection benefits;
3. The applications fail to consider the environmental ramifications of the open trenching method of wetland crossings, including impacts to groundwater flows that are so vital to the majority of wetlands impacted by this project;
4. The applications fail to disclose sufficient details about proposed water sources for hydrostatic testing;
5. HDD crossing plans including specific crossing area, specific methods to be used, location of mud pits, pipe assembly areas, all areas to be disturbed and/or cleared for construction, containment plans for spills, contingency plans, etc.;
6. HDD water discharge details including the specific volume of anticipated discharge, discharge method and impacts on receiving streams;
7. Standards used to guide HDD water withdrawals without preventing impacts on downstream ecological or human uses and needs;
8. The applications should provide a table of bedrock aquifers that includes relevant properties, including specific capacity statistics or well yields, and conductivity where available.
9. The applications needs to include map, analysis and evaluation of the recharge, runoff, pollution, vegetation, habitat, soil and erosion impacts resulting from the combination of soil type, slope, compaction potential and depth to bedrock for each section of pipeline along the proposed preferred route as well as alternatives.
10. The applications should include a complete inventory of springs and seeps within a quarter mile of the pipeline to adequately consider the changes which could occur due to pipeline construction.
11. The applications should present the result of a final karst study for the area and present plans for mitigating problems caused by constructing through karst or caused by rapid contaminant transport within karst.
12. The applications should include data or information regarding the mineral content of the soils to be crossed by the proposed pipeline and the results of leaching tests that should be required.
13. The applications should assess the potential for pipeline construction to generate acid generation or leach metals in all areas where it crosses mine spoil.
14. The applications should present avoidance and mitigation discussions focused on preventing the leaching and transport of acid and metals from the site.
15. The applications should provide a plume map of groundwater contamination and a map showing soils contamination from the Palmerton Zinc Pile Superfund site and assess the implications of the various proposed pipeline routes for water, groundwater and drinking water contamination.
16. The applications failed to consider: how pipeline construction and operations could affect recharge and shallow groundwater flow in aquifers near the proposed pipeline; preferential flow caused by trenching in the aquifer; potential contaminant transport enhanced by trenching; groundwater drawdown caused by trenching.

17. The applications fail to consider how the project construction would affect recharge rates, which are highly variable with the underlying geology, soil type and thickness, and topography controlling the actual recharge location.
18. The applications fail to consider the pipeline trench as a pathway for contamination.
19. The applications fail to define and analyze a reasonable range of alternatives.
20. The applications fail to account for the public health impacts of the proposed Project.
21. The applications fail to include an analysis of ecosystem services lost due to the construction, operation and maintenance of the pipeline.
22. The applications fail to require sufficient information to determine the potential extent of blasting at each stream or wetland crossing.
23. The applications fail to consider site-specific conditions to determine whether blasting in stream channels may be required.
24. The applications fail to address that proposed pipeline construction practices and long- term maintenance of the ROW in a non-forested condition will alter land surface conditions and result in greater stormwater impacts.

XX. FERC Must Demand More Evidence and Higher Standards to Ensure that Construction of PennEast Will Result in Minimal Destruction, As DRN Field Monitoring and Documentation of the Reality of Pipeline Construction, Operation & Maintenance – Both In Compliance with the Law and In Violation of the Law – Shows These Projects Irreparably Harm Rivers, Wetlands and Streams With the Current Standards.

FERC cannot rubber stamp another project on the basis that it will comply with its Plan and Procedures and will therefore not cause environmental damage or degradation. Such an assessment is presumptive that (1) the Plans and Procedures in place will actually prevent damaging environmental impacts and (2) the pipeline in construction and operation will follow the plans without fail.

PennEast contends that the Project will be constructed in full compliance with all applicable state laws, and that in temporary workspaces and restored areas the natural landscape will return to its former, or some altered but healthy ecological status. In fact, experience shows that neither is true. The Delaware Riverkeeper Network has found that the construction methods proposed necessarily result in environmental harms and failures of mitigation/restored areas to return to ecological health.

As the result of document reviews and field investigations during construction of three sections of pipeline -- the TGP 300 line upgrade, TGP Northeast Upgrade Project (NEUP), and Columbia 1278 pipeline -- in the Upper Delaware River Basin the Delaware Riverkeeper Network documented:

- over 60 instances where best management practices (BMPs) were not present, inadequate or not functioning or in need of repair, maintenance or reinforcement,
- 4 instances of fueling being conducted in wetlands or near waterbodies,
- dozens of instances of poor signage and staking and mapping errors which sometimes led to impacts off of the permitted Right of Way (ROW), loss of trees outside the ROW, and inaccurate mitigation calculations,
- thermal impacts, extreme (and unreversed) soil compaction, nutrient impacts, benthic invertebrate changes from pipeline cuts, including for streams with exceptional value, high quality and or C-1 anti-degradation classifications,

- discrepancies between pipeline company monthly compliance reports and what work and activities to meet compliance and avoid pollution were actually occurring or not occurring on the ground. We also noted excessive lag time in the filing and/or public release of construction reports making for difficult follow up in the field. DRN documented too few pipeline inspectors and a lack of oversight person-power for these extensive linear projects that spanned many miles and where work was going on simultaneously along the routes with little independent oversight.

Based on first hand observations and monitoring, the Delaware Riverkeeper Network has concluded:

- Interstate natural gas pipeline projects result in a multitude of environmental impacts that inflict high levels of unnecessary ecological damage – this damage is not avoided, nor properly mitigated, despite the resource reports that are drafted or the guidance provided by FERC or other federal or state agencies;
- Violations of environmental laws are common place and an accepted part of pipeline construction – and compliance outweighs penalties and violations to the detriment of the environment and the public;
- Construction problems and potential violations are not properly responded to by the company, by FERC or by other state or federal agencies and mitigation does not undo the harms inflicted -- as a result of both, pipelines inflict enduring and/or repetitive harms on natural resources; and
- Current or proposed guidance from FERC or other regulatory agencies do not prevent, avoid, or otherwise mitigate these ecological and public harms or the multitude of bad practices used by the pipeline companies.

Attached please find: *Field Monitoring Report, Pipeline Construction & Maintenance Irreparably Harms Rivers, Wetlands and Stream., Addendum to Comment for the PennEast Pipeline*, a compilation of Delaware Riverkeeper Network generated technical documents, reports and observations compiled as the result of field monitoring which support, inform and expand upon these conclusions. Our observations in the field demonstrate and document that construction, operation and maintenance practices like those being proposed by the PennEast pipeline company, even when followed in full compliance with regulatory standards, results in unavoidable, unmitigated and irreparable harm and violations of state water quality standards and wetlands protections. In addition, DRN monitoring has documented that over and above these impacts, violations of law are commonplace during pipeline construction, operation and maintenance and as a result the violations of law, including water quality standards and wetland protections, are further exacerbated. FERC's environmental assessment analysis needs to build in a consideration of the inevitable impacts and implications of construction activity for the project that will necessarily involve violations of the laws governing the construction activity.

It is impossible for the public or FERC to meaningfully assess the impacts of this project as currently presented, and is unacceptable for FERC to allow this deficient and segmented information to constitute its environmental review.

Conclusion

FERC's determination that PennEast will not have a significant impact on the environment and communities is unacceptable and unsupported by the information on the record. The comprehensive and lengthy list of devastating impacts and deficiencies in PennEast's materials and FERC's environmental review make it obvious that FERC did not conduct the kind of independent, rigorous review anticipated or mandated by

NEPA. The EA is filled with key data gaps, misrepresentations, missing information, inaccurate information, false information, and conflicting information and is likewise based on submissions from PennEast that are filled with data gaps, misrepresentations, misinformation, missing information, inaccurate information, false information, and conflicting information. The quality of the EA is so poor that it cannot support any conclusion whatsoever, other than there is a need for a draft EIS that is subject to the rigors of the public process prior to advancement to the final EIS stage.

Construction, operation, and maintenance of the PennEast pipeline would inflict significant, irreparable and long-term effects on waterways, wetlands, groundwater, floodplains, soils, plants, animals, habitats, and people. The PennEast pipeline also is facing severe scrutiny by NJDEP, and the Delaware River Basin Commission is still undertaking its review. Pipelines using the construction techniques proposed by PennEast, have inflicted stream, wetland, water quality and groundwater degradation even when they abide by FERC plans and procedures-- clearly it is not enough for PennEast to mimic the same failed practices. There is no need for FERC to once again rush through and rubber stamp an environmental assessment with the significant impacts this project will have.

It is clear that this EA cannot be relied upon by any government agency, not FERC, not the US Fish & Wildlife Service, not the U.S. Environmental Protection Agency, not the PA Department of Environmental Protection, not the Delaware Department of Natural Resources and Environmental Control, not the Delaware River Basin Commission for evaluation or decision-making purposes.

Finally, DRN would like to reiterate that given the lack of need; the high level of environmental, community, and economic harm that will be inflicted; the use of eminent domain purely for private gain; and the threat and harms to the health, safety, and natural resources of the communities impacted as well as to future generations, this Project as amended cannot be said to meet the standards for FERC to issue a Certificate of Public Convenience and Necessity and should be denied.

In addition to this comment, the Delaware Riverkeeper Network resubmits to FERC our previously submitted comments and expert reports regarding the PennEast Pipeline Project for consideration and inclusion on the current record. We are also enclosing comment and expert reports by Delaware Riverkeeper Network for similar large transmission pipeline projects that include additional data that should be considered – since the pipelines' construction techniques are similar in nature to other pipeline applications being considered and the regulations and policies are largely the same. Therefore, the questions, concerns, impacts and outcomes submitted regarding, and/or experienced by, other pipelines is of direct relevance and concern to the current PennEast pipeline proposal and should be considered in the context of PennEast -- i.e. we would anticipate that PennEast will suffer the same outcomes as these other pipeline projects given the parallels in construction practices proposed and the applicable laws in place.

Sincerely,

Maya K. van Rossum
the Delaware Riverkeeper
Delaware Riverkeeper Network

Attachments:

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5. *Review of PennEast Pipeline Application for Chapter 102 and 105 Permits*, Michele Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, March 2019.
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8. *Comments Regarding PennEast DEIS FERC Docket no. CP15-558*, Delaware Riverkeeper Network, September 12, 2016
9. Letter dated September 9, 2016 written by Schmid & Company, Consulting Ecologists to Maya K. van Rossum, the Delaware Riverkeeper.
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22. *Delaware Riverkeeper Network v. PADEP, Tennessee* Gas, Environmental Hearing Board, Michelle Adams affidavit, December 17, 2012.
23. *Technical Memorandum, Review Application Materials, Proposed PennEast Pipeline*, Dr. Tom Myers, June 6, 2016
24. *Technical Memorandum, Review of Surface water Withdrawal and Discharge Permit, Delaware River Basin Commission, Proposed PennEast Pipeline*, Dr. Tom Myers, November 30, 2016.
25. *White Paper: Pipelines A Significant Source of Harm*, Delaware Riverkeeper Network,
26. *Delaware Riverkeeper Network v. PADEP, Tennessee* Gas, Environmental Hearing Board, Peter Demicco affidavit, December 17, 2012.
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28. *Drinking Water, Arsenic, and Natural Gas Pipelines*, Julia L. Barringer, PhD.
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34. Appendix 1: Table A-1. Active, proposed and reported natural gas wells in Pennsylvania, by county.
35. Letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.
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38. *The Effects of the Proposed PennEast Pipeline on Exceptional Value Wetlands in Pennsylvania, Prepared for the Delaware Riverkeeper Network,* Schmid and Company, July 2016.
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