

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

PennEast Pipeline Company, LLC) Docket No. CP15-558-000

**REQUEST FOR REHEARING OF DELAWARE RIVERKEEPER
NETWORK**

Pursuant to Rule 713 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission (“Commission”), 18 C.F.R. § 385.713 (2010), Delaware Riverkeeper Network (“DRN”) hereby requests rehearing and rescission of the Commission’s January 19, 2018 Order (“Order”) granting a Certificate of Public Necessity and Convenience (“Certificate”) to PennEast Pipeline Company, L.L.C. (“PennEast”) to construct the PennEast Pipeline Project (“Project”). DRN seeks rehearing and rescission of the Commission’s Order because the environmental review underlying the conclusions in the Order fails to meet the requirements of the National Environmental Policy Act (“NEPA”), 42 U.S.C. § 4321 et seq. (2006), and its implementing regulations, 40 C.F.R. Pts. 1500-08. Based on this flawed environmental review, the Commission improperly determined that the public benefits of the Project outweigh its adverse impacts, thus violating the Natural Gas Act, 15 U.S.C. §§ 717f (2006) and its implementing regulations, 18 C.F.R. Part 157 (2011).

I. STATEMENT OF RELEVANT FACTS

On September 24, 2015, PennEast filed an application pursuant to section 7(c) of the Natural Gas Act (“NGA”) and Parts 157 and 284 of the Commission’s regulations, requesting authorization to construct and operate a new 116-mile natural gas pipeline from Luzerne County, Pennsylvania, to Mercer County, New Jersey, along with three laterals extending off the mainline, a compression station, and appurtenant above ground facilities (“PennEast Project”). The project is proposed to carry up to 1,107,000 dekatherms per day (Dth/d) of natural gas. PennEast also requested a blanket certificate under Part 284, Subpart G of the Commission’s regulations to provide open-access transportation services, and a blanket certificate under Part 157, Subpart F of the Commission’s regulations to perform certain routine construction activities and operations.

According to the Environmental Impact Statement (“EIS”), construction of the project will 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). According to the EIS, the project will at least cut 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. These

impacts are sorely understated, incomplete, and misrepresent the footprint and damage that would be inflicted if the PennEast pipeline were built.

DRN submitted numerous comment letters and expert reports during the public comment period identifying numerous deficiencies in the Commission's review of the Project. These deficiencies have not been accounted for in any supplemental filings by the applicant or in the Order itself. As such, the Commission's action is arbitrary, capricious, or otherwise not in accordance with the law.

For the reasons explained below, the Commission's environmental review fails to meet the requirements of NEPA, 42 U.S.C. § 4321 *et seq.* (2006), and its implementing regulations, 40 C.F.R. Pts. 1500-08. The EIS cannot serve as the basis for an adequate hard look at the Project's environmental impacts or need for the PennEast Project. Based on this flawed environmental review, the Commission cannot determine that the public benefits of the proposed Project outweigh its adverse impacts, thus violating the NGA, 15 U.S.C. §§ 717f (2006) and its implementing regulations, 18 C.F.R. Part 157 (2011).

DRN asserts that the Project is not required for the public convenience and necessity. Based on its flawed and incomplete EIS and unjustified conclusions, the Commission violates the NGA and its implementing regulations by determining that the public benefits of the Project outweigh its adverse environmental impacts.

II. BASIS FOR REHEARING

The Commission violated NEPA by granting the Certificate for construction of the Project without properly applying the NEPA regulations in evaluating the significance of the Project's impacts. NEPA is a planning statute that requires the Commission, prior to undertaking a major federal action such as issuing the Certificate on the Project, to evaluate that project's impacts on the natural environment. 42 U.S.C. § 4332. It emphasizes the importance of a comprehensive environmental analysis to ensure informed decision-making and that "the agency will not act on incomplete information, only to regret its decision after it is too late to correct." *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 371 (1989). The twin goals of NEPA are to 1) obligate federal agencies to consider every significant aspect of the environmental impact of a proposed action and 2) ensure that the agency will inform the public that it has truly considered environmental concerns in its decision-making process. *Balt. Gas & Electric Co. v. Natural Res. Def. Council*, 462 U.S. 87, 97 (1983). Under NEPA, federal agencies are required to take a "hard look" at environmental consequences prior to a major action in order to integrate environmental consequences into the decision making process. *Kleppe v. Sierra Club*, 427 U.S. 390, 410 n. 21 (1976). NEPA does not mandate that an agency choose a particular alternative course of action. Rather, as a procedural statute, its entire purpose is that the agency – and the public – be informed of an

agency's rationale and the environmental impacts the selected alternative will have. *See Marsh*, 490 U.S. at 370-71.

DRN raised substantial questions, and brought forth significant evidence of inaccurate, missing and misleading information, supported by reports from technical experts, as to whether the Project will have significant impacts on the human environment. The Order's adoption of the deficient analysis in the EIS through its Order and its inadequate response to comments raising substantial questions on the significance of the Project's impacts proves that the Commission failed to take the "hard look" at the Project's impacts, in violation of NEPA. *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989).

Contrary to the findings made by the Commission, DRN asserts that the Project is not required for the public convenience and necessity. Based on its flawed and incomplete EIS, the Commission violated the NGA and its implementing regulations by improperly determining that the public benefits of the Project outweigh its adverse environmental impacts. *See Order* at ¶ 17.

Concise Statement of the Alleged Errors in the Order

The Commission Erred because the EIS is unable to support its conclusion that construction of PennEast as proposed by the company and FERC will not have significant adverse environmental impacts

The Commission erred because the EIS assertion of need is contradicted by the preponderance of the evidence and is largely a statement of industry desires rather than public need

The Commission erred because the EIS fails to consider cumulative impacts across the Project and across multiple other projects, including the source and end use of the natural gas

The Commission erred because the induced shale gas production and impacts must be considered by the EIS

The Commission erred because the economic benefits asserted in the EIS are indefensible and unsupported, and the economic harms are entirely overlooked

The Commission erred because the EIS fails in its legal obligation to consider greenhouse gas emissions and climate change implications of the PennEast Pipeline

The Commission erred because the EIS Alternatives Analysis is fundamentally flawed

The Commission erred because of the continued use of Segmentation in this EIS is improper

The Commission erred because the EIS fails to address comments and experience that shows use of standard constructions practices will result in environmental violations and degradation

The Commission erred because the DRBC's legal authority is misrepresented in the EIS – thereby misleading the public and decision-making officials

The Commission erred because the EIS data and information gaps makes the document legally deficient and incomplete – a new and complete Supplemental EIS is required

The Commission erred because the EIS is filled with assertions that are false, inaccurate, misleading and/or deficient

The Commission erred because the EIS is riddled with Threatened and Endangered (T&E) species data that is inconsistent, wrong, missing, or misleading thus failing to establish an effective baseline for the review

The Commission erred because the EIS is legally inadequate in its failure to consider alternative routes or construction practices that could avoid and/or mitigate harm

The Commission erred because the EIS fails to undertake a complete and accurate analysis of the economic impacts of the PennEast Pipeline if constructed

The Commission erred because the EIS fails to undertake a healthy and safety impacts analysis of the PennEast Pipeline if constructed

The Commission erred because the construction of the PennEast Pipeline will bring demonstrable threats and harms to life, property, property rights and riparian rights

The Commission erred because the Commission regularly issues letter orders to proceed with tree felling construction activity prior to the issuance of the Clean Water Act Section 401 water quality certifications

The Commission erred by failing to provide an accurate baseline from which to conduct its environmental review of the Project

In addition to the errors identified by DRN, the Commission also erred by relying on inaccurate or incomplete information as identified by other parties on the Commission's docket

Statement of Issues

The subsections below correspond to the numbered paragraphs in Part II.A., above, and set forth DRN's position with respect to the identified issues. DRN submitted substantial comments to the Commission, and hereby incorporates by reference all arguments, evidence, and reasoning contained in DRN's comments submitted to the Commission, and the letters submitted by other parties to the Commission for this request for rehearing.

III. ARGUMENT

- 1. The Commission Erred because the EIS is unable to support its conclusion that construction of PennEast as proposed by the company and FERC will not have significant adverse environmental impacts**

FERC asserts in its DEIS:

“We determined that construction and operation of the PennEast Project would result in some adverse environmental impacts. Most of these impacts would be temporary or short-term during construction and operation, but long-term and potentially permanent environmental impacts on vegetation, wetlands, and individual fish and wildlife species would also occur as part of the Project. However, if the Project is constructed and operated in accordance with applicable laws and regulations, the mitigating measures discussed in this EIS, and our recommendations, most of the adverse impacts would be reduced to less than significant levels.”

While FERC argues that it used information from outside sources to reach this conclusion, it is clear on the record that FERC adopted, whole cloth, PennEast’s information, filings, characterizations, language, assertions, information and conclusions, without providing due weight to the expert reports and comment letters that expressly contradict those findings. FERC did not conduct the kind of independent, rigorous review anticipated or mandated by NEPA.

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). When preparing an EIS, an agency must take a detailed, “hard look” at the environmental impact of and alternatives to the proposed action. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989). This required analysis serves to ensure that “the agency will not act on incomplete information, only to regret its decision after it is too late to correct.” *Marsh v. Oregon Natural Res. Council*, 490 U.S. 360, 371 (1979).

NEPA also “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.” *Robertson*, 490 U.S. at 349. As NEPA’s implementing regulations explicitly provide, “public scrutiny [is] essential to implementing NEPA.” 40 C.F.R. § 1500.1(b). 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. *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).

An EIS must fully assess and disclose the complete range of environmental consequences of the proposed action, including “ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, [and] cultural” impacts, “whether direct, indirect, or cumulative.” 40 C.F.R. §§ 1502.16(a), (b); 1508.8. Direct effects are “caused by the action and occur at the same time and place.” 40 C.F.R. § 1508.8(a). Indirect effects are those impacts that are caused by the action, but occur “later in time or farther removed in distance, but are still reasonably foreseeable,” and may include “growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.” 40 C.F.R. § 1508.8. Cumulative impacts are “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. ” 40 C.F.R. § 1508.7 (emphasis added). As the regulations make clear, “[c]umulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” *Id.* In

addition, NEPA requires FERC to take a hard look at the ways to avoid or mitigate the Projects' impacts.

NEPA is an “environmental full disclosure law.” *Monroe Cnty. Conservation Council, Inc. v. Volpe*, 472 F.2d 693, 697 (2d Cir. 1972). 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.” *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 information provided to the public “must be of high quality” because “[a]ccurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.” 40 C.F.R. § 1500.1(b). The potential adverse effects of the PennEast Project cannot be adequately analyzed without complete data on all affected resources. However, as described below the EIS and Order falls short in a significant number of areas.

As evidenced by DRN’s comment letters and expert reports, as well as comments from other engaged parties, the EIS does not contain the complete or accurate information required to reach this asserted conclusion, or any meaningful conclusion for that matter. The EIS is filled with key data gaps, misrepresentations, misinformation, missing information, inaccurate information,

false information, and conflicting information and is likewise based on submissions from PennEast that are similarly filled with data gaps, misrepresentations, misinformation, missing information, inaccurate information, false information, and conflicting information. The quality of the EIS is so poor that it cannot support any conclusion whatsoever, other than there is a need for a Supplemental EIS.

In addition, it is clear that this EIS cannot be relied upon by any government agency, not FERC, not the US Fish & Wildlife Service, not the U.S. Army Corps of Engineers, not the U.S. Environmental Protection Agency, not the NJ Department of Environmental Protection, not the PA Department of Environmental Protection, and not the Delaware River Basin Commission for evaluation or decision-making purposes. And for any agency to do so would subject them to successful legal challenge.

In addition to the immense deficiencies and inaccuracies in the FERC EIS, it is unreasonable that FERC could determine that the PennEast Pipeline will not have a significant impact on the environment and communities, with or without the mitigation FERC postures given the reality of the harms.

The information that has been garnered from the EIS materials, the filed resource reports, filings with other regulatory agencies, that were then vetted, analyzed and in some cases field verified by third party experts and DRN

demonstrates that this project will inflict substantial adverse environmental and community impacts regardless of implementation of the supposed mitigation recommended by FERC. In addition to the comments specifically discussed here, the expert reports filed herewith include a number of other factual and legal deficiencies that are adopted by DRN and incorporated by reference.

2. **The Commission erred because the EIS assertion of need is contradicted by the preponderance of the evidence and is largely a statement of industry desires rather than public need**

The EIS asserts the proposed pipeline is necessary to serve New Jersey and eastern Pennsylvania communities and some unidentified “surrounding states.” It is asserted that the project is needed to “provide low cost natural gas produced from the Marcellus Shale region.” The EIS further asserts that there is a need to displace Gulf Coast gas with cheaper and reliable access to Marcellus shale gas. It is claimed that there is a need for the project in order to “provide enhanced competition among natural gas suppliers and pipeline transportation providers.” The EIS also asserts there is a need in order to allow “supply flexibility”, “diversity”, “reliability”, better pricing, and to allow direct access to long lived dry gas reserves.

However, none of these explanations sufficiently establish the public “need” for the project. Rather, these explanations merely demonstrate a desire by PennEast to be able to provide a different source of gas so it can make money. These are

very clearly private corporate goals and gains. This is demonstrated by the self-dealing nature of the underlying shipping contracts.

Independent analysis clearly shows that there simply is no need for the gas PennEast would carry to New Jersey and Pennsylvania, as both states are sufficiently supplied. And to the degree that PennEast wants to assert it is delivering the gas to other unknown, unidentified states in order to fulfill a need, in order to substantiate this claim and subject it to the public process that is required by NEPA, more detail is required that actually identifies the states and the users.

As noted in DRN's expert report from Arthur Berman:

“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....”

“There is no evidence...that more gas supply [would] result[] in lower costs to consumers” “All leading companies in the Marcellus and Utica plays reported net losses for the second quarter of 2015”.

A second report issued by Arthur Berman further clarifies that¹:

“There is no evidence...that more gas supply [would] result[] in lower costs to consumers”

“All leading companies in the Marcellus and Utica plays reported net losses for the second quarter of 2015”

“U.S. gas production is declining and shale gas output is down almost 2.5 Bcf per day”

An additional expert report generated 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:

“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 complimented by the predictions and concerns of experts that the industry is proposing an “overbuild” of pipelines from the Marcellus and Utica shales:²

¹ Berman, Arthur, *PennEast Opinion Updated*, Petroleum Geologist, Labyrinth Consulting Services, Inc., September 11, 2016

“Speaking to attendees at the 21st Annual LDC Gas Forums Northeast conference in Boston Tuesday, 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.

Lack of “need” for gas in Pennsylvania is also asserted by a Labrynth Consulting reaction to an industry report advocating for more pipelines in the region to fulfill an asserted need for gas and to reduce prices in the region. In this responsive analysis the assertion of a need for the gas was proven false with the following facts: “First, Pennsylvania exported 3.23 Bcfd to other regions of the country in 2015 an amount almost equal to its 2014 consumption of 3.3 Bcfd. There is plenty of existing pipeline capacity to meet Pennsylvania’s demand and enough left over to send out of the state.”

The assertion that PennEast is intended to provide “enhanced competition” and cheaper pricing for industry users is not a need – it is a corporate desire. It is an abuse of process and power for FERC to allow PennEast to claim that cheaper prices and setting up the PennEast companies to better compete with other industries fulfills the requirement of “need.” Approving construction of a pipeline project, granting it exemption from state and local laws, giving it the power of

² *Marcellus/Utica on Pace for Pipeline Overbuild, Says Braziel*, Natural Gas Intelligence, June 8, 2016

eminent domain, so it can take private property, so it can take publicly preserved parks, forests and natural lands, in order to inflict un-mitigatable and irreparable harms, all so the pipeline company can achieve its independent goal of greater profits and so other industries can reduce operating costs while subjecting communities to the threat and reality of pipeline accidents, incidents and explosions (which happen with concerning regularity), as well as subjecting them to the environmental and economic ramifications of a pipeline, does not characterize a legitimate need that warrants the property takings and associated harms.

The contention that PennEast is necessary to provide greater reliability is also not a “need.” There is no evidence that New Jersey, Pennsylvania, and the undisclosed other states do not have reliable access to energy sources, gas or otherwise. The reports above document that in fact both states are already fully and reliably served. It is incumbent upon PennEast to demonstrate there is a reliability problem, and that the proposed project will necessarily ameliorate this problem. They have not done so.

Regarding the claim that PennEast is “needed” to provide direct access to long lived reserves, this claim is neither explored nor demonstrated by the EIS document. In fact, there is a wealth of analysis which documents that shale gas will soon be on a swift decline and as such is not in fact a long term reliable source

of energy; to the contrary it is a short term fix that will quickly run dry and require replacement with other energy sources. As the Post Carbon Institute's *Drilling Deeper* report fully documents, the shale gas and tight oil industries have a short life, one that is only a few decades long.³ Multiple experts reach similar conclusions when reflecting on EIA figures, current production rates, and other objective data, *e.g.* findings of Labrynth consulting when reacting to a recently released report titled, "A Pipeline For Growth" found: "Official EIA proven developed producing shale gas reserves for the Marcellus Shale are 84.5 trillion cubic feet (Tcf) and, for the Utica Shale, 6.4 Tcf (Table 1). That suggests approximately 18 years of supply at current production rates. There are approximately 27 years of supply including proven undeveloped reserves (PUD)."

Construction of a 40 year pipeline for an energy source that will peak by 2020 and be on decline thereafter is irrational and cannot be said to fulfill the definition of a "need."

The claim that this pipeline is "needed" in order to provide lower cost gas to New Jersey and Pennsylvania customers is not a "need", but in addition, it cannot be an expected outcome of this project. The construction of the PennEast pipeline may, to the contrary, contribute to an increase in gas prices for many in PennEast's identified service area.

³ <http://www.postcarbon.org/publications/drillingdeeper/>

Natural gas prices are lowest in the regions in which gas is produced. For many years, the lowest natural gas prices in the East were found at Henry Hub, located near the Gulf of Mexico where much of the natural gas in the United States was produced. With the increase in shale gas production, however, the lowest natural gas prices in the country are now found at trading points in and around the Marcellus and Utica shale plays in Pennsylvania, West Virginia, and Ohio. Availability of pipeline infrastructure to send natural gas to other regions has a direct impact on the price of natural gas in those regions—greater gas take-away capacity allows more natural gas to be produced, and an increase in supply will lead to a decline in price in those regions that receive additional gas. The improved access to higher priced markets via additional pipeline infrastructure will raise the price of natural gas in the producing region, which also will increase production – in this case the producing region is Pennsylvania, therefore it is not a given that prices would in fact reduce. In addition, while generally speaking increasing the supply in a nonproducing region (such as NJ) from a lower cost producing region (Pennsylvania) may be expected to lower prices in the downstream market, one recent study discussed and submitted during public comment that was specific to the PennEast Pipeline showed how gas rates for some customers in NJ may increase due to other pipelines increasing their transportation rates.⁴

⁴ Lander, Gregg. “*Analysis of Public Benefit Regarding PennEast Pipeline*”, New

The claim that increased pipeline capacity will necessarily result in reduced gas prices is challenged by other experts considering the issue when responding to claims that pipeline capacity is needed to reduce prices for Eastern Pennsylvania end users: “The correlation between volume of gas production and the price of gas for power generation is poor because there are other factors besides production volume that affect the price of gas. Still it seems unlikely that more gas production in Pennsylvania would result in a cost reduction since production already exceeds consumption by almost 100%.”

Further, as information regarding actual asserted customers for PennEast is revealed, it is increasingly clear that the claim of need is largely self-manufactured. For example, Spectra Energy Partners is a “member company” in PennEast Pipeline Company, LLC and 10% owner of the PennEast Pipeline proposal. Spectra Energy is currently planning for and proposing a new project called the Texas Eastern Marcellus to Market project (M2M). Spectra has made clear that the proposed PennEast pipeline will be the primary source of gas that the M2M project will transport. Specifically, according to the Spectra Energy website, the new M2M pipeline would receive the majority of its gas, 62.5%, (up to 125,000 dekatherms per day (Dth/d)) from the PennEast pipeline (this equates to over 11% of PennEast’s anticipated capacity). In other words, Spectra, as part of PennEast,

Jersey Conservation Foundation. March 9, 2016. Available at:
<http://njconservation.org/docs/PennEastNotNeeded.pdf>

is asserting the PennEast pipeline needs to be built in order to service the Texas Eastern M2M customer which is, in fact, Spectra. The end users of the M2M project are not identified in the EIS or anywhere else in the record, and have not, in fact, demonstrated a need for that project. Again we are dealing with self-serving speculation of need rather than a demonstration of a genuine public need for the project. Of the 12 shippers PennEast identifies as demonstrating a need for the pipeline and thereby helping to game the system in this way, at least five were PennEast owners: PSEG, Spectra (Texas Eastern Transmission), South Jersey Gas, UGI, and Elizabethtown Gas (Pivotal Utility Holdings).

In addition, as aptly described by the New Jersey Division of Rate Counsel in comments it placed on the FERC docket:

“PennEast bases its claim of need on “precedent agreements with seven foundation shippers and twelve total shippers, which together combine for a commitment of firm capacity of 990,000 dekatherms per day (‘Dth/d’),” approximately 90% of the Project’s total capacity...In this case, approximately 610,000 Dth/d of the 990,000 Dth/d of capacity has been contracted by affiliates of the Project owners... Of the twelve shippers that have subscribed to Project capacity, five of them are affiliates of companies that collectively own PennEast... Thus, two-thirds of the demand for the pipeline exists because the Project’s stakeholders have said it is needed. This self-dealing undermines the assertion of need that the DEIS relies upon.” (emphasis added; citations omitted).

The many manufactured arguments of “need” for the PennEast project are used to craft an artificial justification for imposing extreme and unnecessary harm

on the environment and communities. The asserted “need” for PennEast is really an argument for a project that will allow the PennEast companies to achieve their private goals of generating a profit. Given the significant level of impacts that will be inflicted by the PennEast pipeline on the water resources of Pennsylvania and New Jersey, and that the project will necessarily result in unavoidable and unmitigatable harm to the environment, communities, and economically, this lack of need for the PennEast pipeline project is a fatal flaw.

It is improper for the FERC to presume “need” based solely on the existence of self-dealing contracts. And yet, FERC has made it clear that it does not “look behind the contracts to determine whether the customer commitments represent genuine growth in market demand” or need. *See also NE Hub Partners, L.P.*, 90 FERC ¶ 61,142 (2000). Such an arbitrary review process, when taken to its logical conclusion, leads to absurd results. Indeed, to the extent the contracts are artificially manufactured and do not represent “genuine growth in market demand” FERC essentially admits that such fraudulent representations to FERC are sufficient for a decision approving the certificate. Here, substantial questions have been raised regarding the underlying contracts, and to the extent FERC fails to make a determination on “genuine market growth” any subsequent approval provided by FERC is arbitrary and capricious.

These concerns have even been voiced in an unusual and powerful

dissenting vote of one of FERC's commissioners. Specifically, Commissioner Glick stated that "[b]y itself, the existence of precedent agreements that are in significant part between the pipeline developer and its affiliates is insufficient to carry the developer's burden to show that the pipeline is needed." Commissioner Glick further explained that FERC did not "rely on . . . evidence" including, "among other things, projections of the demand for natural gas, analyses of the available pipeline capacity, and an assessment of the cost savings that the proposed pipeline would provide to consumers." As such, FERC's determination on need was arbitrary.

Furthermore, eminent domain originated as a way for governments to build necessary public infrastructure projects such as national highways and public buildings. It also enables governments to create parks and other public recreation areas. While eminent domain is considered an inherent power, it is subject to constitutional limitations. Among those limitations is that the land acquisition must be for "public use".⁵ The power of eminent domain is abused when it is used to benefit powerful interest groups at the expense of the less powerful; Supreme Court justices have recognized that the beneficiaries of this abuse "are likely to be those . . . with disproportionate influence and power in the political process,

⁵ U.S. Const. Amend. V

including large corporations and development firms.”⁶ At its best, eminent domain allows for the acquisition of private property to create national parks for all to enjoy, and at worst, it exploits less politically and economically powerful groups. In the latter instance, the government acts as a henchman for private corporations, and this is not the intent of eminent domain. However, this is precisely what is happening at the behest of pipeline companies including PennEast. As noted, there is no genuine need for this project; the true goals are not to serve the public but to help the six companies that comprise the PennEast Pipeline LLC to meet their corporate goals and to generate profits. This amounts to a government subsidization of a private company’s profits, at the expense of the public.

FERC has stated that “[e]ven though the compensation received in [an eminent domain proceeding] . . . is deemed legally adequate, the dollar amount received as a result of eminent domain may not provide a satisfactory result to the landowner and this is a valid factor to consider in balancing the adverse effects of a project against the public benefits.” *See Order Clarifying Statement of Policy*, 90 FERC ¶ 61,128, at 61,398. FERC has made clear that “[u]nder the Certificate Policy Statement, FERC will not authorize the construction of a project, with the concomitant right to obtain the necessary rights-of-way through either negotiation or the eminent domain process, unless it first finds that the overall public (not

⁶ *Kelo v. City of New London*, 545 U.S. 469 (2005), O’Connor Dissent

private) benefits of the project will outweigh the potential adverse consequences.”

See Order Clarifying Statement of Policy, 88 FERC ¶ 61,748, at 50. Here, a significant portion of the landowners have refused PennEast access to their property, which will require PennEast to acquire vast tracts of property via eminent domain. As such, this significant adverse impact supports a finding that the adverse effects of the Project outweigh its questionable benefits to the public.

3. The Commission erred because the EIS fails to consider cumulative impacts across the Project and across multiple other projects, including the source and end use of the natural gas

NEPA prohibits FERC from ignoring the ‘indirect’ impacts of its export-facility approval on the production and use of natural gas within the United States. The EIS cumulative impacts assessment fails to fulfill the requirements of NEPA.

Cumulative impacts caused by “reasonably foreseeable” future actions are recognizable under NEPA and must be considered through the NEPA process. Additionally, FERC must consider the cumulative effects of actions similar to the proposed action, whether existing or reasonably foreseeable. Cumulative impacts include 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.*”⁷ Cumulative impacts can result from individually minor but

⁷ 40 C.F.R. § 1508.7 (2010).

collectively significant actions taking place over a period of time.⁸ Cumulative effects include “direct and indirect effects, on a given resource, ecosystem, and human community of all actions taken, no matter who has taken the actions.”⁹ A cumulative effects analysis focuses on resource sustainability, and has expanded geographic and time boundaries.

FERC has framed its cumulative impact analysis too narrowly as well as mischaracterizing the degree of harm that will result from approval and construction of the proposed PennEast pipeline project. The cumulative impact assessment neglects reasonably foreseeable future actions that will directly and indirectly result from approval of this proposed project and are clearly causally related.

Upstream natural gas production, and its subsequent impacts, are among the “effects” that NEPA requires FERC to consider, in determining whether its action will have a significant impact. NEPA’s implementing regulations define, as “[i]ndirect effects,” those “which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.” 40 C.F.R. § 1508.8(b). The Project’s takeaway capacity will necessarily lead to additional demand for natural gas, with consequences for its price, production, and use, is

⁸ 40 C.F.R. § 1508.7 (2010).

⁹ From: http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-ConsidCumulEffects.pdf

eminently foreseeable. This Court has recently held that such “generally applicable economic principles,” as the relationship between the price of a good and its production and consumption, are “sufficiently ‘self-evident’ ” to “require ‘no evidence outside the administrative record.’ ” *Airlines for Am. v. Transp. Sec. Admin.*, 780 F.3d 409, 410-11 (D.C. Cir. 2015) (finding standing based on “basic proposition that ‘increasing the price of an activity ... will decrease the quantity of that activity demanded in the market’ ” (omission in original and citation omitted)). The results of “generally applicable” economics are all the more foreseeable here - because the administrative record does contain “evidence” specifically foreseeing them.

NEPA’s implementing regulations provide illustrative examples of indirect effects that are closely analogous to those at issue here: “growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate.” 40 C.F.R. § 1508.8(b). Like impacts on gas production and use, “growth inducing effects” and “induced changes in the pattern of land use” reflect responses - generally, market-based - to changes in the supply and demand for various resources. Further reflecting the need to consider such impacts, the regulations include “economic” as well as environmental impacts among those that an agency must consider. 40 C.F.R. § 1508.8.

For that reason, courts have consistently required that agencies extend the ambit of their analysis to include effects akin to those that FERC ignored here. The Eighth Circuit has addressed circumstances that closely parallel those here, holding that when an agency approves a rail-line extension that would result in “an increase in availability and a decrease in price” of coal, NEPA demands that the agency examine the environmental “effects that may occur as a result of the reasonably foreseeable increase in coal consumption.” *Mid-States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 549-50 (8th Cir. 2003) (requiring that agency address air pollution resulting from increased coal use). In *Mid-States*, the agency’s decision enabled an increase in the supply of coal to the domestic market; here, as described below, FERC has enabled an increase in demand for natural gas. In *Mid-States*, that decision had foreseeable effects on the price of coal, its production, and its use.

FERC’s decision has foreseeable impacts on natural gas price, production, and use. In *Mid-States*, the Eighth Circuit held that the agency could not responsibly or lawfully ignore those effects under NEPA. *Id.* Likewise, neither could FERC do so here. Other Circuits have reached similar results. When authorizing a runway that would expand capacity and “spur demand,” the Ninth Circuit has held that the Department of Transportation must examine the increased usage that will result from that demand. *Barnes v. U.S. Dep’t of Transp.*, 655 F.3d

1124, 1138-9 (9th Cir. 2011). The First Circuit has refused to let an agency construct a causeway and port, without examining the “industrial development” that would be enabled by that construction. *Sierra Club v. Marsh*, 769 F.2d 868, 877-79 (1st Cir. 1985). *See also Friends of the Earth v. U.S. Army Corps of Eng’rs*, 109 F. Supp. 2d 30, 39-40 (D.D.C. 2000) (invalidating agency decision approving casino, without considering economic development that would result). Those cases establish that when an Agency approves infrastructure that will increase demand for a resource, it cannot ignore the effects of that increased demand.

NEPA does not require agencies to consider only those effects whose specifics are known and certain. As the Eighth Circuit held, “when the *nature* of the effect is reasonably foreseeable but its *extent* is not ... [an] agency may not simply ignore the effect.” *Mid-States Coal. for Progress*, 345 F.3d at 549-50 (when agency permits rail extension that will increase “availability of coal,” it may not ignore “the construction of additional [coal-fired] power plants” that may result merely because agency does not “know where those plants will be built, and how much coal these new unnamed power plants would use”).

Indeed, where an action’s effects are not precisely known, the Council on Environmental Quality’s regulations suggest that the action is more - not less - likely to warrant an environmental impact statement. *See* 40 C.F.R. §

1508.27(b)(5) (intensity depends upon “[t]he degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks”); *Found. on Econ. Trends*, 756 F.2d at 154-55 (It is not “sufficient for the agency merely to state that the environmental effects are currently unknown,” because uncertainty is “one of the specific criteria for deciding whether an [environmental impact statement] is necessary”).

NEPA's implementing regulations provide detailed instructions as to how such uncertainty is to be addressed in an environmental impact statement. 40 C.F.R. § 1502.22(b) (specifying how agency should proceed when “the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known”).

That the precise location of natural gas production is unknown, therefore, does not render such production unforeseeable, or allow FERC to dismiss its effects as insignificant. “It is well recognized that a lack of certainty concerning prospective environmental impacts cannot relieve an agency of responsibility for considering reasonably foreseeable contingencies.” *Potomac Alliance v. U.S. Nuclear Reg. Comm’n*, 682 F.2d 1030, 1036-37 (D.C. Cir. 1982). Rather, “[a]t the threshold stage of the NEPA inquiry ... an agency must determine, to the extent feasible, whether the sum of all reasonably foreseeable effects, discounted by the

probability of their occurrence, represent a ‘significant’ effect on the environment.” *Id.* If so, the “agency must issue an [environmental impact statement] analyzing the probabilistic facets of the prospective environmental impact.” *Id.* Here, record evidence shows that not only will additional drilling be necessary to support the Project over the lifespan of its contracts, but furthermore, it is shown where the new wells are likely to be located, and how many wells will be needed to support the Project.

A. Cumulative Impacts Assessment must consider reasonably foreseeable shale gas production that will result from construction and operation of PennEast including from existing wells and new wells

Pursuant to NEPA, the EIS must include existing and reasonably foreseeable shale development/production that will be advanced, induced and supported if the PennEast pipeline were to be approved by FERC and built. Among the reasonably foreseeable actions whose environmental and community impacts must be considered include the construction, operation and maintenance of the shale gas wells that will be the source of the gas carried by PennEast, which will be carrying that gas in interstate commerce – both the new wells that will be constructed and the production that will be induced at pre-existing wells by the proposed PennEast pipeline. The analysis of impact for these gas wells which will be producing gas for the purposes of delivering it through the PennEast pipeline system in interstate commerce must include the associated gathering pipelines, access roads, gathering

lines, compressor stations, and other supporting infrastructure which is necessary for the construction and development of these wells.

Given that shale gas production activities for delivery of gas into interstate commerce through the PennEast Pipeline are “sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision” *City of Shoreacres v. Waterworth*, 420 F.3d 440, 453 (5th Cir. 2005) (quoting *Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992)), and given that FERC’s approval of this project is a legally relevant cause resulting in the induced new, expanded, extended, and ongoing production of shale gas through construction of new gas wells and well pads, and inducing new production at pre-existing wells, FERC is obligated to consider their impacts in its NEPA analysis of the project.

FERC arbitrarily limits the scope of its review by failing to require the disclosure of the readily available, and reasonable and attainable, analyses, projections and assumptions that would inform the agency of the scope and extent of the foreseeable induced natural gas production upon which it can base its cumulative impact analysis across the broad range of environmental and community harms (e.g. air, water, wetlands, habitat, forest, floodplain, water quality, drinking water supplies, health, safety, climate change). FERC’s self-inflicted ignorance of the extent of induced shale gas production does not alleviate

the agency of its obligation to undertake these assessments of significant impacts that will, reasonably and foreseeably, and predictably result.

Analysts, experts, and modelers use the location of interstate transmission gas lines as a predictor of where gas production will take place. The reality of the industry is that gas is produced for transmission through interstate commerce, and that there is a direct relationship between the siting and construction of well pads and the location of existing or proposed interstate pipelines.

All that being said, the Delaware Riverkeeper Network comments on the record provided an assessment of how many and where gas drilling would be advanced as a result of the PennEast pipeline and therefore FERC has the baseline information it needs regarding well development to undertake the needed environmental and community impact analysis for purposes of NEPA.

B. Cumulative Impact Assessment must consider the reasonably foreseeable outcome of greenhouse gas emissions from the gas wells (new and newly constructed) that will supply the proposed pipeline as well as from the end uses of the gas supplied by the pipeline

Based on the recent decision by the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) in *Sierra Club, et al. v FERC*, --F.3d--, 2017 WL 3597014 (D.C. Cir., Aug. 22, 2017), which found that FERC is required to consider and quantify the downstream greenhouse gas (“GHG”) emissions from the combustion of the natural gas transported by a project as part of their National

Environmental Policy Act review, FERC's environmental review of the Project is inadequate and deficient as it fails to consider or quantify the indirect effects of downstream GHG that will result from burning the natural gas that the Project will transport to natural gas powerplant facilities. In addition to examining end use emissions, FERC needs to account for the emissions and other impacts from the source of the gas as well. This analysis should examine both existing feeder facilities and expected induced development. Neither the downstream GHG impacts nor the upstream GHG impacts have been accounted for.

To fulfill NEPA's mandate, FERC must account for the cumulatively significant climate impacts of the greenhouse gas emissions from this Project and other gas projects in the region. In light of the recent D.C. Circuit's decision in the *Sierra Club* case, this analysis must:

- quantify the project's emissions combined with past, present, and reasonably foreseeable future gas projects in the region;
- and adopt appropriate mitigation measures in recognition of the past, present reasonably foreseeable future gas projects in the region to reduce the severity of cumulative impacts from the project.

FERC should also employ the social cost of carbon as a methodology for assessing the significance of the project's impacts. Based on the *Sierra Club* decision, FERC's environmental review of the Project is inadequate and deficient.

The EIS prepared by FERC for the Project failed to reach an informed decision about the climate ramifications of the project. Instead of assessing soon to be implemented or constructed regional gas infrastructure projects and their cumulative climate impacts, the EIS only generally discusses the types of climate change impacts that will burden the project’s geographic area. The EIS assumes that GHG emissions from the project would be cumulatively insignificant without offering any rationale. Based on the D.C. Circuit instructions to FERC in the *Sierra Club* case, this must be corrected:

The EIS accordingly needed to include a discussion of the “significance” of this indirect effect, *see* 40 C.F.R. § 1502.16(b), as well as “the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions,” *see* *WildEarth Guardians*, 738 F.3d at 309 (quoting 40 C.F.R. § 1508.7).
...

Quantification would permit the agency to compare the emissions from this project to emissions from other projects, to total emissions from the state or the region, or to regional or national emissions-control goals. Without such comparisons, it is difficult to see how FERC could engage in “informed decision making” with respect to the greenhouse-gas effects of this project, or how “informed public comment” could be possible.

As a result, FERC must quantify the project’s emissions and past, present, and reasonably foreseeable future gas infrastructure projects in the region. To decide otherwise would violate NEPA’s mandate for an informed public process.

Additionally, FERC must employ the social cost of carbon methodology or, at the very least, a discussion of why the Agency elected not to use such methodology, in accordance with the D.C. Circuit's ruling in *Sierra Club*:

[I]n its rehearing request, Sierra Club asked FERC to convert emissions estimates to concrete harms by way of the Social Cost of Carbon. . . . But FERC has argued in a previous EIS that the Social Cost of Carbon is not useful for NEPA purposes, because several of its components are contested and because not every harm it accounts for is necessarily "significant" within the meaning of NEPA. See *EarthReports*, 828 F.3d at 956. We do not decide whether those arguments are applicable in this case as well, because FERC did not include them in the EIS that is now before us. On remand, FERC should explain in the EIS, as an aid to the relevant decisionmakers, whether the position on the Social Cost of Carbon that the agency took in *EarthReports* still holds, and why."

Finally, FERC's limited discussion of mitigation focuses on methane leak prevention and repair, which are necessary measures, but because of its flawed analysis, the Agency failed to analyze mitigation for the inevitable combustion emissions associated with the project and similar projects in the region. Instead, FERC relies on an unsupported conclusion that gas is cleaner than coal and so overall impacts are not significant. Such cursory analysis runs contrary to NEPA.

As the D.C. Circuit held:

The effects an EIS is required to cover "include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial." 40 C.F.R. § 1508.8. In other words, when an agency thinks the good

consequences of a project will outweigh the bad, the agency still needs to discuss both the good and the bad. . . .

The *Sierra Club* decision found that FERC's NEPA analysis was flawed as it failed to consider and quantify the downstream GHG emissions from the combustion of natural gas transported by the project. In FERC's review of PennEast, the Agency has again failed to consider or quantify the direct and indirect effects of downstream GHG emissions that will result from the burning of natural gas that the Project will transport to the end users, or that will result from LNG export of the gas if this is to be an anticipated end use.

C. Cumulative Impact Assessment must consider the reasonably foreseeable outcome of natural gas exports

The direct, cumulative, and foreseeable impacts resulting from the exportation of the PennEast transported gas must also be considered. The EIS fails to identify where exactly any of the end-users of the natural gas are located.

Facts are clear; PennEast will interconnect with a pipeline system that could transport its shale gas to the recently approved Cove Point LNG export facility. Specifically, PennEast will have an interconnect with Transco's mainline in Mercer County, NJ, a pipeline that intersects with the Pleasant Valley interconnect in Fairfax County Virginia, which in turn could deliver the gas to Dominion's Cove Point Pipeline. Given that natural gas can sell at a significantly higher price overseas as compared to domestically, it is both reasonable and foreseeable that

PennEast transported gas will be transported to Cove Point for export. Furthermore, it is likely that natural gas that is displaced by the PennEast line will likely be exported as well. There is no information in the EIS examining this issue.

D. Cumulative impacts of multiple linear projects must be considered

Additionally, the EIS needed to examine the cumulative impact of the multiple utility and other linear projects that are being proposed or constructed in the Delaware River watershed, in each subwatershed, and in each unique ecological community and human community.

For example, there are significant concerns related to the cumulative impacts of the continuous water crossings and wetlands disturbances 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.

Indeed, it is unclear why an entire new right of way would need to be cleared for this project when there is a parallel right of way within several miles of the proposed right of way. Also, in addition to Transco's previous and proposed pipeline projects, there are several other pipeline projects that have been concentrated in the same subwatersheds as the PennEast line, such as: Texas Eastern's TEAM 2014 Project, Buckeye Pipeline, and Columbia's East Side Expansion Project. Large high tension ROW's and the Buckeye pipeline are other older ROWs that cut across and have already made lasting and sustained impacts to many of the subwatersheds that PennEast would cut.

“[W]ith each of these projects comes some combination of stream impact, core forests destruction, wetland and riparian corridor disturbance, and clearing of steeply sloped lands. As such, each project has caused or will cause its own unique set of impacts and add another layer of acute and long-term assaults to the environment. Additionally, each new project magnifies the project specific impacts of each prior project. When dealing with environmental impact assessment, each project is evaluated independently; the cumulative impacts of multiple linear development projects are not assessed and the additive long-term impacts of past and future linear projects fail to be recognized.”¹⁰

¹⁰ Princeton Hydro, *Technical Review of Volume I FERC Draft Environmental Impact Statement Submitted for PennEast Pipeline Project*, September 2016

Another example of the kind of cumulative assessment that is obviously required within this category of harms is well exemplified by the Buckeye Oil Gas Transmission ROW in the Blue Mountains. Sensitive glacial soils, extreme compaction, continued and repeated ATV traffic and pipeline maintenance, lack of diverse growth, bare soils, and thermal heat and fragmentation impacts to the ROW and within the mature forest paralleling the Buckeye ROW have been observed by DRN.¹¹ PennEast will inflict similar impacts on the same subwatersheds, ecosystems and in the same region. The cumulative affect of these same, similar and geographically proximate impacts has been ignored by the EIS.

Consideration of the multiple cuts proposed by PennEast in subwatersheds also needs study and consideration. For example:

⇒ the Harihokake watershed, a C-1 waterbody in NJ would be inflicted with 7 different pipeline cuts for PennEast (Table G-6: MP 85.4, 85.6, 85.8, 85.9, 86, 86.3, 86.7), which poses a threat to this watershed individually and cumulatively.

⇒ the Alexauken Creek, another NJ C-1 stream would be cut 7 times by PennEast (Table G-6: MP 99.6, 100, 100, 100.1, 100.4, 100.9, 101).

¹¹ Delaware Riverkeeper Network. *Field-Truthing and Monitoring of the Proposed PennEast Pipeline, FERC Draft EIS, Docket No. CP15-558*, September 2016.

FERC has not assessed the cumulative impact of multiple cuts on a subwatershed scale.

These are among the impacts that must be assessed as part of a cumulative impact statement. The EIS fails to acknowledge or assess the accumulation of harm that will result to ecological resources, including associated recreational and cultural assets, that PennEast would be cutting through multiple times, or where the resources have been similarly harmed by other proximate projects.

The proximate pipeline and similarly impactful ROW (e.g. for powerlines) 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 severe, unavoidable, unmitigatable, and irreversible. As such, the EIS needs to examine these projects holistically, and their impacts cumulatively, in order to satisfy the requirements of NEPA.

E. Cumulative impacts of the pipeline construction, operation, and maintenance on impacted ecological systems must be considered by the EIS

The EIS does not consider the cumulative impacts to key ecological systems, over the lifetime of the pipeline, from construction through operation and including maintenance activities.

For example, forest ecological systems would experience enduring but also fresh impacts throughout the life and presence of the pipeline. The initial impact

will include the removal of the forest and understory vegetation, coupled with the changes in light, moisture, wind, etc. impacting 300 feet into the forest on either side of the ROW footprint. There will be enduring compacted soils, and dramatically altered vegetative composition along the ROW and along that forest edge that will increase volume and alter the timing of stormwater runoff, reduce groundwater recharge, change/take habitats for species of all kinds. There will then be the influx of invasive plant and animal species that will have cascading impacts on the forest ecosystem, which will spread along the ROW and back into the core of the adjacent forest.

There are the impacts of the fragmentation of the forest by PennEast but also by other cuts in the same region by other pipelines and/or linear projects. Over the life of the pipeline will be the maintenance of the ROW which will include the prevention of tree growth and maintenance of low growing vegetation only – this will be accomplished by periodic mowing and the use of herbicides, as well as potentially other impactful strategies. Mowing will disturb the vegetation and habitats that were allowed to encroach on the ROW. The herbicides will include impacts for non-target species, and could have implications for soil microbes and nearby wetland, vernal pool and stream ecosystems. Maintenance activities will involve periodic trimming, pruning, cutting back and removal of trees and woody vegetation growing along the perimeter of the ROW. “The inspection and

maintenance of the ROW means the repetitive access and traverse of the ROW by inspection vehicles and maintenance equipment. This increases overall soil compaction and because there are no stabilized access-ways, it also creates repeated opportunity for soil erosion.” PennEast will only be required to “ensure that the soils are stable and is under no regulatory obligation to restore soil to pre-construction conditions.” “[T]hese changes in the properties of the soils along the pipeline and within the pipeline ROW will contribute to the predicted increases in the volume and rate of runoff. Along the entire length of the 115.1-mile long pipeline, these changes in the post-construction hydrology of the affected lands (especially the steeper sloped areas) will invariably alter runoff properties. The end result will be impacts to the streams, wetlands and riparian areas traversed by the pipeline and pipeline ROW and increased opportunity for erosion along the steeper segments of the pipeline and pipeline ROW. Because PennEast is not required to implement any of the conventionally utilized best management measures to collect, treat and control ROW runoff, there is no way to mitigate for these changes other than to revegetate. However, once again the cover type will be different pre to post-construction (e.g. trees to grass) and PennEast is only obligated to achieve 80% post-revegetation coverage with the vegetation type it is using.”¹²

¹² Princeton Hydro, *Technical Review of Volume I FERC Draft Environmental*

FERC states that completed E&S Control Plans by agencies will adequately avoid harms but this is a false conclusion as can be seen on other pipeline projects where severe sediment pollution harmed local waterbodies, many of which had special protection designations.¹³ Most agencies require quick establishment of groundcover to stabilize soils which takes the place of establishing more desired and diverse native habitats, as a result biodiversity and soil health is lost. Once soil chemistry, soil porosity, and soil layering (horizons), that took eons to form, are destroyed by the construction process, erosion control measures usually require lime and fertilizer to be applied so that seed mixes grow rapidly. The addition of lime and fertilizer are like poison to what were once forest soils of low pH and low nutrients. This essentially ruins the chance that the soil will ever revert to a native plant community again. Alien invasive weeds of all kinds thrive on the nutrient-enriched, topsy-turvy soil layers in the aftermath of construction. Native herbaceous plants and shrubs almost never outcompete weeds in these altered, nutrient-enriched, high pH soils. Just like on abandoned farmland, these construction sites act as “post-agricultural soils,” and just like our abundant forests

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¹³ Delaware Riverkeeper Network *Field Monitoring Report, Pipeline Construction & Maintenance Irreparably Harms Rivers, Wetlands and Streams. Addendum to Comment for the PennEast Pipeline*

on post-agricultural soils, the herbaceous and shrub layers will be dominated by alien weeds virtually forever, especially with over-abundant deer in the equation.¹⁴

Information, data and proof about the adverse impacts to natural resources despite mandates for such controls was provided to FERC during the public comment period.

As documented in the comment from Meliora Design,¹⁵ the EIS fails to consider cumulative impacts in an ecological system and fails to consider the multiple elements of specific site conditions that impact one another synergistically to determine what will be the impact that results from development of that site, with and/or without mitigation – e.g. pre and post vegetation composition, soils, slope etc. This missing component of the EIS is massive and seriously undermines any of the conclusions reached regarding ecological impacts. The following comments provided during the public comment period on the DEIS were not addressed in the final EIS:

- “The DEIS and supporting materials provided by PennEast fail to consider the unique, site specific conditions at each individual proposed stream and

¹⁴ Dr. Emile DeVito, New Jersey Conservation Foundation, Email Correspondence Re: Tennessee Gas Pipeline practices. July 14, 2015.

¹⁵ Adams, Michelle and Henderson, Marc, Water Resources Engineers, Meliora Design, LLC, *Professional Review & Comment of the Draft Environmental Impact Statement and Supporting Documents Related to Surface Water Impacts of the Proposed PennEast Pipeline Project*, September 2016.

wetland crossing, and the corresponding potential adverse water quality impacts associated with stream crossings, including open cut crossings. The DEIS fails to comprehensively evaluate each stream crossing with regards to conditions such as water quality, erosive soils, existing land use and forested areas, existing slopes, riparian buffers, and the potential need for in-stream blasting. Lacking consideration of the site specific conditions at each crossing, the DEIS fails to require adequate location and construction recommendations to protect water quality, as well as construction techniques specific to conditions at each crossing. The proposed stream and wetland crossing locations, methods of construction, and long-term land use conditions appear to be based on the needs and preferences of PennEast and not informed by site specific conditions.”

- “Importantly, the supporting documentation provided by PennEast fails to provide stream and wetland crossing information in a manner that allows FERC and other reviewing agencies to evaluate the site specific conditions at each stream crossing, including information discussed further in this memo.

Important site specific information is located in different Resource Report volumes and other documents, and not easily correlated or evaluated. Much of the information discussed in this memo was compiled from multiple volumes, documents, and updates and is not readily reviewed by FERC or other reviewing agencies in a comprehensive manner. The project selection of stream

and wetland crossing locations and construction methods cannot be clearly evaluated in the form in which it is presented in the DEIS and supporting documents.”

The cumulative assessment, considering near term and long term impacts, cumulative impacts resulting from the damage done near term and long term to a resource, including the lasting implications even with mitigation measures undertaken and full compliance with the law (let alone acknowledgement of the violations that are documented to take place as a matter of course during pipeline construction, operation and maintenance) needs to be, and is not, conducted by the EIS. The forest example above is but one kind of resource that experiences these multi-pronged impacts in need of cumulative assessment by the EIS – vernal pools, wetlands, streams, aquatic life, avian life, amphibian life, soil life, and wildlife all need an assessment of the cumulative impacts that will be visited upon them by PennEast if it were to be constructed.

Furthermore, the adverse air quality impacts of PennEast are largely avoided by failing to do an appropriate cumulative impacts analysis that includes the induced and supported drilling, fracking, and other associated activities that would result from approval of a PennEast pipeline. The jobs and economic harms are overlooked in their entirety – there is no discussion of the reduced crop production for farmers, the adverse impacts to businesses along or near the pipeline right of

way, the implications for ecotourism and related businesses and jobs, etc. As is shown by the economic analysis undertaken by Key-Log Economics and discussed elsewhere in this comment, the job and economic harms as a result of this project skyrocket and the supposed benefits are so flawed as to be indefensible.

F. Expansion of PennEast is a foreseeable impact that must be considered by the EIS

Furthermore, by creating an entirely new ROW for this Project FERC is creating a new industrial corridor that will foreseeably be used in future PennEast pipeline 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, and Transcontinental have all, within the last few years, added looping segments to their pipelines. As such, the EIS analysis must account for the foreseeable expansion of the ROW to accommodate future upgrades. Indeed, there are no existing large scale, natural gas transmission lines that are not looped and/or being proposed for expansion in some capacity in the Delaware River watershed. As such, future looping and additional compressor stations is all but assured.

Looping is a common practice to expand the capacity of an existing pipeline by laying additional pipelines along the same right-of-way, or sometimes creating a whole new right of way proximate and parallel to, but separate from, the original right-of-way. Looped pipelines can be used to increase the distance between

compressor stations or to provide additional storage capacity within the pipeline itself.

Compression is another way to increase throughput capacity on an existing pipeline. Upgrading existing compressor stations with additional or higher powered compressors or adding new compressor stations can increase pipeline capacity and is often used by pipeline companies as an interim step before adding additional looping. PennEast, as a new greenfield pipeline, would have significant opportunities for expansion through the addition of compression.

Under NEPA guidance, the environmental review area must include all the subwatersheds through which the pipeline crosses. A critical consideration in determining the cumulative environmental effects must be the interaction of runoff, lost recharge, deforestation, damaged habitat, compacted soils, air pollution, water pollution, methane emissions, and all other harms impacted by the proposed PennEast pipeline along with the other past, present, and reasonably foreseeable future actions, whether federal, non-federal, or private that are connected to and/or would be the result of construction of the proposed PennEast pipeline.¹⁶ Among these is expansion of the pipeline through looping and/or additional compression.

The EIS asserts positive cumulative benefits, asserting jobs, air benefits and tax receipts but fails to assess the negative ramifications from construction of

¹⁶ 40 C.F.R. §§ 1508.7-8, 1508.27 (2010).

PennEast on all of these fronts, including the increased adverse impacts in all of these areas that will result from future foreseeable expansion through looping and/or additional compression. This is a crucial deficiency in the NEPA analysis.

4. The Commission erred because the induced shale gas production and impacts must be considered by the EIS

The PennEast pipeline will result in new production of shale gas. Construction of the PennEast pipeline will cause industry to undertake and pursue new shale gas production – both by drilling new wells for production of shale gas and by pursuing production from wells that have been drilled but for which production was not pursued due to lacking pipeline capacity. Determining the shale gas production that will be induced and supported by the PennEast pipeline for delivery into interstate commerce is achievable using readily available data, methodologies, modeling, knowledge, resources and tools. Assessing the direct and indirect impacts from shale gas production and drilling that will result from construction of the PennEast pipeline is required by NEPA. The Delaware Riverkeeper Network provided detailed information regarding the induced and supported gas production, thereby removing any assertion by FERC it was unaware of the level of increased production that was/is certain to result from construction and operation of PennEast.

A. Pipelines result in new shale gas production in several ways

Regardless of whether there is an actual need for the gas that would be transported in interstate commerce to the areas identified by PennEast in its application, once the project is constructed there will be shale gas production that will feed the pipeline which could then redirect it to other markets such as to LNG export facilities that can take the gas overseas for sale to foreign nations and users.

While FERC continues to try and ignore the connection between natural gas infrastructure investments and increased production, for producers, industry experts, and other government agencies, the effect is clear. With limitations on the ability to deliver gas to high-value markets, the economics do not favor increased drilling. In the last year or so, due to low gas prices and constrained delivery systems, many drillers have cut back on drilling; total production in the Marcellus actually declined for the first time since the shale boom began in 2008.^{17,18}

Currently, there are at least 12 projects proposed or under construction that would either expand existing pipeline capacity or add new pipelines for the purpose of delivering shale gas from the Marcellus region into markets in the

¹⁷ Bloomberg. “*America's Biggest Shale Gas Field Is Choking on Its Own Supply.*” October 14, 2015. Available at: <http://www.bloomberg.com/news/articles/2015-10-14/america-s-biggest-shale-gas-field-is-choking-on-its-own-supply>

¹⁸ EIA Drilling Productivity Report. August 2016. Available at: <https://www.eia.gov/petroleum/drilling/pdf/dpr-full.pdf>

Northeast, South, and beyond.¹⁹ These new pipelines, including PennEast, will unlock additional production potential in the Marcellus region, both directly by providing additional takeaway capacity from the region and indirectly by resulting in higher regional prices. Natural gas prices in the Marcellus region have been trading at a significant discount to national benchmark prices for several years, as discussed elsewhere in this comment. Growth in gas production slowed in Pennsylvania in 2015, and local prices dropped significantly.

As a result of the recent slowdown in production, there are numerous well sites that are permitted but have not yet been drilled. For example, a subsidiary of the Natural Fuel Gas Company, Seneca Resources, stated in a presentation to its investors earlier this year 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.²⁰

¹⁹ Northeast Gas Association. “*Planned Enhancements, Northeast Natural Gas Pipeline Systems*”. August 2016. Available at: http://www.northeastgas.org/pdf/system_enhance0816.pdf

²⁰ 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

Other producers in the region have similarly stated that they require additional pipeline capacity to develop new production capacity. Argus Media, a leading provider of data on prices and fundamentals for the natural gas industry, reported that “Antero Resources is waiting on the 3.25 Bcf/d Energy Transfer Rover pipeline to come online in the second half of 2017 before it increases drilling activity,” while “Northern Fuel Gas [in July 2016] said it was waiting on its own 475mn cf/d Northern Access to come online in the second half of 2017 before it raises its production levels.”²¹ Argus also reported that “Range Resources plans to drill a seven-well pad in the Appalachian shale region this year, and could quickly drill up to 42 more laterals. The producer is expecting the 628mn cf/d (18mn m³/d) Spectra Gulf Markets project to facilitate some of its increased output when it begins flowing in the fourth quarter [of 2016].”²² In their 2015 Annual Report, Cabot Oil & Gas noted that drilling activity in the Marcellus region had been reduced to a single rig, in response to “the market environment.” Cabot further noted that the company plans to “exit 2016 with between 45 and 50 drilled uncompleted wells, which will allow for operational flexibility into 2017.”²³ New pipeline capacity such as the PennEast pipeline would enable Cabot and other

²¹ Argus Media. August 29, 2016. “US gas producers boost output ahead of expansions.” Available at:
<http://www.argusmedia.com/news/article/?id=1302610>

²² Ibid.

²³ Cabot Oil & Gas 2015 Annual Report. Page 3. Available at:
<http://www.cabotog.com/wp-content/uploads/2016/04/COG-2015-AR.pdf>

operators to complete additional wells and begin to further accelerate their production in the state – Cabot is among the shippers identified in the EIS as being an anticipated customer of PennEast.

A recent report²⁴ issued by the Greater Philadelphia Energy Action Team advocates for more pipelines in order to induce and support more and new shale gas production:

“In creating an Energy Hub, the goal, first and foremost, is to expand the market for the Marcellus/Utica natural gas and NGLs to increase the economic benefits that will come to the Commonwealth and the Greater Philadelphia region from more vigorous production... To achieve this goal, however, we need to expand the existing interstate and intrastate natural gas pipeline infrastructure.”

“Encouraging the industry to invest in new pipelines and in new distribution system infrastructure ... provides additional capacity for increased volumes of gas.”

Industry is advocating for pipeline capacity exiting Northeast Pennsylvania to grow by over 60 percent in the next several years in order to allow for drilling activity to resume. PennEast is a major component of this expansion.

B. Historical drilling activity is an accurate and strong indicator for new wells

The state of Pennsylvania currently has 9,480 “active” unconventional natural gas wells.²⁵ Active gas wells have been issued a permit, but may or may not

²⁴ Greater Philadelphia Energy Action Team, *A Pipeline for Growth*, March 30, 2016.

have been drilled or be currently producing natural gas. Those wells are found largely in the counties located in the Northeast and Southwest regions of the state, which contain 83 percent of active wells.

In the Northeast, near the start of the PennEast pipeline, four counties contain large volumes of active gas wells: Bradford County (12 percent of active wells in the state), Lycoming County (9 percent), Susquehanna County (14 percent), and Tioga County (8 percent).

The state of Pennsylvania tracks natural gas wells that are Proposed but Never Materialized (PBNM), in which a permit was issued but expired prior to the commencement of drilling, as well as Operator Reported Not Drilled (ORND), in which a permit was issued but the operator reported that the well was never drilled. These sites are logical and likely candidates for new drilling in Pennsylvania. A total of 2,733 wells fall into the PBNM category, and 4,258 wells are classified as ORND. Well more than half of these sites are located in Northeastern Pennsylvania.

Of the counties in Northeast Pennsylvania, Bradford County and Susquehanna County have the highest number of wells that are PBNM and ORND. In general, the counties with the highest number of active wells also have the

²⁵ Pennsylvania Department of Environmental Protection. PA Oil and Gas Mapping. Accessed August 26, 2016. Available online at: <http://www.depgis.state.pa.us/PaOilAndGasMapping/OilGasWellsStrayGasMap.html>

highest number of PBNM and ORND wells. Given the large number of wells that have been permitted but not drilled, one can reasonably expect that new natural gas wells drilled as a result of the construction of the PennEast pipeline would most likely be among the sites identified. Those counties with the highest number of wells that received permits but were never drilled are Bradford, Susquehanna, Greene, Washington, Tioga, Sullivan, Wyoming, Lycoming, and Clearfield.

C. Relative Pricing Impacts of Pipelines

Natural gas prices are lowest in the regions in which gas is produced. For many years, the lowest natural gas prices in the East were found at Henry Hub, located near the Gulf of Mexico where much of the natural gas in the United States was produced. With the increase in shale gas production, however, the lowest natural gas prices in the country are now found at trading points in and around the Marcellus and Utica shale plays in Pennsylvania, West Virginia, and Ohio. Availability of pipeline infrastructure to send natural gas to other regions has a direct impact on the price of natural gas in those regions—greater gas take-away capacity allows more natural gas to be produced. The improved access to higher priced markets via additional pipeline infrastructure will raise the price of natural gas in the producing region, which also will increase production.

Information on natural gas spot prices published in January 2016 by the EIA shows these market forces in action. While trading points in and around the

Marcellus and Utica shale regions have been below the Henry Hub price in recent years, the EIA points out that, as of January 2016, the difference between these price points has narrowed due to the recent pipeline projects that have come online.

Despite the eroding of the Marcellus basis differential in late 2015, towards close to \$1 per million BTU, that differential has persisted throughout 2016 and further increased. On August 29, 2016, natural gas in Northeast Pennsylvania was trading at \$1.30 per million BTU, while Henry Hub gas was at \$2.87—a \$1.57 differential.²⁶

The narrowing of prices between the Henry Hub and Marcellus/Utica trading points in late 2015 may be due in part to the fact that producers in the Marcellus curtailed production of natural gas by approximately 1.2 Bcf/d as of November 2015 in response to weak prices resulting from the rapid growth of production in the face of pipeline constraints. Of the gas production that was curtailed, about 750 MMcf/d was in Bradford and Susquehanna counties in Pennsylvania.²⁷

Economics dictates that natural gas production is likely to increase as additional pipeline capacity is added to the region. Producers in the Marcellus such as Seneca Resources and Cabot Oil & Gas have indicated that additional pipeline

²⁶ NGI Shale Daily, August 29th, 2016.

²⁷ NGI's Shale Daily. Information on the Marcellus Shale. Available online at: <http://www.naturalgasintel.com/marcellusinfo>. Accessed on August 28, 2016.

infrastructure is a cornerstone of plans to increase production in Northeast Pennsylvania.²⁸ In January 2016, Bentek Energy and the EIA noted a large backlog of natural gas wells that have been drilled but will not begin production until infrastructure (in the form of pipelines) becomes available to transport additional supply or until the price of natural gas increases. Bentek and EIA suggested that this backlog will allow production of natural gas in the Marcellus to increase quickly when new infrastructure projects are completed.²⁹ And so, in addition to advancing new drilling, additional pipeline infrastructure will advance gas production in wells that may have been drilled but from which the industry did not yet extract gas due to a lack of available pipeline infrastructure.

D. The PennEast Project would induce significant and predictable new drilling activity

The PennEast pipeline represents a significant fraction of the total new pipeline capacity coming to Northeast Pennsylvania. A significant amount of existing production that has been curtailed will now come online for asserted customers as a result of the new pipeline. Permitted wells that were not previously

²⁸ Comments of Allegheny Defense Project before the Federal Energy Regulatory Commission on the Draft Environmental Impact Statement for Transcontinental Pipe Line Company proposed Atlantic Sunrise Project. Docket No. CP14-138-000. June 2016. Page 22.

²⁹ US Energy Information Administration. 2016. *Spread between Henry Hub, Marcellus natural gas prices narrows as pipeline capacity grows*, Available online at: <http://www.eia.gov/todayinenergy/detail.cfm?id=24712>

completed would start producing gas for transport to New Jersey and Pennsylvania markets through the PennEast pipeline.

The total number of wells induced by any given pipeline depends on the lifetime production, or estimated ultimate recovery (EUR), from a given well. Wells in Northeast Pennsylvania provide up to 20 Bcf of total lifetime production, according to a recent Range Resources presentation.³⁰ There is significant variability across wells, and well decline rates—the decline in daily production over time after a well starts producing gas—have proven to be much more significant than initially estimated. As a result of this uncertainty, we use a lower average well EUR based on EIA data. We weight this county-specific EIA data based on the number of wells in each county in Northeast Pennsylvania. This results in an average EUR for the region near the start of the PennEast pipeline of between 3.84 Bcf and 5.5 Bcf.

The PennEast pipeline, with 1.1 Bcf per day of gas transmission capacity, could result in the transfer of up to 16,000 Bcf over its expected economic lifetime. Based on an average well EUR of 5 Bcf, the PennEast could effectively support the drilling of 3,000 new wells in Pennsylvania. This would likely come from a combination of wells that have been drilled but are not yet producing due to market

³⁰ Range Resources. EnerCom Oil & Gas Conference 21. August 15, 2016. <http://ir.rangeresources.com/phoenix.zhtml?c=101196&p=irol-presentations>

conditions and wells not yet drilled. These wells are most likely to be located in Northeast Pennsylvania, in Bradford, Susquehanna, Lycoming, and Tioga counties.

5. The Commission erred because the economic benefits asserted in the EIS are indefensible and unsupported, and the economic harms are entirely overlooked

FERC's section 7 duty to consider the public interest is broader than promoting a plentiful supply of cheap gas. *See Fla. Gas Transmission Co. v. FERC*, 604 F.3d 636, 649 (D.C. Cir. 2010). Rather, FERC must ensure "the [public] benefits of the proposal outweigh the adverse effects on other economic interests." *AES Ocean Express, LLC*, 103 F.E.R.C. ¶ 61,030 at ¶ 19. 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.

Specifically, FERC's consideration of economic benefits and harms is so misleading, inaccurate and deficient as to be a meaningless element of the EIS, and certainly cannot be said to fulfill the mandates of NEPA or FERC's Policy Statement to fully and fairly consider the economic issues involved with this proposed project.

As demonstrated in the attached report by Key-Log Economics,³¹ this comment and the comments of others on the docket, the claims of economic

³¹ 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

benefit advanced by PennEast and adopted by FERC in the EIS are based on an analysis that is so flawed it is indefensible. In short, the EIS;

- 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 addition to providing exaggerated and false claims of benefit, the EIS ignores the economic harms inflicted by construction and operation of PennEast. Among its many deficiencies, the EIS analysis does not consider the adverse impacts to recreation and ecotourism so vitally important to the impacted region; the analysis fails to consider the implications for future investment in open space preservation and the adverse impacts thereof as communities realize that preserved lands are not protected from pipeline construction; the economic damage to agricultural crop production is overlooked as are harms to other businesses;³² the impact on market values and marketability of properties through which the project will cut are misrepresented; the costs to the community to respond to emergencies,

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.

³² We have learned from farmers, and it has been documented on the record, that crop production has gone down by as much as 30% when a pipeline cuts through farm crop lands. DEIS figures do not consider harms to other local businesses, such as the 7th generation nursery business reported in the press that said their ability to continue to operate would be harmed if PennEast passes through their property as is under consideration.

to the increased stormwater runoff, pollution inputs, and other adverse impacts that could result from this project and be foisted upon the shoulders of local towns and residents are given short shrift if they are mentioned at all; and the EIS does not consider the health impacts to the residents who will be impacted by construction and operation of this project.

By way of more specific examples, the EIS analysis ignores the many and varied economic harms that would result from the construction, operation and maintenance of the PennEast pipeline. Attached is a detailed analysis of the many deficiencies provided by Key-Log Economics. Among the deficiencies highlighted in that report, and in other resources provided as part of this comment, the EIS fails to consider:

- *Public health costs*

“Based upon experience with other pipelines it can be anticipated that, for example, just in Carbon County where 560 people live within 2 miles of the proposed compressor station (US Census Bureau, 2015), there will be on the order of “504 people experiencing odor events, 398 people experiencing respiratory impacts, 325 people experiencing sinus problems, and 218 people experiencing sleep disturbances and/or severe headaches.”³³

- *Reduced property values*

Of the comments reviewed so far by the Delaware Riverkeeper Network in partnership with Key-Log Economics (which includes the majority filed as of

³³ See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

September 9, 2016) “35% mention concerns about the effect on property value. Of this group, 99.6% believe the effect on property value will be negative.”³⁴

“68% of Realtors believe the presence of a pipeline would decrease residential property value.”³⁵

“Of these Realtors, 56% believe the decrease in value would be between 5% and 10%. (Kielisch does not report the magnitude of the price decrease expected by the other 44%.)”³⁶

“70% of Realtors believe a pipeline would cause an increase in the time it takes to sell a home. This is not merely an inconvenience, but a true economic and financial cost to the seller.”³⁷

“In a survey of buyers presented with the prospect of buying an otherwise desirable home with a 36 inch diameter gas transmission line on the property, 62.2% stated that they would no longer buy the property at any price. Of the remainder, half (18.9%) stated that they would still buy the property, but only at a price 21%, on average, below what would otherwise be the market price. The other 18.9% said the pipeline would have no effect on the price they would offer.

Not incidentally, the survey participants were informed that the risks of “accidental explosions, terrorist threats, tampering, and the inability to detect leaks” were “extremely rare” (Kielisch, 2015, p. 7). Considering only those buyers who are still willing to purchase the property, the expected loss in market value would be 10.5%. This loss in value provides the midlevel impact in our estimates. A much greater loss (and higher estimates) would occur if one were to consider the fact that 62% of buyers

³⁴ See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

³⁵ See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

³⁶ See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

³⁷ See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

are effectively reducing their offer prices by 100%, making the average reduction in offer price for all potential buyers 66.2%.”³⁸

“Based on five “impact studies” in which appraisals of smaller properties with and without pipelines were compared, “the average impact [on value] due to the presence of a gas transmission pipeline is 11.6%”(Kielisch, 2015, p. 11). The average rises to a range of 12% to 14% if larger parcels are considered, possibly due to the loss of subdivision capability.”³⁹

Research has also “found that properties within the “emergency plan response zone” of sour gas wells and natural gas pipelines faced an average loss in value of 3.8%, other things being equal.”⁴⁰

Proximity to compressor stations have inflicted health harms, quality of life impacts and property damage, as well as lost property value, and have had impacts so severe that in at least one documented case it forced a family to abandon their \$250,000 investment in the home rather than suffer the health, safety and other harms they were experiencing.⁴¹

“In Hancock, another New York town with a much smaller (15,000 hp) compressor station, three homeowners have had their property assessments reduced, two by 25% and one by 50%, due to the impact of truck traffic, noise, odors, and poor air quality associated with the compressor station (“Proximity of Compressor Station Devalues Homes by as Much as 50%” 2015).”⁴²

The experts at Key-Log Economics estimate that “properties within one half mile of the Kidder Township compressor station would lose 25% of their value if the station is built.” ... “[T]he Kidder compressor station

³⁸ See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

³⁹ See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

⁴⁰ See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

⁴¹ See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

⁴² See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

would reduce the value of 43 properties by a total of \$1.9 million dollars.”⁴³

- *Damage caused by air pollution to agriculture and infrastructure*

“One study found that shale gas air pollution damages in Pennsylvania already amount to between \$7.2 and \$30 million, with compressor stations responsible for 60-75% of this total (Walker & Koplinka-Loehr, 2014). Using the low estimate of 60%, that is between \$4.32 and \$18 million in damages associated with compressor stations.”⁴⁴

- *The Social Cost of Carbon*

“PennEast, LLC estimates the pipeline would transport 401,500,000 dekatherms annually, contributing to an equivalent of 20.1 metric tons of CO₂ emitted per year (U.S. EPA, 2016a). Using the most conservative estimate of the cost per metric ton of carbon (U.S. EPA, 2016b), the additional emission of CO₂ would cost \$252.4 million annually.”⁴⁵

- *Loss of Ecosystem Services*

The ecosystem services, “benefits that flow from nature to people”, that will be lost, for example, “tangible physical quantities, such as food, timber, and clean drinking water, life support functions like assimilating waste that ends up in air and water or on the land, as well as aesthetics, recreational opportunities, and other benefits of a more cultural, social, or spiritual nature.”⁴⁶

In addition there is no recognition in the EIS for the decrease in property values associated with increased ecological impacts to the environment from

⁴³ See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

⁴⁴ See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

⁴⁵ See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

⁴⁶ See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

PennEast. For example, 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.⁴⁷

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.

In addition, the economic analysis included in the EIS fails to consider the potentially superior economic benefits and values of a clean energy alternative for fulfilling energy needs in Pennsylvania, New Jersey and the unnamed surrounding states PennEast asserts it is seeking to serve. For example, an investment in clean energy strategies are known to result in far superior job creation for every million dollars invested as compared to the oil and gas industry, including pipeline projects.

⁴⁷ See e.g. Review of INGAA Foundation Report, "*Pipeline Impact to Property Value and Property*

Insurability", Key-Log Economics, March 11, 2015

Research has demonstrated that investment in clean energy generates a greater number of long term jobs that bring greater capacity for worker earning and advancement. For every million dollars invested in clean energy, including wind, solar, eco-friendly water, and efficiency, generates 6 to 8 times the number of direct jobs, and 3 times the number of direct, indirect and induced jobs collectively as compared to oil, gas or coal.⁴⁸

FERC wrongly concentrates its determinations regarding pipeline certificate approvals largely on the contracts and the alleged reliability accessibility proposed by the applicant without considering the economic costs articulated above –given that improper review, FERC’s failure to fully consider economic harms renders a decision flowing therefrom as arbitrary and capricious.

Using methods established in Phillips and McGee (2016) and applied to pipelines in Phillips, Wang and Bottorff (2016), the PennEast pipeline would cause an initial loss of \$7.3 million in ecosystem services during a one year construction period. For each year the pipeline is in operation, the pipeline would induce an additional loss of \$2.4 in ecosystem services due to conversion of land in the ROW. Land converted for use as permanent pipeline related infrastructure would mean an additional loss of \$218,200 each year. Such losses are not accounted for in the EIS or FERC’s balancing of the economic costs of the project. Additionally,

⁴⁸ See *The Economic Benefits of Investing in Clean Energy*, by the Center for American Progress & PERI Univ of Mass Amherts

using methods established by Kielisch (2015) and Boxall, Chan, McMillan (2005), and applied to pipelines in Phillips, Wang and Bottorff (2016), we estimate that construction of the PennEast pipeline would result in a loss of \$158.3 to \$176.0 million in property value in the right of way and evacuation zone.⁴⁹

6. The Commission erred because the EIS fails in its legal obligation to consider greenhouse gas emissions and climate change implications of the PennEast Pipeline

On August 1, 2016, The Council on Environmental Quality (“CEQ”) issued final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews. The final guidance directed federal agencies on how to consider a proposed action’s impacts on climate change—both in terms of the potential effects of *a proposed action on climate change* (by assessing the GHG emissions that would result *directly and indirectly* from the action) and in terms of the effects of *climate change on a proposed action* and its environmental impacts. While the guidance was withdrawn pursuant to Executive Order 13783, [“Promoting Energy Independence and Economic Growth,”](#) signed March 28, 2017, that action did not change the NEPA mandates the climate change impacts of the project be considered. Still the guidance is useful in that it discusses the kind and quality of information that should be assessed.

⁴⁹ See letter dated September 9, 2016 written by Key-Log Economics to Secretary Kimberly Bose & Deputy Secretary Nathaniel J. Davis.

The guidance, building off of scientific assessments and conclusions, including the 2009 EPA finding that climate change impacts are “reasonably anticipated to endanger the public health and public welfare of present and future generations”, states that “Climate change is a fundamental environmental issue, and its effects fall squarely within NEPA’s purview.” The document acts as a guide for federal agencies to apply NEPA principles and practices to the analysis of GHG emissions and climate change. The withdraw of the guidance does not change that it is instructive in how FERC might think about greenhouse gas emissions or that it is obligated to consider them under NEPA.

The CEQ guidance recommended:

“when addressing climate change agencies should consider: (1) The potential effects of a proposed action on climate change as indicated by assessing GHG emissions (e.g., to include, where applicable, carbon sequestration); and, (2) The effects of climate change on a proposed action and its environmental impacts.”

The guidance also recommended:

“...that agencies quantify a proposed agency action’s projected direct and indirect GHG emissions, ...;”

“...agencies use projected GHG emissions ... as a proxy for assessing potential climate change effects when preparing a NEPA analysis for a proposed agency action;”

“ that where agencies do not quantify a proposed agency action’s projected GHG emissions because tools, methodologies, or data inputs are not reasonably available to support calculations for a quantitative analysis,

agencies include a qualitative analysis in the NEPA document and explain the basis for determining that quantification is not reasonably available;” agencies “[d]iscuss methods to appropriately analyze reasonably foreseeable direct, indirect, and cumulative GHG emissions and climate effects;” “...agencies consider the short- and long-term effects and benefits in the alternatives and mitigation analysis;”

These kinds of considerations were not undertaken in the EIS to fulfill consideration of the climate change impacts of this proposed project; the nod to analysis of the issue that was given in the EIS is overwhelmingly deficient. The EIS fails to fully, fairly and accurately consider the greenhouse gas emissions of the proposed PennEast pipeline project itself, as well as the shale gas extraction emissions that will directly and indirectly be induced by approval of this project, the potential for climate change to worsen environmental impacts associated with the project and the impacts of climate change on the project itself.

A. EIS uses improper time frame and GWP for Methane

It is notable that at the outset the EIS asserts for Methane, CH₄, a Global Warming Potential (GWP) of 25. According to the USEPA, “Methane (CH₄) is estimated to have a GWP of 28–36 over 100 years.”⁵⁰ As a result of FERC using the outdated figure of 25, it will have seriously understated the greenhouse gas emissions calculations for the proposed PennEast pipeline regardless of the other deficiencies noted in this comment with the EIS analysis – the current EPA

⁵⁰ <https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>

accepted range of 28-36 should be the figure used for all calculations associated with Methane emissions for this project. A failure to do so understates the associated global warming potential by between 12% and 44%.

Given that the earth may reach a temperature tipping point in anywhere from 18 to 38 years,⁵¹ it is the 20 year time frame that is the most meaningful and needs to be the basis of present day decision-making. If a 20-year time frame is used, the global warming potential of methane identified by the USEPA is between 84 and 87. For purposes of assessing the climate changing impacts of approving the PennEast pipeline the EIS should engage in a robust analysis that includes the 20 year GWP for methane of 84 to 87. If FERC insists on using the scientifically inaccurate 100 year time frame for this assessment then it should use the EPA range of 28 to 36. But in no instance is use of a 25 GWP for methane appropriate for this assessment. And at a minimum the EIS should do an analysis that includes both the 100 year and the 20 year time frame with the more accurate numbers discussed above for the GHG and climate change assessment of the proposed pipeline.

B. GHG and Climate change analysis needs to consider full pipeline project development and the resulting shale gas production

⁵¹ R. Howarth, D Shindell, R. Santoro, A. Ingraffea, N. Phillips, A Townsend-Small, *Methane Emissions from Natural Gas Systems*, Background Paper Prepared for the National Climate Assessment, Reference number 2011-0003, Feb. 25, 2012.

The climate changing effects of approving PennEast are significant and a climate change assessment needs to include consideration of methane emissions along the entire 116 plus miles of proposed pipeline, including consideration of greenhouse gas and methane emissions from the proposed compressor station, 8 meter and regulator stations for interconnects, 11 mainline valve sites and 4 pig launcher/receiver sites. The climate change assessment also needs to include the gas production that will take place in order to supply the gas that will be carried by the PennEast pipeline in to interstate commerce and that is a foreseeable and direct element of the PennEast pipeline project. End uses of the gas must likewise be considered. Carrying out a legally appropriate, necessary and data driven assessment demonstrates that approval, construction and operation of the PennEast pipeline will have significant climate changing ramifications.

The EIS acknowledges that there will be methane emissions from the PennEast pipeline. The EIS states that the potential emissions of GHGs associated with operation of the Project, including methane emissions from fugitive leaks and equipment venting, are estimated to exceed the 25,000 metric ton threshold for the Kidder Compressor Station. In addition, it states that GHG operating emissions from the New Jersey portion of the Project are also estimated to exceed 25,000 metric tons per year. But these figures understate what should be the anticipated

emissions as compared to what is being documented by current science for other pipeline infrastructure.

For example, the EIS fails to assess the emissions resulting from the induced shale gas production that will result from construction and operation of the pipeline necessary to fulfill its claimed “need” for the project. While recognizing that “upstream development and production of natural gas might be a ‘reasonably foreseeable’ effect of a proposed action” FERC asserts that “ the actual scope and extent of potential GHG emissions from upstream natural gas production is not reasonably foreseeable” and as a result no consideration pursuant to the EIS is necessary. This kind of double speak – shale gas production is reasonably foreseeable at the same time it is not reasonably foreseeable – does not provide firm, or legally defensible ground for FERC’s failure to consider the GHG emissions or climate changing ramifications of shale gas production that will be the result of approval and construction of the PennEast pipeline. In fact the production of shale gas is reasonably foreseeable, and so too is the scope and extent of that production upon which a GHG emissions analysis can be performed.

“Natural gas systems are the single largest source of anthropogenic methane emissions in the United States” contributing approximately 40% of the anthropogenic emissions of methane.⁵² Emission of methane to the atmosphere

⁵² *Id.*

during the production and distribution of shale gas contributes to this fossil fuel's climate changing impacts. Methane is released to the atmosphere on multiple occasions during the shale gas extraction process. It has been estimated that “during the life cycle of an average shale-gas well, 3.6 to 7.9% of the total production of the well is emitted to the atmosphere as methane.”⁵³ Among the most recent scientific findings is that as much as 9% of the methane produced while drilling for gas is lost to the atmosphere.⁵⁴ While a previous estimation that 4% was lost from the well fields had already raised alarm bells for many;⁵⁵ the new figure of 9% is increasing evidence of the massive methane contribution shale gas development provides to the atmosphere.

Additionally, large amounts of methane leak into the atmosphere during the “transport, storage and distribution” phases of the natural gas delivery process including during transmission through interstate pipelines like PennEast.⁵⁶ Even conservative estimates of leakage during gas transmission, storage and distribution

⁵³ Howarth, *supra note 55*.

⁵⁴ *Methane Leaks Erode Green Credentials of Natural Gas*, Nature International Weekly Journal of Science, Jan. 2, 2013. *See also* Howarth, *supra note 56*

⁵⁵ *Id.*

⁵⁶ Howarth, *supra note 56*; *See also* U.S. EPA 1997. *Methane Emissions from the Natural Gas Industry*. USEPA National Risk Management Research Laboratory, June 1997, EPA-600-SR-96-080.

have given a range of up to 3.6%.⁵⁷ Emissions from the transmission of natural gas occur along the length of pipeline project.

Researchers “have found that methane leaks would need to be held to 2% or less in order for natural gas to have less of a climate changing impact than coal due to the life cycle of methane.”⁵⁸ At leakage above 3.2%⁵⁹ natural gas ceases to have any climate advantage over other fossil fuels. As discussed above, science is finding that the existing leakage rate during the production and/or transmission of shale produced gas is significantly higher than either of these numbers.

When upstream and downstream emissions are considered along with the increase in shale gas wells over the next 2 decades, the methane emissions from the natural gas industry will increase, by as much as 40 to 60%.⁶⁰ Upstream emissions occur during well completion and production at a well site while midstream emissions occur during gas processing. Downstream emissions are those that happen in the storage systems as well as the transmission and distribution pipelines.⁶¹

⁵⁷ Howarth, R. W. (2014). A bridge to nowhere: methane emissions and the greenhouse gas footprint of natural gas. *Energy Science & Engineering*.; See also Howarth, *supra note 55*.

⁵⁸ *Switching from Coal to Natural Gas Would Do Little for Global Climate, Study Indicates*, UCAR/NCAR Atmos News, Sept 8, 2011.

⁵⁹ According to the Environmental Defense Fund

⁶⁰ Howarth, *supra note 56*.

⁶¹ Howarth, *supra note 56*.

Scientists believe that if the earth warms to 1.8°C above what it was between 1890 and 1910 that it will put in play a set of chain reactions that will result in increasing releases of methane to the atmosphere – largely released from the arctic as a result of melting permafrost – which will in turn cause increased warming and its associated impacts.⁶² It is posited by scientists that without immediate reductions in methane emissions and black carbon the earth will warm to 1.5°C by 2030 and 2.0°C by 2045/2050 and that this will be the case regardless whether carbon dioxide emissions are reduced or not.

Another cascading and irreversible impact of climate change involves irreversible changes in ocean currents. The Atlantic serves as the engine for the planet’s conveyor belt of ocean currents - Atlantic Meridional Overturning Circulation (“AMOC”). The massive amount of cooler water that sinks in the North Atlantic stirs up that entire ocean and drives global circulation. When the Atlantic turns sluggish or stops, it has worldwide impacts and likely irreversible effects: The entire Northern Hemisphere cools, Indian and Asian monsoon areas dry up, North Atlantic storms get amplified, and less ocean mixing results in less plankton and other life in the sea.⁶³ Paleo climatologists have spotted times in the

⁶² Howarth, *supra*.

⁶³ Hansen, J., M. Sato, P. Hearty, R. Ruedy, M. Kelley, V. Masson-Delmotte, G. Russell, G. Tselioudis, J. Cao, E. Rignot, I. Velicogna, E. Kandiano, K. von Schuckmann, P. Kharecha, A.N. LeGrande, M. Bauer, and K.-W. Lo, 2016: Ice melt, sea level rise and superstorms: Evidence for paleoclimate dat, climate

deep past when the current slowed quickly and dramatically, cooling Europe by 5 to 10 degrees C (10 to 20 degrees F) and causing far-reaching impacts on climate.

Acknowledged in the EIS is that FERC:

“received comments from EPA recommending that we also estimate GHG emissions from the development and production of natural gas being transported through the proposed pipeline, as well as estimate the GHG emissions associated with the end use of the gas.”⁶⁴

FERC rejects its obligation to consider GHG emissions stating:

FERC has in the past ruled that while upstream development and production of natural gas might be a “reasonably foreseeable” effect of a proposed action, the actual scope and extent of potential GHG emissions from upstream natural gas production is not reasonably foreseeable (FERC 2015).⁶⁵

In fact, FERC arbitrarily limits its review by failing to require the current, available, reasonable and attainable analyses, projections and methodologies that will in fact inform the agency of the scope and extent of the foreseeable induced natural gas production and, from there, allow assessment of the anticipated

modeling, and modern observations that 2°C global warming could be dangerous. Atmos. Chem. Phys., <http://csas.ei.columbia.edu/2016/03/22/ice-melt-sea-level-rise-and-superstorms-the-threat-of-irreparable-harm/>

⁶⁴ FERC DEIS pg 4-285

⁶⁵ FERC DEIS pg. 4-285

resulting greenhouse gas emissions. FERC’s self-inflicted ignorance on the subject does not alleviate the agency of its obligation to undertake an assessment of greenhouse gas emissions from induced shale gas production associated with this project and its climate changing implications. Once the scope and extent of induced drilling is determined, FERC has demonstrated it has a competence in determining resulting levels of greenhouse gas emissions. This analysis should be undertaken and subjected to the NEPA review and comment process.

C. EIS ignores other clear guidance

Even if FERC did not have an obligation to quantitatively consider the projected greenhouse gas emissions it is still obligated to “explain the basis for determining that quantification is not reasonably available” and then to undertake a “qualitative analysis in the NEPA document,” neither of which FERC has done for the induced shale gas production from this project.⁶⁶

Furthermore, because FERC arbitrarily limited its consideration of alternatives to different route proposals it has also denied itself and the public the ability to consider a comparison of greenhouse gas emissions between the proposed pipeline and other mechanisms for fulfilling genuine end use energy needs such as investments in energy efficiency, solar, wind energy, geothermal,

⁶⁶ Counsel on Environmental Quality, Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews, August 1, 2016

environmentally sustainable water, etc.

In addition, according to the previous CEQ guidance:

“When discussing GHG emissions, as for all environmental impacts, it can be helpful to provide the decision maker and the public with a recognizable frame of reference for comparing alternatives and mitigation measures. Agencies should discuss relevant approved federal, regional, state, tribal, or local plans, policies, or laws for GHG emission reductions or climate adaptation to make clear whether a proposed project’s GHG emissions are consistent with such plans or laws. For example, the Bureau of Land Management has discussed how agency actions in California, especially joint projects with the State, may or may not facilitate California reaching its emission reduction goals under the State’s Assembly Bill 32 (Global Warming Solutions Act). This approach helps frame the policy context for the agency decision based on its NEPA review.”⁶⁷

The EIS failed to properly give this kind of frame of reference or context for the greenhouse gas emissions discussion.

D. EIS fails to consider combined adverse environmental impacts of climate change and the PennEast pipeline and the potential implications for the PennEast pipeline itself

The EIS states that the projected climate change effects in the Project area are not anticipated to exacerbate any other environmental impacts from the Project during its expected lifetime. FERC, in the EIS, summarily dismisses any consideration of the combined adverse environmental impacts of climate change

⁶⁷ Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews, Aug 1, 2016

and the PennEast pipeline and the potential implications for the PennEast pipeline itself resulting from climate change.

In fact, the PennEast pipeline, if built, would have compounding adverse effects with regard to climate change, requiring a more thorough assessment and analysis in the EIS. In addition, the impacts of climate change on the northeast region is likely to have implications for the PennEast pipeline itself that require NEPA consideration and assessment

With regards to this element of the NEPA analysis, the CEQ guidance stated:

“The analysis of climate change impacts should focus on those aspects of the human environment that are impacted by both the proposed action and climate change. Climate change can make a resource, ecosystem, human community, or structure more susceptible to many types of impacts and lessen its resilience to other environmental impacts apart from climate change. This increase in vulnerability can exacerbate the effects of the proposed action.”

The EIS identifies the following list of potential implications for the Northeast region of the United States resulting from climate change that are expected in the project’s lifetime:

- “the frequency, intensity and duration of heat waves is expected to increase. The average number of days exceeding 90 °F currently ranges between 0-5 and 10-20 days per year in the Project area, and could increase in range to between 5-10 and 30-40 days per year during the 2041-2070 time period.
- changes in precipitation patterns are expected. During the expected Project lifetime, the NCA projects small increases in average winter precipitation, an increased frequency of heavy downpours, and an increased risk of summer drought due to earlier spring snowmelt.

- increased cold damage to crops is projected, due to a higher frequency of premature spring warm spells followed by hard freezes.
- increased crop damage and reduced crop yields are projected due to intense precipitation events, delays in crop plantings and harvest, and heat stress.
- increased stress on native vegetation is projected due to the spread of invasive insects and growth of invasive weeds such as kudzu.
- the species distributions of trees and plants are projected to move to higher elevations.
- bird ranges are projected to move northward, and migratory birds are projected to arrive earlier in the spring.
- increases are projected in carrier habitat and human exposure to vector-borne diseases such as Lyme disease, West Nile virus, and Zika virus.”

But after providing this list, the EIS summarily dismisses them without any discussion or consideration, simply stating:

“These projected climate change effects in the Project area are not anticipated to exacerbate any other environmental impacts from the Project during its expected lifetime.”

In fact, there is a lot to be considered in terms of compounding and synergistic affects between the pipeline and climate change for ecological systems, drinking water supplies, and communities. The summary dismissal fails to fulfill NEPA’s obligations to consider the impacts of climate change for the pipeline, but also the combined effects of the pipeline and climate change for the environment and communities. Simply listing some anticipated climate change impacts for the region is obviously deficient.

E. Frequency, intensity, duration of heat waves in the region

As identified in this comment and others on the docket, the PennEast pipeline will alter groundwater flows and increase stormwater runoff thereby reducing groundwater recharge. This altered and loss of groundwater to streams and wetlands will alter stream base flow, wetland source water, water quality, and temperatures. Increasing the “average number of days exceeding 90 °F currently ranges between 0-5 and 10-20 days per year in the Project area, and could increase in range to between 5-10 and 30-40 days per year” will exacerbate these harms inflicted by PennEast and vice versa. The combination of increasing weather temperatures, declining baseflow and wetland source water, will increase instream temperatures and decrease the moderating affect healthy groundwater flows would provide, in addition the increased temperatures will result in increased evaporation that will compound the impacts of lost recharge and base flow.

Pipeline construction results in the loss of riparian (streamside) vegetation.⁶⁸ For each of the pipeline construction techniques there is a resulting loss of vegetation and foliage associated with clearing the stream banks – the PennEast pipeline is no exception. At least 255 streams will be crossed with the vast majority being crossed via open trench methods which result in permanently denuded streambanks. Riparian vegetation is an important part of a healthy ecosystem and protects the land adjoining a waterway which in turn directly affects

⁶⁸ Norman, *supra*.

water quality, water quantity, and stream ecosystem health. A reduction in streamside healthy and mature streamside vegetation reduces stream shading, increases stream temperature and reduces its suitability for incubation, rearing, foraging and escape habitat.⁶⁹ These impacts are not accounted for in the EIS.

The loss of riparian vegetation along streams will, among other impacts, remove shading and result in increased stream temperatures. Many of the streams being cut by PennEast are smaller, headwater streams with high water quality. The loss in vegetation coupled with the more extreme temperatures brought on by climate change, will magnify increased stream temperature and thereby reduce its quality and suitability for aquatic life. For some species the resulting change in temperature could have dramatic impacts.

The Union of Concerned scientists has also recognized the combined effect of warming temperatures, changing precipitation, altered streams flows, higher water temperatures and diminished shading along stream banks for fish species, identifying two but recognizing others may be implicated as well: “As global warming drives up air temperatures and changes precipitation patterns, altered seasonal stream flows, higher water temperatures, and diminished shade along stream banks may follow. The native brook trout and smallmouth bass are

⁶⁹ CAPP (2005), *supra*.

particularly sensitive to such changes.”⁷⁰ The Penn East lists at least 131 Wild Trout Waters in Pennsylvania to be cut across by the pipeline. Hawk Run, Little Bear Creek, Black Creek, Bull Run, Cooks Creek, Frya Run, Monocacy Creek, Hokendauqua Creek, Aquashicola Creek, Indian Creek, Pohopoco Creek, Hunter Creek, Buckwha Creek, White Oak Run, Wild Creek, Mud Run, Stony Creek, Laurel Run, Lehigh River, Little Shades Creek, Shades Creek, Mill Creek, Deep Creek, Abrahams Creek, Trout Brook, and Toby Creek are some of the streams in Pennsylvania to be crossed, some crossed multiple times, but that have naturally reproducing populations of trout. It is important that with recent updates to the Fish and Boat Commission Class A lists that PennEast update this list and ensure all designations are accurate.

The synergistic implications of climate change and the PennEast pipeline on stream flows, quality, temperatures, health, and aquatic life were not assessed by the EIS.

F. Changes in precipitation – increase in downpours and drought due to earlier spring snowmelt

⁷⁰ Union of Concerned Scientists, *Climate Change in Pennsylvania – Impacts and Solutions for the Keystone State*, Oct 2008

As documented by experts in the attached reports, including Meliora Design⁷¹

who stated:

“Due to land use changes and soil alteration, there will be permanent long term water quality impacts related to stormwater runoff, including increases in the rate, volume, and frequency of stormwater runoff.”

“The proposed pipeline conditions will significantly reduce the land surface’s ability to retain rainfall and facilitate infiltration, and will increase runoff frequency, volumes, and flow rates, including increased surface erosion and sediment transport to Special Protection or C1 water bodies.”

Furthermore, the loss of riparian vegetation associated with the PennEast pipeline will make impacted streams more susceptible to erosion events, resulting in the loss of riparian lands (including floodplain) and exacerbating the sedimentation impacts of construction. As noted by experts, the deforestation caused by the PennEast pipeline will result in increased stormwater runoff; this will result in increasing flows in the stream with stream banks more susceptible to its erosive forces due to the loss of vegetative protection. Increased erosion means loss of habitat; channel migration that can have serious implications for riparian lands and vegetation over long stretches and long periods of time as the stream

⁷¹ Adams, Michelle, and Henderson, Marc, Water Resources Engineers, Meliora Design, LLC, *Professional Review & Comment of the Draft Environmental Impact Statement and Supporting Documents Related to Surface Water Impacts of the Proposed PennEast Pipeline Project*, September 2016.

continues to erode, downcut and deposit sediment in order to try and reestablish a stable channel; and increased instream sedimentation which is considered a pollutant both legally and scientifically. Having more extreme weather events, including “increased frequency of heavy downpours,” means that the instream flows from both rainfall and runoff will be much more extreme and have stronger erosion potential. These more erosive and extreme flow events will combine with the impacts inflicted by the construction and ongoing land management, including removal of riparian vegetation and forest, associated with the pipeline ROW to intensify the impacts of both.

The ROW associated with PennEast will be the location of compacted soils and, in the case of natural landscapes like forests, the maintenance of plants that have lesser capacity to infiltrate rainfall. The combination of compacted soils with low growing plants (to the degree they are able to grow in the compacted soils or under PennEast’s ROW management protocols) will result in increased runoff to nearby streams, thereby increasing flows that are flooding downstream communities. The combination of increased duration, frequency and intensity of storms by climate change, coupled with the increased landscapes that are the source of stormwater runoff contributing to flood flows, flood peaks, and more erosive stream flows, could be significant in some areas.

The compacted soils and lost or altered vegetation from the pipeline will not only increase stormwater runoff, but it will decrease groundwater recharge. In addition the presence of the pipeline will already be altering the flow path of some groundwater systems, diverting water from streams and wetlands that would otherwise provide life supporting base flow for them. Increased drought caused by climate change will work with the altered and impacted groundwater flows resulting from the PennEast pipeline to more seriously impact streams during periods of drought. Climate change generally and the PennEast Pipeline specifically, will adversely impact base flow of streams along the pipeline route which will harm water quality, habitat, recreation and potentially drinking water supplies, but together these impacts will be magnified. In addition to adversely impacting stream and/or wetland base flows, drinking water supplies/aquifers could be adversely impacted, losing the historic water recharge they receive.

The threat of increased drought from climate change is significant depending on how quickly the U.S. reduces climate changing emissions – and given that we are commenting on yet another proposal for a fossil fuel based gas pipeline, it is not unlikely that emissions will significantly reduce in sufficient time to prevent these consequences from coming to fruition. According to the Union of Concerned Scientists:

“On a higher-emissions pathway, a short seasonal drought can be expected every year in most of New England by the end of this

century, while the frequency of longer droughts could triple to once every 6 to 10 years in parts of New York, Pennsylvania, and Maine—the region’s key agricultural states.”⁷²

The ramifications of drought will be dramatically increased by land use changes, such as those that will be inflicted by PennEast. Increased stormwater runoff, reduced groundwater recharge, altering vegetative landscapes, reduced stream baseflow, and reduced recharge of drinking water supplies that will result from PennEast will magnify the adverse implications of climate change for groundwater supplies, drinking water supplies, stream flows and wetlands because there will be less water available for resources impacted by PennEast making them less resilient to these climate change induced periods of drought.

The absolute denial of any consideration of the combined effects of PennEast for recharge, groundwater and baseflow, coupled with the heightened anticipation of drought due to climate change, is inexcusable and fails to fulfill the NEPA review obligation.

For the actual pipeline itself there are also implications from the extreme weather events that will be brought to the region by climate change, including the extreme and more frequent downpours. Because open trench pipeline installations may unnaturally alter both stream bank and streambed (i.e., channel) stability,

⁷² Union of Concerned Scientists, *Climate Change in Pennsylvania – Impacts and Solutions for the Keystone State*, Oct 2008

there is an increased likelihood of scouring within backfilled pipeline trenches.⁷³ 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. The more extreme rainfall events brought by climate change will mean more extreme and erosive flooding events in streams crossed by PennEast, increasing the likelihood of stream scour, exposure and rupture. Additionally, unusually heavy rains associated with climate change, threaten to increase overall stream degradation and channel migration – thereby also exposing buried pipelines.

G. Increased damage to crops

Climate change was identified in the EIS as having adverse impacts for crops due to altered weather events and temperatures and yet the EIS did not give due consideration to the significant harms that would result to farmers and impacted farming. Farmers along the pipeline route who have already been impacted by

⁷³ See e.g. 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>; 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).

pipelines have identified the presence of pipelines as adversely impacting their crop yield. One farm has worked to document that the existence of a pipeline across his farm fields has reduced his crop yield by as much as 30% in a given year.⁷⁴

Adding the PennEast pipeline to farm fields will reduce crop yield. Couple that with the altered temperature and weather patterns and the stressors on the crops will be magnified further reducing their ability to survive and produce as robustly as they had historically and as the farmers need them to in order to produce for their customers and to support the economic income they need to continue to sustain and operate their farms.

In addition, the USGCRP Climate Change Impacts in the United States Report states: “To date, all weed/crop competition studies where the photosynthetic pathway is the same for both species favor weed growth over crop growth as carbon dioxide is increased.”⁷⁵ This means that while crops impacted by the pipeline and climate change are already struggling to produce, they are also going to be more susceptible to being outcompeted by weeds, which will have

⁷⁴ See attached graphics re the Fulper Farm.

⁷⁵ Horton, R., G. Yohe, W. Easterling, R. Kates, M. Ruth, E. Sussman, A. Whelchel, D. Wolfe, and F. Lipschultz, 2014: Ch. 16: Northeast. *Climate Change Impacts in the United States: The Third National Climate Assessment*, J. M. Melillo, Terese (T.C.) Richmond, and G. W. Yohe, Eds., U.S. Global Change Research Program, 16-1-nn.

further ramifications for crop production and for the increased use of herbicides on agricultural lands with both economic and health implications.

H. Increased stress on native plants due to invasives

Climate change was identified in the EIS as causing “increased stress on native vegetation is projected due to the spread of invasive insects and growth of invasive weeds such as kudzu”. “[M]any insect pests, pathogens, and invasive plants like kudzu appear to be highly and positively responsive to recent and projected climate change.”⁷⁶ As noted by Native Landscape expert Leslie Sauer permanent pipeline ROWs cause:

“Increased wind movement facilitates movement of weedy propagules and invasive species deep into the forest where they find the way suddenly wide open for them with abundant new ground to colonize. Predators and parasitic birds like cowbirds use these corridors to access otherwise difficult to find prey.”⁷⁷

The increased pressure on natives due to invasives inflicted by the PennEast pipeline will be exacerbated and magnified by the encouragement of invasives imposed by climate change, and vice versa. The two impacts will work

⁷⁶ Horton, R., G. Yohe, W. Easterling, R. Kates, M. Ruth, E. Sussman, A. Whelchel, D. Wolfe, and F. Lipschultz, 2014: Ch. 16: Northeast. *Climate Change Impacts in the United States: The Third National Climate Assessment*, J. M. Melillo, Terese (T.C.) Richmond, and G. W. Yohe, Eds., U.S. Global Change Research Program, 16-1-nn.

⁷⁷ Sauer, Leslie., *Achieving Higher Quality Restoration Along Pipeline Rights of Way*

synergistically with devastating effects for native species of both plant and animal. The EIS failed to meaningfully consider these significant adverse impacts.

I. Movement of bird ranges

As identified in the EIS, climate change will have implications for changing bird habitat forcing bird ranges to move northward and altering the arrival of migratory species. The PennEast Pipeline will be cutting down hundreds of acres of forest. “Fifty-seven percent of the pipeline right-of-way area, or approximately 446 acres, is currently forested and will permanently be altered from forest during pipeline operation. An additional 139 acres of forest will be removed for construction.”⁷⁸ In forested areas the habitat loss will not just be in the immediate footprint of the pipeline, but it will impact an additional 300 feet of forest on either side of the ROW.⁷⁹ This means that for every mile of pipeline cut through a forest an additional 12 acres of forest will be harmed. In addition, the pipeline will irreparably alter a tremendous number of wetlands (how many is unclear, as this comment and our attached reports document the incredibly inaccurate, misleading

⁷⁸ Michelle Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, *Professional Review & Comment of the Draft Environmental Impact Statement and Supporting Documents Related to Surface Water Impacts of the Proposed PennEast Pipeline Project*, September 2016

⁷⁹ Nels Johnson, et al., *Natural Gas Pipelines*, The Nature Conservancy, 1 (December 2011); CNA, *The Potential Environmental Impacts of Fracking in the Delaware River Basin*, 2015; 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.

and deficient job PennEast and FERC, through this EIS, did on assessing wetland impacts), including changing their functions and values.

The result will be to reduce available bird habitat, nesting grounds and feeding grounds. The invasive species problems noted above will further erode habitat and food resources for bird species.

The ramification of this lost habitat will be to make it harder for this northward evolution of species resulting from climate change. Climate change will force the northward migration, PennEast and climate change individually and combined will reduce the available food, habitat and nesting grounds available for these species in our region, thereby impeding their ability to adapt, survive and thrive.

J. Other Impacts Ignored by the EIS and FERC

Other adverse impacts to the region from climate change that, combined with the PennEast pipeline would have more serious implications in need of consideration by the FERC EIS which didn't even make it to FERC's EIS list:

- “Suitable forest habitat for maple, black cherry, hemlock, and others is expected to shift northward...” This will threaten tourism as well as lucrative timber such as world-renowned black cherry.”⁸⁰

The EIS mentions the northward movement of bird habitat, but fails to

⁸⁰ Union of Concerned Scientists, *Climate Change in Pennsylvania – Impacts and Solutions for the Keystone State*, Oct 2008

recognize northward migrations of habitat for other species, as well as the environmental and economic implications of that northward migration. Given that PennEast will maintain a permanent footprint spanning hundreds of acres of what would otherwise be forest land, where migrating native plant species might otherwise settle, and that it will encourage invasive species that adversely impact and kill native plants including trees and shrubs, the implications of pipeline construction combined with climate change for forest species needing to migrate northward is important. The ecological as well as the recreation, social and economic affects must be among the issues considered.

- “Warming climate and shifting distributions and quality of forest habitat is expected to cause substantial changes in bird life. As many as half of the 120 bird species modeled in Pennsylvania could see at least 25-percent reductions in their suitable habitat. Species at greatest risk include the ruffed grouse, white-throated sparrow, magnolia warbler, and yellow-rumped warbler.”⁸¹

The habitat of Ruffed Grouse includes deciduous and mixed forest, dense undergrowth, overgrown pasture, scrub oak, thick shrubland, young forest, understory including in Carbon, Luzerne, Northampton, Bucks, Hunterdon, Lehigh Counties. These are all habitats and regions that will be cut and damaged by PennEast, and for which analysis of direct impacts, as well as impacts compounded by climate change, including for this species were not considered.

⁸¹ Union of Concerned Scientists, *Climate Change in Pennsylvania – Impacts and Solutions for the Keystone State*, Oct 2008

The habitat of White-throated Sparrow includes coniferous and mixed forest, dense thickets, secondary growth areas, around ponds or openings, forest edge including in Hunterdon, Luzerne, Northampton, Carbon, Lehigh, and Bucks. These are all habitats and regions that will be cut and damaged by PennEast, and for which analysis of direct impacts, as well as impacts compounded by climate change, including for this species were not considered.

The habitat of Magnolia Warbler includes coniferous and mixed forest especially young spruces, nests in trees, during migration- deciduous shrubs or low trees including in Luzerne, Northampton, Carbon, Lehigh, Bucks, and Hunterdon Counties. These are all habitats and regions that will be cut and damaged by PennEast, and for which analysis of direct impacts, as well as impacts compounded by climate change, including for this species were not considered.

The habitat of Yellow-Rumped Warbler includes mature coniferous and mixed coniferous/deciduous forest, forest edge including in Luzerne, Northampton, Carbon, Lehigh, Bucks, and Hunterdon Counties. These are all habitats and regions that will be cut and damaged by PennEast, and for which analysis of direct impacts, as well as impacts compounded by climate change, including for this species were not considered.

The EIS mentions the northward movement of bird habitat and altered migratory patterns, but it fails to discuss the actual loss of habitat due to climate

change of a variety of bird species, including the ones noted above as being at risk. Given that the PennEast pipeline would destroy a variety of natural habitats important for bird species, including forest, wetlands, meadow and more that are important habitat for a variety of species, and that it would also invite in invasive plants and animals that will further degrade, damage or destroy habitat, the combined effect of a PennEast pipeline with climate change for the loss or degradation of bird habitat is an important consideration.

Amphibians are important indicators of environmental health and water quality. The timing of amphibian breeding is largely driven by environmental cues such as temperature and moisture, and because of this, their breeding phenology may be directly affected by global warming. Amphibians in regions such as the northeastern United States (where the proposed PennEast pipeline would be) may be even more susceptible to increases in temperature. Amphibian species in the northeast spend a large portion of the year inactive, escaping either cold winters or hot summers. Subtle increases in temperature or moisture trigger them to emerge from their hibernacula in the spring. Immediately upon emergence, they migrate to ponds or streams to breed. As average air temperatures increase from climate change, amphibians will start to emerge and breed earlier in the year. If amphibians breed too early in the season, they may be more vulnerable to early snowmelt induced floods and early season freezes that are usually less common later in the

season. Amphibians tricked by the warm temperatures from climate change may emerge too early and then die when a cold front comes in.

Amphibians are also affected by extreme weather events associated with climate change, particularly drought. In addition to requiring water for breeding, amphibians need to keep their skin moist to avoid drying up in the sun. Rain water, shade from trees, and moist soil are very important to amphibians. In drought conditions caused by climate change, long periods with no rain can be detrimental to amphibian populations. These effects are worsened by deforestation because it eliminates the shade that the trees provide. Shade keeps the soil on the forest floor moist by blocking the sun's rays. Many amphibians, particularly salamanders, burrow in this moist soil in between periods of rain. Without the shade from the canopy and with no rain, this soil is exposed to full sun exposure and quickly dries up and amphibians become desiccated. Natural gas pipeline construction involves the clearing of many acres of forest, so this is a prime example of natural gas infrastructure working hand-in-hand with climate change and compounding impacts. At the same time, FERC falsely states that vernal pools to be cut by the pipeline will only have temporary impacts or not significant sustaining impacts yet it ignores to consider the 1,000 feet of upland forest that amphibians using vernal pools require for parts of the year when they are not in their breeding vernal pool habitats. A pipeline cut adjacent and through a vernal pool or within 1,000 feet of

a vernal pool can be a death sentence for migrating amphibians who may not be able to successfully cross the dry compacted pipeline route to reach their seasonal vernal pool.⁸² Predation also increases with these pipeline cuts.

In addition, local changes in the environment can decrease immune function and lead to pathogen outbreaks and elevated mortality in amphibians. Conditions can change to become more favorable for the growth of a pathogen. For example, the chytrid fungus (*Batrachochytrium dendrobatidis*) grows best in culture between 6-28 degrees C and dies at 32 degrees C. The chytrid fungus causes an infectious disease in amphibians called chytridiomycosis which has killed millions of amphibians worldwide and has affected about 30% of all amphibian species in the world. Climate change may make environmental conditions more conducive for this disease to spread as well as cause weakened immune systems, making it more difficult for amphibians to fight off the disease. This disease has been documented in Pennsylvania and New Jersey which are both home to multiple state listed amphibian species.

Clearly, these amphibian species are at great risk and they would be put at an even greater risk by the combined impacts of climate change and the construction of the PennEast pipeline.⁸³ The EIS failed to consider these impacts.

⁸² Delaware Riverkeeper Network Field Monitoring Report, *Pipeline Construction & Maintenance Irreparably Harms Rivers, Wetlands and Streams*. Addendum to Comment for the PennEast Pipeline.

7. **The Commission erred because the EIS Alternatives Analysis is Fundamentally Flawed**

FERC cannot interpret the Project's purpose and need so narrowly that every conceivable alternative is ruled out by definition. *See Simmons v. U.S. Army Corps of Eng's*, 120 F.3d 664 (7th Cir. 1997) (cautioning agencies not to put forward a purpose and need statement that is so narrow as to "define competing 'reasonable alternatives' out of consideration (and even out of existence)"); *Nat'l Parks & Cons. Ass'n v. Bureau of Land Mgmt.*, 606 F.3d 1058, 1072 (9th Cir. 2009) (finding a purpose and need statement that included the agency's goal to address long-term landfill demand, and the applicant's three private goals was too narrowly drawn and constrained the possible range of alternatives in violation of NEPA). Only PennEast's proposed Project offers the means of meeting FERC's stated requirements, thus all alternatives are preordained to fail in comparison. Such a narrow statement of purpose and need, and failure to examine other system alternatives, undermines the NEPA process and cannot be legally defended and will not be upheld. *Envtl. Prot. Info. Ctr. v. U.S. Forest Serv.*, 234 F. App'x 440, 443 (9th Cir. 2007) (agencies cannot "define[] the objectives of the project so

⁸³ Vredenberg, V., McDonald, M., & Sayre, T. (2008). *Climate Change. AmphibiaWeb: Information on amphibian biology and conservation, 2016, Berkeley, California*. Retrieved from <http://amphibiaweb.org/declines/ClimateChange.html>

narrowly that the project [is] the only alternative that would serve those objectives”).

FERC rejected co-locating the PennEast line along Transcontinental’s Leidy Line gas transportation system for two reasons, but neither is sufficiently explained in the EIS. Primarily FERC contends that because colocation would not “provide access to the delivery points” as the proposed project this alternative is rejected. However, considering the close proximity of these two right of ways, FERC never explains why those delivery points could not be accessed. Furthermore, FERC contends that “due to the amount of commercial, industrial, and residential development that has occurred adjacent to Transco’s existing right-of-way” this alternative was rejected. However, FERC never explains how much of the right of way would be inaccessible nor how much additional development in as-of-yet-undeveloped-area would need to be constructed. It would seem that the environmental footprint of the proposed project would be less if collocated with Transco even if the right of way had to deviate at places. By failing to sufficiently examine other competing pipeline system alternatives FERC violates the Natural Gas Act’s overriding purpose “to protect consumers against exploitation at the hands of natural gas companies.” *United Distrib. Co. v. FERC*, 88 F.3d 1105, 1122 (D.C. Cir. 1996) (citation omitted). Neither NEPA nor the NGA allows FERC to reject all alternatives except the Project in order to promote the pecuniary

interests of its already identified project shippers. As such, the EIS and Order are factually and legally deficient.

The EIS Alternatives Analysis is fundamentally flawed. The analysis assumes as true the characterizations of “need” made by PennEast. In fact there are multiple analyses already on the record, as well as comments filed, in addition to this comment, that demonstrate there is in fact no need for the PennEast pipeline project, and to the degree there is an assertion of need it is based upon a self-manufactured claim.

Of priority concern is FERC’s failure in this EIS to consider other mechanisms for achieving energy goals in the region that are not shale gas dependent – such as implementation of increased energy efficiency strategies and renewable energy strategies such as solar, wind, geothermal and environmentally protective hydro.

As discussed in the attached expert report from Key-Log Economics:

“Changes in energy markets due to energy efficiency gains and/or further market penetration by renewable alternatives to fossil fuels are reasonably foreseeable. For example, renewable energy accounted for 40% of new domestic power capacity installed (American Council On Renewable Energy, 2014), and the relative cost of producing power from renewable sources, which is already competitive, is falling (Randall, 2016; U.S. Energy Information Administration, 2016). Moreover, and as shown in Lander (2016), “there are 49.9% more resources available to meet peak day demand from local gas distribution companies in the region than is needed (p.9).” In light of

these facts and related factors, FERC must consider alternatives that reflect the likely future reality in which the gas the PennEast pipeline would transport is not needed and/or is not a cost-effective choice for consumers or electric power generators. To do otherwise—that is, to focus narrowly on only transportation options—could lead to a federal action that imposes significant environmental effects and associated economic costs for no reason.”

8. The Commission erred because of the continued Use of Segmentation in this EIS is Improper

The D.C. Circuit in *Delaware Riverkeeper v. FERC*, identified two tests for evaluating whether an agency has improperly segmented its review of a project. *Delaware Riverkeeper Network, et al. v. Federal Energy Regulatory Commission*, 753 F.3d 1304, at 1314-1315 (D.C. Cir. 2014). In the *Delaware Riverkeeper* case – as here – FERC failed both tests. First, the Court stated that for the purpose of segmentation review, an agency’s consideration of the proper scope of its NEPA analysis should be guided by the “governing regulations,” which were 40 C.F.R. § 1508.25(a). *Id.* The same analysis is required in the instant matter. Second, the Court in *Delaware Riverkeeper*, also stated that even if the segmentation analysis was guided instead by the test articulated in *Taxpayers Watchdog v. Stanley*, 819 F.2d 294 (D.C. Cir. 1987), FERC still unlawfully segmented its review of the projects. *Id.* As shown below, FERC here similarly fails both tests for improper segmentation review of the proposed Project.

An agency should prepare a single programmatic Environmental Impact Statement for actions that are “connected,” “cumulative,” or “similar,” such that their environmental effects are best considered in a single impact statement. *Am. Bird Conservancy, Inc. v. FCC*, 516 F.3d 1027, 1032 (D.C. Cir. 2008); 40 C.F.R. § 1508.25(a). “Actions are ‘connected’ or ‘closely related’ if they: ‘(i) Automatically trigger other actions which may require environmental impact statements; (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously; [or] (iii) Are interdependent parts of a larger action and depend on the larger action for their justification.’” *Hammond v. Norton*, 370 F. Supp. 2d 226, 247 (D.D.C. 2005) (quoting 40 C.F.R. § 1508.25(a)(1)). Similar actions have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography. *Id.* at 246; 40 C.F.R. § 1508.25(a)(3). NEPA requires “agencies to consider the cumulative impacts of proposed actions.” *NRDC v. Hodel*, 865 F.2d 288, 297 (D.C. Cir. 1988) (“Hodel”). *See also TOMAC v. Norton*, 433 F.3d 852, 864 (D.C. Cir. 2006). An agency must analyze the impact of a proposed project in light of that project’s interaction with the effects of “past, current, and reasonably foreseeable future actions.” 40 C.F.R. § 1508.7.

“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. *Taxpayers*, 819 F.2d 294, 298 (D.C. Cir. 1987). Federal agencies may not evade their responsibilities under NEPA by “artificially dividing a major federal action into smaller components, each without a ‘significant’ impact.” *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).

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.” *Town of Huntington v. Marsh*, 859 F.2d 1134, 1142 (2d Cir. 1988). Without this rule, developers and agencies could “unreasonably restrict the scope of environmental review.” *Fund for Animals v. Clark*, 27 F. Supp. 2d 9, 16 (D.D.C. 1998) (“Fund”).

In addition to failing to meet the requirements of 40 C.F.R. § 1508.25(a), FERC also fails to satisfy the three of the factor test articulated in *Taxpayers*, thus demonstrating that FERC impermissibly segmented its NEPA analysis. *Taxpayers*, 819 F.2d 294 (D.C. Cir. 1987). To determine whether a project has been unlawfully segmented, “courts have considered such factors as whether the proposed segment (1) has logical termini; (2) has substantial independent utility; (3) does not foreclose the opportunity to consider alternatives[.]” *Taxpayers*, 819

F.2d at 298. In *Delaware Riverkeeper*, the court held that even if the court were to expand its analysis from Section 1508.25(a) to the factors articulated in *Taxpayers*, FERC's defense of its action was still deficient. *Delaware Riverkeeper*, 753 F.3d at 1314-16 (the court held that the projects did not have "(1) has logical termini; [or] (2). . . substantial independent utility." (the court's examination did not reach the remaining factor)). FERC failed to satisfy each of the factors identified in the *Taxpayers'* test.

A project lacks "independent utility" if it could not function or would not have been constructed in the absence of another project. *Wetlands Action Network v. U.S. Army Corps of Engineers*, 222 F.3d 1105, 1118 (9th Cir. 2000). *See also W. N.C. Alliance v. N.C. DOT*, 312 F. Supp. 2d 765, 774-775 (E.D.N.C. 2003) (project widening highway section lacked independent utility because it would leave a "bottleneck" of narrow highway to north, such that traffic congestion between the termini of the project would be worsened until construction of later project widening bottleneck section).

It is clear that partners of the PennEast Pipeline Company, LLC are proposing additional projects that, given their connected ownership, physical connection, contemporaneousness in terms of time and space, and the planned route for the gas – are integral parts of the PennEast Pipeline project and should be considered as part of cumulative impacts of the PennEast Pipeline project and plan.

Spectra Energy Partners is a “member company” in PennEast Pipeline Company, LLC and 10% owner of the PennEast Pipeline proposal. Spectra Energy is 100% owner of Texas Eastern Pipeline that will be interconnected with PennEast in/around Lambertville, NJ. Spectra Energy is currently planning for and proposing a new project called the Texas Eastern Marcellus to Market project (M2M) in which it clearly identifies, as a primary goal, the redirection and transfer to western markets of gas brought via the PennEast Pipeline that will transfer at/thru the compressor station in Lambertville, NJ. Spectra’s M2M project seeks to increase capacity along the Texas Eastern pipeline segment between the Lambertville NJ Compressor Station and Eagle (in Chester County PA) Compressor Station. The M2M project, consists of upgrades to existing lines including some new facilities. Indeed absent the PennEast pipeline project the M2M project is not viable.

The M2M project sketch map clearly documents Spectra Energy’s plan to receive most of its anticipated gas (over 62%) from the PennEast Pipeline. The map also confirms that Spectra Energy plans to send the gas *west* from Lambertville Station into Pennsylvania via its Texas Eastern systems. On its website, Spectra makes very clear that the proposed PennEast pipeline will be the primary source of gas that the M2M project will transport.

Specifically, according to the Spectra Energy website, the new M2M

pipeline would receive the majority of its gas, 62.5%, (up to 125,000 dekatherms per day (Dth/d)) from the PennEast pipeline (this equates to over 11% of PennEast's anticipated capacity).

Spectra is also pursuing the proposed Greater Philadelphia Expansion Project. The stated intent of the project is to increase the volume of gas Spectra can transport to the Philadelphia region from the Eagle Compressor Station – the same station that is part of Spectra's proposed M2M Project. The Philadelphia region has been under discussion for an LNG export facility, which is one obvious pathway for future intended export of PennEast gas. This export facility must be disclosed and analyzed in addition to the Cove Point LNG export facility already identified by the Delaware Riverkeeper Network and Mr. Berman as a likely recipient of the gas. FERC did not conduct this analysis in the current EIS.

The National Environmental Policy Act clearly requires FERC consideration of these interconnected projects obviously being contemplated and planned for in the same time frame by the same owner for delivery of the same gas. There exists a physical, functional, and temporal nexus that cannot be overlooked and FERC is now fully aware of these additional elements of the PennEast Pipeline project that is before FERC and freely available to the public for review and consideration. Spectra Energy clearly intends and plans for these projects to operate as an interconnected whole, and as such their cumulative impacts must be considered as

part of the review of the PennEast Pipeline project and the M2M project when it is actually proposed. The EIS fails to undertake this mandated analysis.

9. The Commission erred because the EIS fails to address comments and experience that shows use of standard constructions practices will result in environmental violations and degradation

The EIS asserts in multiple locations in multiple ways that the project will be constructed in full compliance with all applicable laws and that in temporary work spaces 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 pointed this out in great detail in our comments to date, the fact that FERC fails to consider the reality of pipeline construction, and that construction is fraught with environmental violations and a failure of mitigation/restored areas to return to ecological health is a significant deficiency that ignores the reality and comments filed.

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. We 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 of these pipelines, it is clear that:

- 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.

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 technical documents, reports and observations compiled as the result of field monitoring which support, inform and expand upon these conclusions. DRN's 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.

In addition, FERC has its own records and experiences on other pipelines constructed across the nation that demonstrate that violations and resulting environmental degradation are commonplace with pipeline construction. And yet FERC chose to turn a blind eye to the information provided during the public comment period as well as its own experiences that have been documented on multiple FERC dockets.

The EIS 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. No pipeline project of this scale is ever built without violations.⁸⁴

10. The Commission erred because the DRBC's legal authority is misrepresented in the EIS – thereby misleading the public and decision-making officials

The mission and authority ascribed to the DRBC in the EIS is flagrantly incorrect and misleading. The authority of the DRBC is far broader than asserted by FERC in the EIS. FERC's failure to understand and give due regard to DRBC's authority fails to ensure full and accurate information has been provided to the public and suggests that FERC anticipates authorizing pipeline actions that violate the law. DRBC's legal authority is not preempted by that of FERC, and therefore, DRBC retains its full authority to review, approve, approve with modifications and/or deny the PennEast pipeline project the DRBC docket it requires to proceed to construction, operation and maintenance.

Section 3.8 of the Compact provides in relevant part:

No project having a substantial effect on the water resources of the basin shall hereafter be undertaken by any person, corporation, or governmental authority unless it shall have been first submitted to and approved by FERC, subject to the provisions of Sections 3.3 and 3.5. FERC shall approve a project whenever it finds and determines that such project would not

⁸⁴ See discussion in this comment and attachment titled: Delaware Riverkeeper Network *Field Monitoring Report, Pipeline Construction & Maintenance Irreparably Harms Rivers, Wetlands and Streams*. Addendum to Comment for the PennEast Pipeline.

substantially impair or conflict with the comprehensive plan and may modify and approve as modified, or may disapprove any such project whenever it finds and determines that the project would substantially impair or conflict with such plan. FERC shall provide by regulation for the procedure of submission, review and consideration of projects, and for its determinations pursuant to this section.

In addition to the DRBC Rules of Practice and Procedure that apply to hydrostatic testing water withdrawals and wastewater discharges discussed in the EIS, the DRBC Rules of Practice and Procedure (“RPP”) clearly subject natural gas pipelines and appurtenances to DRBC authority in the following additional circumstances⁸⁵:

- 1) if the Executive Director of FERC specifically directs;
- 2) if any state or federal agency refers a project pursuant to specific RPP provision;
- 3) if the project in question crosses an existing or proposed reservoir or recreation area that has been incorporated into the Comprehensive Plan; and
- 4) if the project involves a significant disturbance of ground cover affecting water resources.

Also of significant legal relevance are the DRBC Special Protection Waters Regulations – because Section 3.8 review does clearly apply to the PennEast Pipeline Project; the Special Protection Waters regulations also clearly apply. In 1992, in response to a petition filed by the Delaware Riverkeeper Network, the DRBC launched the Special Protection Waters (“SPW”) program, which established regulations to protect existing water quality in the upper and middle

⁸⁵ These provisions are in addition to others that may apply depending upon legal interpretation and the outcome of future legal actions and/or decision-making.

sections of the non-tidal Delaware River, portions of which had been designated by the federal government as part of the National Wild and Scenic Rivers System in 1978. Following the federal designation of an additional 38.9 miles of the Delaware in the National Wild and Scenic Rivers System in 2000, and again in response to a petition filed by the Delaware Riverkeeper Network, in 2008 the DRBC expanded SPW coverage to include the River from the Delaware Water Gap National Recreation Area downstream to the head of tide at Trenton, New Jersey. The entire 197-mile non-tidal river is now included under the SPW regulations, which is believed to be the longest stretch of anti-degradation policy established on any river in the nation.

Article 3 of the Water Code, Section 3.10.3.A.2, establishes the strict anti-degradation standard that the DRBC applies to Special Protection Waters of the Watershed: “It is the policy of the Commission that there be no measurable change in existing water quality except towards natural conditions. . . .” Water Code Article 3, Section 3.10.3.A.2.e, requires that “[p]rojects subject to review under Section 3.8 of the Compact that are located in the drainage area of Special Protection Waters must submit for approval a Non-Point Source Pollution Control Plan that controls the new or increased non-point source loads generated within the portion of the project’s service area which is also located within the drainage area of Special Protection Waters.”

Given that the PennEast Pipeline project will, among other elements, cross DRBC Comprehensive Plan areas, will cause a significant disturbance of ground cover affecting water resources, will impact special protection waters, and the company has been notified it will be subject to DRBC jurisdiction by the Executive Director, the proposed PennEast Pipeline is subject to the full extent applicable of DRBC authority and is in need of a DRBC docket addressing all relevant impacts (not just those associated with hydrostatic testing) before it can proceed to and through any portion of the project's construction and operation.

11. The Commission erred because the EIS Data and Information Gaps Makes the Document Legally Deficient and Incomplete – a New and Complete Supplemental EIS is Required

The EIS is missing a tremendous amount of information. FERC acknowledges the huge data gaps throughout the EIS document. Among the many information gaps identified by FERC itself are:

1. Evaluation of the presence of working and abandoned mines near the proposed crossing of the Susquehanna River;
2. Evaluation of liquefaction hazards along the pipeline route and at the compressor station site;
3. Final landslide hazard inventory;
4. Necessary mitigation measures and post construction monitoring plan for liquefaction hazards and landslide hazards;
5. Evaluations to support routine/mitigation measures through geologically hazardous areas;
6. Final landslide inventory;
7. Landslide mitigation measures with locations;
8. Post construction landslide monitoring plan;
9. Final karst mitigation plan;

10. Results of all geotechnical investigations, including karst areas, necessary for HDD planning and design;
11. Final planned design of each HDD crossing;
12. A revised/final list, based on final surveys, of water wells and springs within 150 feet of any construction workspace (500 feet in areas characterized by Karst terrain);
13. Identification of the management and field environmental professionals responsible for notification for contaminated sites;
14. Documentation of the final hydrostatic test water withdrawal sources and locations;
15. Documentation of all necessary permits and approvals for each hydrostatic test water withdrawal source;
16. Identification of special construction methods for construction in extremely saturated wetlands;
17. Justification for required additional workspace to accommodate special construction methods for extremely saturated wetlands;
18. A revised/final table of impacts on vernal pools within or near the proposed workspaces based on completed surveys;
19. An Invasive Plant Species Management Plan for use during construction and operation;
20. A Migratory Bird Conservation Plan;
21. Identification of appropriate seed mixes to be used during revegetation efforts;
22. Completed surveys identifying all potential suitable habitats for special status species in the project area;
23. Remaining site specific construction plans for all residences within 25 feet of the construction ROW and additional temporary workspaces (ATWS) including landowner approval;
24. Mitigation measures to minimize adverse impacts for the 7 residential developments, 3 commercial developments, 2 municipal developments and 1 hospital expansion identified as being within 0.25 miles of the project and its facilities;
25. Update on the status of the site specific crossing plans for each of the recreational and special interest areas listed as being crossed or otherwise affected by the pipeline;
26. Results of consultations with NRCS and the landowner of a known USDA easement crossing, including proposed mitigation measures to be implemented and copies of correspondence;
27. Documentation of PA and NJ State Historic Preservation Offices (SHPOs) regarding proposed avoidance, resource identification,

- recommendations, updated documentation, avoidance plans and evaluation reports/treatment plans;
28. Treatment plans or mitigation for National Register of Historic Places – eligible archaeological sites that cannot be protected from project impacts;
 29. Identification of National Park Service concerns with regards to effects to trails and cultural resources;
 30. A vibration monitoring plan and modification of blasting plan that include a review of potential effects to cultural resources;
 31. Mitigation measures for noise levels at the proposed Kidder Compressor Station;

Given all of these self- identified missing pieces of the EIS, coupled with the missing, inaccurate and deficient information documented in this and other comments, it is impossible for FERC to honestly assert it was able to conclude that: “construction and operation of the Project would result in some adverse environmental impacts, but impacts would be reduced to less-than-significant levels with the implementation of PennEast’s proposed and our recommended mitigation measures.”

In addition to the missing and deficient information identified by FERC, 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. DEIS Figure 3.3.1-3 which shows 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 7 and 9 given their watershed protection benefits;
3. DEIS fails 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 DEIS fails 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 DEIS should provide a table of bedrock aquifers that includes relevant properties, including specific capacity statistics or well yields, and conductivity where available.
9. The DEIS 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 DEIS 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 DEIS 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 DEIS 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 DEIS should assess the potential for pipeline construction to generate acid generation or leach metals in all areas where it crosses mine spoil.
14. The DEIS should present avoidance and mitigation discussions focused on preventing the leaching and transport of acid and metals from the site.
15. The DEIS should provide the data and references supporting the DEIS assertion that “shallow groundwater ... generally have (sic) low arsenic concentrations and that high arsenic concentrations ... are the result of more mature groundwater interacting with geochemically susceptible and

arsenic-enriched water bearing zones, which are often deeper wells” (DEIS, p 4-12).

16. The DEIS should provide the data and references supporting the DEIS assertion that there is “no indication that common construction activities that involve shallow excavation, such as home construction, has resulted in increased arsenic concentrations in water supply wells” (DEIS, p 4-12).
17. The arsenic analysis provided in the DEIS is insufficient to indicate that arsenic leaching from pipeline construction in the Newark Basin would not be a problem for shallow groundwater and therefore needs to legitimately and scientifically analyze this issue.
18. The DEIS 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.
19. The DEIS 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 the trenching; Groundwater drawdown caused by the trenching.
20. The DEIS fails 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.
21. As part of an analysis of preferential flow, the DEIS should also analyze the potential for the trench backfill to facilitate the movement of contaminants through the groundwater.
22. The DEIS fails to consider the pipeline trench as a pathway for contamination.
23. The DEIS fails to define and analyze a reasonable range of alternatives.
24. The DEIS overestimates asserted job and other economic benefits.
25. The DEIS fails to account for the public health impacts of the proposed project.
26. The DEIS fails to account for the social cost of carbon.
27. The DEIS fails to include an analysis of ecosystem services lost due to the construction, operation and maintenance of the pipeline.
28. The DEIS does not properly account for impacts to property values from construction, operation and maintenance of the pipeline.
29. The DEIS fails to require sufficient information to determine the potential extent of blasting at each stream or wetland crossing.
30. The DEIS fails to consider site specific conditions to determine whether

blasting in stream channels may be required.

31. The DEIS fails 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.

DRN provide expert reports by Dr. Jim Schmid regarding PennEast that further identified a multitude of deficiencies regarding wetlands which were not addressed in the final EIS or Order. Dr. Schmid's detailed analysis was based on filings by PennEast with FERC, the State of Pennsylvania, and elsewhere. Much of the detail provided in those other filings that were the basis of Dr. Schmid's analysis were not available as part of the DEIS put forth for public comment – itself a major legal failing of the NEPA public process as applied to PennEast.⁸⁶ Specifically, it is a marked deficiency that the DEIS issued for public comment did not include detailed wetland information necessary for expert review like that of Dr. Schmid to accurately review and determine the quality of the wetlands that are to be impacted. Dr. Schmid's report based on the materials provided to other

⁸⁶ There does not appear to be any detailed wetland delineation information needed to compare to the detailed findings in Dr. Schmid's report. In Volume 1, there is only Table 4.4.2-1 on page 4-70 that is a summary claiming that 56 acres of wetlands would be affected by construction disturbance and 35 acres would be affected by operation disturbance. In Volume 3, Table G10 is a summary of Wetland and Waterbody Crossings but it doesn't provide the wetland type or the acreage. Table G11 shows the wetlands crossed in PA and Table G12 shows the wetlands crossed in NJ. Here the DEIS lists the wetland type but leaves out the Wetland ID numbers and acreage of each wetland. There does not seem to be tables for impacted wetlands and delineated wetlands; only wetlands crossed.

regulatory agencies demonstrates just how deficient, inaccurate, and misleading PennEast has been, and FERC is now adopting PennEast's assertions whole cloth. FERC and PennEast had the opportunity to remedy these many deficiencies, inaccuracies, missing data and problems in the DEIS and yet chose not to remedy them or address them in the DEIS nor in a supplemental EIS. Among the problems identified by Dr. Schmid with the DEIS, identified by DRN on the record, and not addressed in the final EIS or order, are:

- The size (acreage) of some wetlands along the proposed pipeline were undermapped significantly.
- There are internal discrepancies in the reported acreage of many delineated wetlands in the PennEast documents upon which this DEIS is based.
- Most wetlands within and along the proposed pipeline right-of way (ROW) are not visibly flagged in the field making field verification and ground truth difficult.
- Some wetlands which should be classified as "exceptional value" pursuant to Pennsylvania law were incorrectly identified by the applicant as "other"
- An assessment of the functions and values of existing wetlands has not been done, and no evaluation of proposed impacts on the functions and values of wetlands has been done.
- Additional wetlands exist within approximately 19.4 miles of right-of-way (24% of the proposed pipeline Study Area) that have not been investigated because access was not (initially) granted. Impacts to those wetlands have not been acknowledged, calculated, or mitigated for.
- No "existing use" analysis of affected streams has been done, possibly leading to an undercount of the number and extent of Exceptional Value Wetlands.
- Bog turtle searches did not encompass the entire area requested by USFWS.
- Certain areas of suitable bog turtle habitat were not acknowledged by the applicant.
- FERC cannot develop an appropriate mitigation plan based on the information and analysis in the DEIS with regard to wetlands because the

DEIS “provides no evidence that the functions and values of each wetland proposed to be impacted have been determined or evaluated.”

- The only information evaluating wetland quality is entirely missing from the DEIS. Specifically, the wetlands tables do not indicate the quality of the wetland impacted pursuant to the state classification of the wetland.
- Most of the wetlands data is unreliable because it is largely “based on available remote sensing mapping, and not on field-based investigations.”
- There are numerous “instances where wetlands shown on project drawings appear to be significantly under-mapped”

To the extent these deficiencies in accurately describing both the size and quality of the wetlands subject to construction for the Project, FERC could not accurately determine the appropriate scope of mitigation necessary to compensate for these irreversible and unavoidable harms. For example, many of the wetlands in the Project area are not appropriately classified pursuant to the Pennsylvania Code and the requirements therein, thus preventing FERC and the public from considering the quality of the wetlands impacted. Indeed, there is no data in the DEIS or EIS analyzing wetland quality outside of this classification system, therefore it is critical that these classifications are exactly accurate (which they are not).

Furthermore, DRN’s expert reports show that while the EIS and the various Resource Reports and updates included in the PennEast application include information and statistics related to each of these (and other conditions), the EIS utterly fails to examine these conditions as they relate to each other and potentially impact project conditions at stream and wetland crossings. DRN and others

identified a multitude of problems during public comment on the DEIS, during scoping, and at other points in the process which were not addressed in the final EIS or any supplemental EIS. What follows is a series of comments provided in response to the DEIS which remain unaddressed in the final EIS or any supplemental EIS. (Quotes that follow which refer to the DEIS, remain equally applicable to the final EIS issued.)

It is impossible, from the information presented in the EIS and/or the PennEast application materials, to directly determine how many stream crossings of Exceptional Value streams in Pennsylvania will involve open cuts in areas that are currently forested conditions, on public lands, on steep slopes or erosive soils, or any combination of the above conditions that can impact water quality and that should inform pipeline location and construction decisions. It is impossible to easily determine if these crossings also include Additional Temporary Work Space areas within 50 feet of the waterbody that further increase disturbance and the potential for water quality impacts, or are located in geologic formations that may require blasting within the stream channel.

Neither the EIS nor the PennEast application materials include any comprehensive compilation and evaluation of the data at stream and wetland crossings, or any indication that site specific conditions and their impact on water quality (or other environmental impacts) have informed decisions related to project

location and project construction methods”⁸⁷ Many of the “dry crossings of streams are in areas of severely erodible soils (103 dry crossings), rugged terrain with slopes greater than 30% (34 dry crossings), and other (often multiple) site specific constraints that increase the likelihood and potential for adverse water quality impacts. Thirty (30) dry stream crossings are located at sites with both severely erodible soils and rugged terrain. This information must be gleaned from multiple sources within the PennEast application and is not presented comprehensively in either the PennEast application materials or the EIS. The EIS fails to consider these site specific conditions in determining pipeline location and suitability of construction methods to minimize impacts or protect water quality.”

⁸⁸ “PennEast proposed to use HDD crossings for eleven crossings, including five waterbody crossings, but site specific plans will be prepared at a later date (DEIS, p 4.51). This means that aspects of the plans that could be critical at those crossings were not made available for public review as part of this DEIS. Such

⁸⁷ Michelle Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, *Professional Review & Comment of the Draft Environmental Impact Statement and Supporting Documents Related to Surface Water Impacts of the Proposed PennEast Pipeline Project*, September 2016

⁸⁸ Michelle Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, *Professional Review & Comment of the Draft Environmental Impact Statement and Supporting Documents Related to Surface Water Impacts of the Proposed PennEast Pipeline Project*, September 2016

plans would include the “location of mud pits, pipe assembly areas, and all areas to be disturbed or cleared for construction” (Id.) – these issues were not remedied or addressed in the final EIS or any supplemental EIS issued. These areas all have potential impacts far exceeding general pipeline construction. The EIS should also justify that the crossing areas and methods are “the minimum needed to construct the crossing” (Id.), and that the public to be able to review this aspect of the design. The containment plans for spills of drilling mud and other contingency plans should also be included as important elements in the DEIS for discussion and review.”⁸⁹ Beyond a general list of potential impacts of pipelines construction on water resources, the EIS “does not quantify either the existing conditions or describe how the pipeline would affect the existing conditions. For each water crossing, the DEIS[/EIS] could easily describe the stream velocities, expected range of flows, bank composition, bed sediment sizes and contaminants present on those sediments, riparian conditions, and stream type (Rosgen and Silvey 1996). Using this information the DEIS[/EIS] could make at least semi-quantitative descriptions of the impacts pipeline construction will cause to the stream.”⁹⁰ “The

⁸⁹ Tom Myers, Ph.D. *Technical Memorandum Review of Draft Environmental Impact Statement, Proposed PennEast Pipeline, Docket No. CP15-558-000, FERC\EIS: 0271D*, August 31, 2016

⁹⁰ Tom Myers, Ph.D. *Technical Memorandum Review of Draft Environmental Impact Statement, Proposed PennEast Pipeline, Docket No. CP15-558-000, FERC\EIS: 0271D*, August 31, 2016

DEIS[/EIS] and supporting materials provided by PennEast fail to consider the unique, site specific conditions at each individual proposed stream and wetland crossing, and the corresponding potential adverse water quality impacts associated with stream crossings, including open cut crossings. The DEIS[/EIS] fails to comprehensively evaluate each stream crossing with regards to conditions such as water quality, erosive soils, existing land use and forested areas, existing slopes, riparian buffers, and the potential need for in-stream blasting. Lacking consideration of the site specific conditions at each crossing, the DEIS[/EIS] fails to require adequate location and construction recommendations to protect water quality, as well as construction techniques specific to conditions at each crossing. The proposed stream and wetland crossing locations, methods of construction, and long-term land use conditions appear to be based on the needs and preferences of PennEast and not informed by site specific conditions.”⁹¹ “Importantly, the supporting documentation provided by PennEast fails to provide stream and wetland crossing information in a manner that allows FERC and other reviewing agencies to evaluate the site specific conditions at each stream crossing...”⁹²

⁹¹ Michelle Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, *Professional Review & Comment of the Draft Environmental Impact Statement and Supporting Documents Related to Surface Water Impacts of the Proposed PennEast Pipeline Project*, September 2016

⁹² Michelle Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, *Professional Review & Comment of the Draft Environmental Impact*

The EIS fails to consider or even acknowledge stormwater impacts from pipeline construction, as no stormwater management is proposed or required for the pipeline area.⁹³ The EIS analysis fails to legitimately examine the potential for landslides resulting from site preparation, construction activities, and post-construction changes to soil properties and vegetative cover (not just those triggered by seismic events) – the Erosion and Sediment Control Plan relied upon by FERC and PennEast to avoid this threat is, according to expert review, lacking with respect to any actual special measures proposed for steep sloped areas to prevent landslides from occurring.⁹⁴ The EIS “evaluation of soil compaction impacts based primarily on a soil’s drainage classification is incorrect.”⁹⁵ “DEIS/[EIS] fails to consider the site specific conditions that will impact stormwater and erosion, including existing land cover, steep slopes, soil erosion potential, revegetation potential, and proximity to waterbodies, as well as pipeline

Statement and Supporting Documents Related to Surface Water Impacts of the Proposed PennEast Pipeline Project, September 2016

⁹³ Michelle Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, *Professional Review & Comment of the Draft Environmental Impact Statement and Supporting Documents Related to Surface Water Impacts of the Proposed PennEast Pipeline Project*, September 2016

⁹⁴ Princeton Hydro, *Technical Review of Volume I FERC Draft Environmental Impact Statement Submitted for PennEast Pipeline Project*, September 2016.

⁹⁵ See discussion in: Princeton Hydro, *Technical Review of Volume I FERC Draft Environmental Impact Statement Submitted for PennEast Pipeline Project*, September 2016.

maintenance practices. There is no correlation of site specific data and information related to the factors that impact stormwater runoff and erosion in the DEIS[/EIS] or supporting materials. The DEIS[/EIS] fails to evaluate the varying conditions that will impact stormwater and erosion, and correspondingly fails to require site specific construction techniques and stormwater management practices.”⁹⁶

“The DEIS[/EIS] and supporting application materials fail to address the permanent, long term changes to land use cover and soil conditions, and the corresponding increase in stormwater runoff and erosion. As a result of pipeline construction, there will be permanent long term water quality impacts related to stormwater runoff, including increases in the rate, volume, and frequency of stormwater runoff.”⁹⁷

“FERC’s analysis and the resulting reliance on mitigation measures to address soil compaction impacts are short-sighted and inaccurate. With respect to soil related impacts, the DEIS[/EIS] greatly underestimates the potential for the

⁹⁶ Michelle Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, *Professional Review & Comment of the Draft Environmental Impact Statement and Supporting Documents Related to Surface Water Impacts of the Proposed PennEast Pipeline Project*, September 2016

⁹⁷ Michelle Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, *Professional Review & Comment of the Draft Environmental Impact Statement and Supporting Documents Related to Surface Water Impacts of the Proposed PennEast Pipeline Project*, September 2016

alteration of soils traversed by the pipeline and the subsequent short- and long-term consequences of soil compaction. Additionally, FERC’s finding that the proposed mitigation measures will prevent any significant alteration of site soils or can successfully limit impacts attributable to such alterations is inaccurate as based on actual field assessments of “restored” pipeline ROWs.”⁹⁸

“The subsection of the plan dealing with spill prevention and control is contained in Sub-Section 13 of the E&SCP, is a single paragraph consisting of five (5) simple bullet points, none of which provide any direction of the actions that must be taken in the event of a spill. The Spill Prevention, Control, and Countermeasures Plan upon which FERC has based their findings is unreasonably simplistic, lacks any detail, and does not account for the highly sensitive and unique environments the pipeline will disturb.”⁹⁹

FERC relies upon PennEast’s Horizontal Directional Drilling (HDD) Inadvertent Returns and Contingency Plan for addressing potential impact to groundwater attributable to drilling wastes, asserting the plan provides sufficient protection. The reference provides only a “single bullet point that states, a site specific plan will be implemented that includes “a description of how an inadvertent release of drilling mud would be contained and cleaned up”. This

⁹⁸ Princeton Hydro, *Technical Review of Volume I FERC Draft Environmental Impact Statement Submitted for PennEast Pipeline Project*, September 2016.

⁹⁹ Princeton Hydro, *Technical Review of Volume I FERC Draft Environmental Impact Statement Submitted for PennEast Pipeline Project*, September 2016.

statement provides no assurance or guidance (even in general) regarding the measures that PennEast takes to prevent such events or their response to such events.”¹⁰⁰ The EIS and FERC’s assessment of hydrostatic testing impacts do not consider data generated on hydrostatic test water showing “phosphorus levels (total phosphorus) ranging from 0.03 mg/l to 0.07 mg/L; which is enough to stimulate an algae bloom” or test results showing that hydrostatic test “return water is typically very low in dissolved oxygen” which “could cause a temporary but significant impact to the organisms residing in a stream especially during low flow conditions or during the summer when DO saturation is low.”

The EIS and documents upon which it depends for its conclusions, “does not address potential groundwater contamination events associated with the operation and maintenance of the pipeline, including the long-term application of herbicides to control the growth of vegetation or the management of invasive plants within and adjacent to the pipeline ROW.”¹⁰¹ The alignment sheets included in the EIS fail to include mile posts – this is critical information for evaluating the claims, assertions and/or data included in and relied upon in the EIS.

In other documents, such as Resource Report 3, MPs are included. An EIS is supposed to be more comprehensive, so MPs should be marked on the alignment

¹⁰⁰ Princeton Hydro, *Technical Review of Volume I FERC Draft Environmental Impact Statement Submitted for PennEast Pipeline Project*, September 2016.

¹⁰¹ Princeton Hydro, *Technical Review of Volume I FERC Draft Environmental Impact Statement Submitted for PennEast Pipeline Project*, September 2016.

sheets. The absence of this critically important information renders the EIS legally incomplete and unusable for purposes of public, agency or expert review or comment as it impedes the ability to ground truth and review the information, claims and data in the EIS. Not including MPs can only be inferred as an attempt to provide vague information in response to the knowledge that experts and volunteers are ground truthing and investigating the claims asserted in the DEIS by PennEast and FERC. In addition, on alignments the original alignment aerials views and backgrounds on the plots are muted out; making it difficult for the landowners and public monitors to ground truth the information asserted. On other pipeline projects, maps are much more detailed and legible.

Blurring and the lack of MPs is an attempt to avoid providing complete information to the public. In addition, the failure to provide the public with GIS referenced routes and images so they could be plotted in interactive maps for the public to review files is grossly negligent and yet another way that the public has not been provided all of the information needed to engage in the DEIS review and comment process. Furthermore, PennEast's own pipeline route on its website as of 8/19/16 also includes only the September 2015 route as an interactive map. Where are the files showing the reroutes and the clear alignments proposed for those reroutes? And where are the electronic files for GIS plotting and for the public to make these maps on their own without extensive effort and resources? These files

should be provided by the company as the route is updated. FERC's EIS recommendation that alignment sheets be provided to the Secretary before construction is grossly inadequate for the public to comment or review the deviations being considered. The FERC EIS states that approximately 0.13 acre of vernal pool habitats would be impacted by construction of the Project, with 0.11 acre permanently impacted during operation. Spot checks in short sections of already surveyed areas of the route make clear that many sensitive vernal pools and groundwater seeps and wetlands have been missed and not accurately depicted by field surveys or the EIS.

In Ted Stiles Preserve at Baldpate Mountain, an area that according to the DEIS and PE alignment sheet had been surveyed by PennEast, there was no flagging observed by Delaware Riverkeeper Network during a Field-Truthing site visit of the pipeline center line, or any of the wetlands or streams along the proposed pipeline route we encountered. In addition, an intermittent stream was not delineated on the PE alignment sheets nor was there flagging present to note this water feature despite the fact that the stream is delineated on Government mapping.¹⁰² These issues were not addressed in the final EIS or order.

¹⁰² Delaware Riverkeeper Network. *Field-Truthing and Monitoring of the Proposed PennEast Pipeline, FERC Draft EIS, Docket No. CP15-558*, September 2016.

12. **The Commission erred because the EIS is filled with assertions that are false, inaccurate, misleading and/or deficient – these failings ensure this EIS cannot be said to fulfill the requirements of NEPA**

NEPA requires that the agency “adequately considered and disclosed the environmental impact of its actions. . .” *Baltimore Gas & Electric Co. v. Natural Res. Defense Council, Inc.*, 462 U.S. 87, 97-98 (1983); *see also Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228 (9th Cir. 1998) (finding that the “goal of [NEPA] is to ensure that federal agencies infuse in project planning a thorough consideration of environmental values”).

A baseline is a practical requirement in a NEPA environmental analysis employed to identify the environmental consequences of a proposed agency action. *See American Rivers, Inc. v. FERC*, 201 F.3d 1186, n. 15 (9th Cir. 1999). It has been recognized that “[w]ithout establishing . . . baseline conditions . . . there is simply no way to determine what effect [an action] will have on the environment and, consequently, no way to comply with NEPA.” *Half Moon Bay*, 857 F.2d at 510; *see also N. Plains Res. Council*, 668 F.3d at 1085 (“without [baseline] data, an agency cannot carefully consider information about significant environment impacts. Thus, the agency fails to consider an important aspect of the problem, resulting in an arbitrary and capricious decision.”) (internal quotation marks and brackets omitted); Council on Environmental Quality, *Considering Cumulative Effects under the National Environmental Policy Act*, at 41 (January 1997) (“The

concept of a baseline against which to compare predictions of the effects of the proposed action and reasonable alternatives is critical to the NEPA process”); *see also* 40 C.F.R. § 1508.27(b)(3).

NEPA requires that the lead agency provide the data on which it bases its environmental analysis. *See Lands Council v. McNair*, 537 F.3d 981, 994 (9th Cir. 2008) (holding that an agency must support its conclusions with studies that the agency deems reliable) (overturned on other grounds). Such analyses must occur **before** the proposed action is approved, not afterward. *See LaFlamme v. FERC*, 852 F.2d 389, 400 (9th Cir. 1988) (“[T]he very purpose of NEPA’s requirement that an [environmental review] be prepared for all actions that may significantly affect the environment is to obviate the need for speculation by insuring that available data is gathered and analyzed prior to the implementation of the proposed action”) (internal citation and quotation marks omitted). This is consistent with NEPA’s twin aims of (1) ensuring that agencies carefully consider information about significant environmental impacts; and, (2) guaranteeing relevant information is available to the public. *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1998).

The missing and inaccurate information is a fundamental failing of the EIS, and it prevents other state, federal and regional watershed agencies, and the public from having the data and information they need to assess the impacts of the

proposed pipeline on water resources, habitat, wildlife, drinking water and human communities. The EIS is designed to help inform sound decision-making, in its current deficient and erratic state this document is worthless for assessment and decision-making purposes.

The FERC EIS is filled with assertions that are false, inaccurate, misleading and/or deficient. It carries forth false, inaccurate, misleading and/or deficient information provided in the DEIS, including, but not limited to:

“The authorized facility location(s) shall be as shown in the EIS, as supplemented by filed alignment sheets. As soon as they are available, and before the start of construction, PennEast shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. PennEast shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage-yards, new access roads, and other areas that will be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species will be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of the OEP before construction in or near that area. This requirement does not apply to extra workspace allowed by PennEast’s E&SCP Plan and/or minor field realignments per landowner needs and requirements that do not affect other landowners or sensitive environmental areas such as wetlands.”

DRN Response:

All of this information must and should be included in, and subjected to, the EIS review and comment process. Having provided such deficient information in the DEIS and EIS in the first instance, that PennEast and FERC are allowed to, out of the public process, remedy, review, agree upon, and use for construction purposes supplemental information evades the requirements of law and both undermines and evades the review of the public and the mandates of the public process.

There is an overall discrepancy – a missing mile – between the description of the pipeline proposal in the resource reports versus in the EIS. The EIS states that there will be 115.1 miles of 36 inch pipeline, while other documents, such as Resource Report 1, state that there will be approximately 114 miles of 36 inch pipeline. Most maps and GIS files of the project show a total length of 114.02 miles. The alignment has changed since September of 2015, and it's possible that these changes may have resulted in an extra mile of overall length and therefore an extra mile of potential environmental damage. Regardless, the reason for the change and the discrepancy in length should be remedied and clearly identified in all materials associated with this project, including being directly addressed in the EIS and subject to public and agency review and comment.

EIS states:

The 118.8 miles would consist of the following facilities:

- 115.1 miles of new 36-inch-diameter pipeline extending from Luzerne County, Pennsylvania to Mercer County, New Jersey;
- the 2.1-mile Hellertown Lateral consisting of 24-inch-diameter pipe in Northampton County, Pennsylvania;
- the 0.1-mile Gilbert Lateral consisting of 12-inch-diameter pipe in Hunterdon County, New Jersey; and
- the 1.5-mile Lambertville Lateral consisting of 36-inch-diameter pipe in Hunterdon County, New Jersey.

This characterization of the project is different than what the public was told elsewhere on the FERC docket.

DRN Response:

The Project will entail the construction of approximately 114 miles of 36-inch diameter pipeline from Luzerne County, Pennsylvania, to Mercer County, New Jersey. The Hellertown Lateral, an approximately 2.1-mile lateral of 24-inch diameter pipe, will be constructed in Northampton County, Pennsylvania. This lateral will serve as an Interconnect with Columbia Gas (TCO) and UGI Utilities, Inc. The Gilbert Lateral, an approximately 0.6-mile lateral of 12-inch diameter pipe, will extend from the mainline in Holland Township in Hunterdon County, New Jersey, to the Gilbert Electric Generating Station where it will interconnect with NRG REMA, LLC, and Elizabethtown Gas. The Lambertville Lateral, an approximately 1.4-mile lateral of 36-inch diameter pipe, will be constructed in Hunterdon County, New Jersey. This lateral will serve as an Interconnect with Algonquin and Texas Eastern. The associated aboveground infrastructure for the Project will consist of interconnect meter stations, mainline block valves, and a single compressor station and their appurtenant facilities and equipment (e.g., pig launchers/receivers, milepost markers, cathodic protection test posts, etc.).

But Resource Report 1 (September 2015) says:

“Additionally, proposed HDD source locations and volumes provided in DEIS Table 4.3.2-7 differ from those provided in resource report 2 Table 2.4-1.”

13. **The Commission erred because the EIS is riddled with Threatened and Endangered (T&E) data that is inconsistent, wrong, missing, or misleading thus failing to establish an effective baseline for the review**

Statement from the DEIS challenged by DRN that continued forth in the final EIS assessment and findings:

The red-shouldered hawk was identified by the NJDEP-NHP as potentially

occurring within the Project area in Hunterdon and Mercer counties. No suitable habitat was identified within accessible properties that were surveyed by PennEast in 2015; however, suitable breeding habitat for this species may be present. PennEast has committed to conducting tree clearing to times outside of the March 1- July 31 breeding and nesting period for raptors. This timing restriction would minimize the impacts that the Project would have to this species. PennEast would also be required to follow all restrictions found in the MBTA related to impacts on migratory birds, and would be required to develop a Migratory Bird Conservation Plan developed in consultation with FWS (see Section 4.5).

DRN Response:

The surveys missed two red-shouldered hawk nests and multiple adult and juvenile red-shouldered hawks that were observed in the area of MP 93.5 and MP 93.6 by Dennis and Joann Kager in Kingwood Township, NJ. The nests were adjacent to the ROW where the pipeline would go. Photographs and observational data were submitted to NJDEP and are presented to FERC now.

Statement from the DEIS challenged by DRN that continued forth in the final EIS assessment and findings:

“The red-headed woodpecker was identified by the NJDEP-NHP as potentially occurring within the Project area in Hunterdon and Mercer counties, and it was identified during PennEast’s surveys at milepost 104.7. PennEast has committed to conducting tree clearing to times outside of the March 1- July 31 breeding and nesting period. This timing restriction would minimize the impacts that the Project would have on this species. PennEast would also be required to follow all restrictions found in the MBTA related to impacts on migratory birds, and would be required to develop a Migratory Bird Conservation Plan developed in consultation with FWS (see Section 4.5)

DRN Response:

Red-headed woodpeckers were also observed and documented by DRN volunteer monitors at MP 93.5 – 93.6 and MP 95.1.

Statement from the DEIS challenged by DRN that continued forth in the final EIS assessment and findings:

“Although no bog turtles have been found during Project-specific surveys, the Project would cross through and impact potential bog turtle habitat (including habitats in unsurveyed areas), and bog turtles could be present in unsurveyed areas. As a result, the Project *may affect and is likely to adversely affect* bog turtles.”

“Therefore, our preliminary determination for the Indiana bat, northern long-eared bat, bog turtle, dwarf wedgemussel, and northeastern bulrush is that the Project “*may affect and is likely to adversely affect*” these species.”

DRN Response:

The conclusion of “absence” as a result of the Phase 2 presence/absence bog turtle surveys does not carry much weight when it is admitted that the project may affect the species and is likely to adversely affect the species because not all areas have been surveyed. The same can be said for the Indiana bat, northern long-eared bat, dwarf wedgemussel, and northeastern bulrush. FERC’s failure to evaluate the areas where there is likely to be an adverse impact to these species renders the EIS factually and legally deficient pursuant to NEPA.

Statement from the DEIS challenged by DRN that continued forth in the final EIS assessment and findings:

“Of the surveyed wetlands in Pennsylvania, seven met the field criteria (i.e., vegetation, hydrology and soils) to be considered potential bog turtle habitat, while two met the field criteria to be considered potential bog turtle habitat in New

Jersey. Phase 2 surveys are currently on-going...”

DRN Response:

The EIS notes that 7 wetlands in PA are considered suitable bog turtle habitat. However, Save Carbon County hired an independent USFWS qualified bog turtle surveyor (Jason Tesauro) who identified 9 properties containing one or more suitable bog turtle wetlands in the Hunters Creek drainage (part of Aquashicola Creek watershed) alone. Tesauro’s report was posted on the FERC docket and also filed with the USFWS.

The following are areas that were identified to have suitable bog turtle habitat by Save Carbon County’s consultant (Jason Tesauro) in September of 2015 and were not surveyed or were left out of the report by PennEast’s consultant (AECOM) in July of 2015:

1. Angun property, MP 44.8

1 suitable bog turtle area identified by Tesauro missing from AECOM July 2015 bog turtle survey report. Parcel listed as unsurveyed on PennEast’s March 2016 wetland delineation maps.

*“The area was small (~0.1 acre), but **clearly consistent with suitable bog turtle habitat criteria.**”* – Jason Tesauro on Angun property

2. Conner property, MP 44.9

1 suitable bog turtle area identified by Tesauro missing from AECOM July 2015 bog turtle survey report. Parcel listed as unsurveyed on PennEast’s March 2016 wetland delineation maps.

3. Maroney property, MP 45

1 suitable bog turtle area identified by Tesauro missing from AECOM July 2015 bog turtle survey report. Parcel listed as unsurveyed on PennEast's March 2016 wetland delineation maps.

*“Collectively, these patches comprised 0.2 acres of **suitable bog turtle habitat.**”* – Jason Tesauro on Conner and Maroney properties

4. Knirnschild property, between MP 45 and 45.1

2 suitable bog turtle areas identified by Tesauro missing from AECOM July 2015 bog turtle survey report. Parcel was fully surveyed on PennEast's March 2016 wetland delineation maps.

*“The southern terminus of the Sei Pike valley (Knirnschild property--closest to the intersection of Sei Pike and Spruce Hollow Roads) contained the largest area of **suitable bog turtle habitat** along Sei Pike...The potential habitat area was approximately 0.4 acres.”* – Jason Tesauro on Knirnschild property

5. Fernandez property, between MP 45 and 45.1

1 highly suitable bog turtle area identified by Tesauro missing from AECOM July 2015 bog turtle survey report. One wetland, 052915_JC_1001_PEM, is listed as unsuitable bog turtle habitat in AECOM's report. Part of parcel listed as fully surveyed and another part is listed as unsurveyed on PennEast's March 2016 wetland delineation maps.

*“...the Fernandez site contained a 0.2-acre elongated area of spring-fed marsh and shrub swamp situated between the base of the Spruce Hollow Rd embankment and the stream...The Fernandez site, although small, **contained highly suitable potential bog turtle habitat.**”* – Jason Tesauro on Fernandez property

6. Mosier property, between MP 45 and 45.1

1 suitable bog turtle area identified by Tesauro missing from AECOM July 2015 bog turtle survey report. Part of parcel listed as unsurveyed and other part does not appear on PennEast's March 2016 wetland delineation maps.

“The approximate size of the suitable bog turtle habitat on the Mosier property was 1 acre.” – Jason Tesauro on Mosier property

7. Randy property, MP 45.2

1 suitable bog turtle area identified by Tesauro missing from AECOM July 2015 bog turtle survey report. Parcel does not appear on PennEast’s March 2016 wetland delineation maps.

8. Vees property, MP 45.7

1 suitable bog turtle area identified by Tesauro missing from AECOM July 2015 bog turtle survey report. One wetland east of the property, 051115_JC_1001_PEM, is listed as unsuitable bog turtle habitat in AECOM’s report. Parcel does not appear on PennEast’s March 2016 wetland delineation maps.

*“The wetland contained a 1.5 acre spring fed marsh with deep mud and muck soils, rivulets, and shallow-water swales...Approximate habitat size: 0.54 acres...The two properties evaluated along the Hunters Creek contained a significant area of emergent and scrub-shrub wetlands, much of which **appeared suitable for bog turtles.**” – Jason Tesauro on Randy and Vees properties*

9. Anthony property, MP 45.9

2 highly suitable bog turtle areas identified by Tesauro missing from AECOM July 2015 bog turtle survey report. Parcel listed as unsurveyed on PennEast’s March 2016 wetland delineation report.

*“The wetland system on the Anthony property encompassing the headwaters above the farm’s outbuildings to the marsh along Stagecoach Road East **supports highly suitable bog turtle habitat.**” – Jason Tesauro on Anthony property*

The failure to accurately delineate these wetlands, and therefore failure to accurately classify them pursuant to the Pennsylvania Code, renders the DEIS legally and factually deficient.

Statement from the DEIS challenged by DRN that continued forth in the final EIS assessment and findings:

“Pennsylvania and New Jersey have enacted laws to designate and protect state listed species. In Pennsylvania, this state law is referred to as the Endangered Species Coordination Act (under Pennsylvania House Bill 1576); while the applicable state law is referred to as the Endangered Species Conservation Act of 1973 in New Jersey. This EIS provides information related to impacts on state listed species in compliance with these state laws.”

DRN Response:

A total of 8 NJ state threatened, endangered, or special concern mussel species are completely left out of the EIS. These species are as follows: triangle floater (threatened), brook floater (endangered), yellow lampmussel (threatened), eastern lampmussel (threatened), green floater (endangered), tidewater mucket (threatened), eastern pondmussel (threatened), and creeper (species of special concern). All eight of these species may potentially occur in various waterbodies crossed by the project, based on the GIS range maps created by the Conserve Wildlife Foundation of New Jersey and the NJ Division of Fish and Wildlife found at:

<http://conserwildlife.maps.arcgis.com/apps/MapJournal/index.html?appid=093a625e6fa044e191595e57dceee027&webmap=7fc0d5a9cd0f419a8fdd3d254b316752>

TABLE 4.4.1-1			
Vernal Pools Potentially Crossed by the Project			
Milepost	Length of Crossing (Feet)	Acres Potentially Affected – Construction	Acres Potentially Affected - Operation
Pennsylvania			
MP 13.1	0	0	0
MP 25.2	0	0	0
MP 35.5	48	0.01	0.01
MP 52.4	25	0.03	0.03
MP 52.5	0	0	0
MP 52.6	67	0.09	0.07
New Jersey			
MP 89.5 <u>a/</u>	-	-	-
MP 90.5-90.8 <u>a/</u>	-	-	-
MP 98.5 <u>a/</u>	-	-	-
MP 102.5	0	0	0
MP 103.4-103.5 <u>a/</u>	-	-	-
MP 103.5	0	0	0
MP 103.5	0	0	0
Note: <u>a/</u> The areas identified at MP 89.5, MP 90.5-90.8, MP 98.5, MP 103.4-103.5 were based on review of the New Jersey GIS database for vernal pools (New Jersey Landscape Project Version 3.1 maps) and have not yet been field verified.			

Response:

Vernal Habitat in New Jersey

- MP 103.1- 103.2 : Mapped as vernal habitat – no vernal pool observed within the study corridor.
- MP 103.3-103.4: predominantly forested; potential vernal pool area mapped - observed to be outside of study corridor.
- MP 103.5- 103.7: northernmost portion of study corridor mapped as potential vernal area; no potential vernal habitat observed within the survey corridor.
- MP 107.8-107.9: Mapped as vernal habitat area – no potential vernal pools observed onsite. Site is forested, with rocky substrate & intermittent drainage features

In PA, one DRN volunteer monitor documented a vernal pool near MP 43.5 – 44 by observing wood frog egg masses (a vernal pool obligate species). In NJ, volunteer monitors documented vernal pools near MP 95 – 95.5 and MP 107 – 109 by observing wood frog egg masses, wood frog tadpoles, and springtime fairy shrimp (vernal pool obligate species). Potential vernal pool habitat at MP 107.8 – 107.9 is acknowledged in Resource Report 3 below:

Since it was concluded that no potential vernal pools were observed onsite in Resource Report 3, this area was presumably left out of the EIS. However, our volunteer documenting vernal pool obligate species between MP 107 – 109 encompasses the area in question. It must be noted that DRN volunteer monitors only walked certain sections of the pipeline route so many more vernal pools are likely missing from the mapping and DEIS.

Statement from the DEIS challenged by DRN that continued forth in the final EIS assessment and findings:

“PennEast conducted presence/absence and/or habitat surveys for this species in the summer of 2015. These surveys were conducted by a qualified herpetologist in potential habitat areas designated by the PFBC. Suitable habitat for this species was identified within the Project area and one timber rattlesnake was observed within the Project area in Pennsylvania during wetland field surveys in 2015. For areas that were identified as potential habitat, PennEast has committed to following the PFBC recommendations to minimize impacts on this species: which include spring presence surveys, avoiding the habitat during construction, and the restoration of gestation habitat following PFBC guidelines (PFBC 2010). PennEast has also committed to avoiding denning habitat identified near MP 39.2 and adhering to a 300 foot no disturbance buffer around these dens, as well as the use of rattlesnake monitor on-site during construction in suitable habitats between April 15 and October 15.”

DRN Response:

The habitats that are listed in the DEIS as being surveyed are not complete and not protective of timber rattlesnakes and copperheads. DRN documented optimum timber rattlesnake habitat during assessments conducted in SGL 168 from at least MP 52.9 to 51.0 along Blue Mountain near Danielsville, PA. DEIS states that 51.1 to 51.6 was surveyed for timber rattlesnake but this only includes one section of this habitat and does not include all of the optimal habitat areas in that area of SGLs. There are other areas that should have been/should be the subject of Phase 1 and/or Phase 2 surveys but have not been.¹⁰³

¹⁰³ Delaware Riverkeeper Network. Field-Truthing and Monitoring of the Proposed PennEast Pipeline, FERC Draft EIS, Docket No. CP15-558, September 2016.

14. The Commission erred because the EIS is legally inadequate in its failure to consider alternative routes or construction practices that could avoid and/or mitigate harm

As discussed above, the EIS fails to adequately consider the impacts of the proposed route, and alternative routes, and fails to fully consider the various construction alternatives that could both avoid and minimize impacts. An alternative that surfaced after the final EIS was issued, but before the FERC order was issued, that was before FERC and never part of the PennEast review, is the Adelphia pipeline project that is an obvious viable alternative to much or all of PennEast. Adelphia filed with FERC on January 11, 2018 and received docket number CP18-46. So FERC was fully aware of the project before issuing its order for PennEast.

A. Fails to consider alternatives to avoid or mitigate the adverse impacts of soil compaction in natural areas

FERC and PennEast presume in the EIS and supporting materials “that there is no difference between the hydrologic response of a forested woodland and the compacted, post-construction pipeline right-of-way.” As a result, there is no consideration of construction practices to avoid or mitigate the harms inflicted on these natural resources and thereby prevent the ecological harm that will result in the form of lost habitat, increased stormwater runoff, reduced groundwater infiltration and recharge, inability of vegetation to regrow etc.

As proposed for the PennEast Pipeline,

“Compaction in construction work spaces will not be restored by simply regrading to pre-existing contours, retilling at the surface, and reseeding the area as currently outlined in the permit application materials. Heavy equipment used in the construction of the pipeline will inherently compact work areas to depths deeper than conventional surface tilling can reach. Compaction creates conditions that inhibit the germination of plants and plant root growth. Existing topsoil will not be segregated and restored, but will be lost in the construction process. The establishment of vegetative cover within the pipeline ROW will be more difficult once surface soils are compacted, and forested woodland will not be restored.”¹⁰⁴

“When vegetation regrowth is limited, the likelihood of accelerated erosion is increased. When runoff cannot infiltrate, is not slowed at the surface by vegetation, and has direct contact with exposed soils, sediments are much more likely to be transported to downhill streams and wetlands. This is of specific concern on significant portions of the pipeline right-of-way in proximity to stream crossings, where soils to be disturbed by pipeline construction are classified as Severe Erosion Potential (79), Poor Vegetation (122), and Rugged Terrain with slopes greater than 30% (28). These areas are especially prone to erosion and sediment transport to waterbodies.”¹⁰⁵

¹⁰⁴ Michelle Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, *Professional Review & Comment of the Draft Environmental Impact Statement and Supporting Documents Related to Surface Water Impacts of the Proposed PennEast Pipeline Project*, September 2016

¹⁰⁵ Michelle Adams & Marc Henderson, Water Resources Engineers, Meliora Design, LLC, *Professional Review & Comment of the Draft Environmental Impact Statement and Supporting Documents Related to Surface Water Impacts of the Proposed PennEast Pipeline Project*, September 2016

The EIS fails to recognize these impacts and fails to consider alternatives to avoid or mitigate the harms including constructions practices that reduce the removal of pre-existing vegetation, that limit the building envelope, and that prevent compaction during construction – practices discussed in the attached report by expert Leslie Sauer.

B. HDD construction method should be default location for waterways and wetlands crossings

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.

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.

C. Activities are proposed for damaging areas with no visible consideration of less damaging options

In Mercer Co. New Jersey, while a horizontal directional drill (HDD) is proposed under Pleasant Valley Rd. and an adjacent stream and wetland complex (between MP 105.5 and 106.0, the HDD entry point is proposed to be located at MP 105.4 and within a large PEM wetland complex (1002-PEM and 1001-PEM),

and the exit point is proposed just adjacent another wetland complex and just north of and paralleling a stream where it appears from the faded aerial provided by PennEast that mature trees will need to be cut. And yet, it seems that there are obviously less impactful locations for both the entry and exit point that were not even considered.¹⁰⁶

D. Blasting

The discussion on blasting (DEIS, p 4-58) concerns worker safety, not environmental impacts. In fact there are significant ramifications that result from blasting, among them is that blasting leaves nitrogen which can run off with stormflow and enter streams as nitrate or ammonia. Issues such as these, noise and other potential environmental impacts are overlooked by the DEIS. Alternatives that avoid blasting were not given due consideration.

E. Co-location – Alternative Footprints

The EIS fails to provide an adequate level of detail regarding the selection of the proposed preferred route – it gives numbers of stream crossings, wetlands cut, forest acres lost, but fails to give the information necessary to assess or justify why alternatives with a reduced footprint with regards to some natural resources were rejected for the proposed preferred route.

¹⁰⁶ Delaware Riverkeeper Network. *Field-Truthing and Monitoring of the Proposed PennEast Pipeline, FERC Draft EIS, Docket No. CP15-558*, September 2016.

In addition, the EIS presumes that if the pipeline is co-located with a preexisting linear project that its impacts have been avoided or been minimized as compared to other options; such an outcome cannot be presumed. The co-location strategy proposed does not site the PennEast pipeline within the pre-existing ROW of these preexisting projects, it actually creates a second, adjacent footprint, thereby expanding the ROW footprint to accommodate the PennEast project. This expansion of the ROW requires new tree clearing, more soil compaction, new stream cuts and denuded buffers, etc. The value of the co-location in these areas is therefore less significant than stated in the EIS.

Additionally, while the EIS states that colocation is less impactful, in the Ted Stiles Preserve on Baldpate Mountain, the pipeline maps indicate that the pipeline would run adjacent to the existing ROW cutting through new habitat instead of being built within the current ROW footprint which means more habitat disturbed, trees cut, and an extension of forest fragmentation further into the woods.

As noted by Dr. Myers:

- “An existing 50 to 100 foot wide treeless swath through a forest could be doubled as the result of the preference to following existing ROWs within a forest area. Such a width doubling could have foreseeable (but unanticipated by the DEIS) effects especially in valuable forest regions such as in Hickory Run State Park (Photo 5, p 17). In a wetland, such as in Photo 5, the area exposed to solar insolation could significantly increase which would both warm the water and increase evapotranspiration. The DEIS does not consider such factors in its comparison of alternatives.”

In other areas, where obvious opportunities for colocation, if within the pre-existing corridor, may reduce the pipeline footprint and impact, it seems an altogether ignored option. For example:

- In the Blue Mountain, part of SGL 168, Blue Mt Ski area is highly impacted with massive cuts for ski slopes yet it appears the pipe line proposed near the ski center would add an additional cut rather than utilize one of the current clear cut paths.
- While there is an existing Buckeye oil pipeline present in proximity to the proposed new greenfield PennEast route that already cuts across the steep slope and the Appalachian Trail (AT) within SGL 168, it is unclear why colocation is not considered for this area where such sensitive habitat, steep slopes, and cultural impacts are in jeopardy.
- Note -- the crossing of the Appalachian Trail by the proposed route is in a section that is only feet away from a scenic overlook and cliff outcropping – it is hard to imagine a more damaging location for harming this important recreational and cultural resource. This area is also prime rattlesnake habitat.

F. The EIS fails to fully consider the advantages of alternative options for the construction route, instead relying on what PennEast proposes rather than an independent assessment amongst options

The most obvious advantage of the Luzerne-Carbon alternative is that just 1.5 acres of wetland would be affected by construction while for the proposed preferred route, 12 acres would be affected. The EIS does not compare wetland type or value, but the much smaller area for the alternative suggests it could be much less impactful. Also, the Luzerne-Carbon reach also includes the extremely saturated wetland 7 are just south of I-80 on the proposed route, which the EIS describes as a difficult area for construction (DEIS, p 4-69 and discussion below in

Section 3.33). The EIS alternatives comparison fails to consider the advantages of not constructing the pipeline through this wetland.

The EIS notes the increase in stream crossings and small increase in forest area clearing in its rejection of the alternative. The increases are not discussed regarding the quality of the streams or forest affected, nor does it consider the value of the wetlands not impacted, so the EIS does not provide adequate evidence in support of the choice of the proposed route.

Similar deficiencies in analysis are noted by Dr. Myers for the Bucks County alternative.

G. ROW Use Damage by Vehicular Traffic

Dr. Tom Myers notes in his report the damage that is done on existing ROWs due to access by vehicular traffic, including off road vehicles. Dr. Myers provides expert analysis, and photographic evidence, of the damage done by this use of at least one of the existing ROW's PennEast proposes to use. Use of ROWs by off road vehicles is a common, known and foreseeable outcome of construction of the PennEast pipeline, and yet the EIS fails to give the frequent, ongoing, repetitive and enduring damage to natural resources including waterways, wetlands, wildlife, habitat and restoration efforts by this known and foreseeable outcome its due attention. Statements that off road vehicles are prohibited by sign postings, gates, or web site announcements is not good enough. Discussion and

commitment to enforceable measures that will demonstrably prevent this significant, repetitive and enduring impact is an essential element of avoiding known and foreseeable harm and requires due attention.

15. The Commission erred because the construction of the PennEast Pipeline will bring demonstrable threats and harms to life, property, property rights and riparian rights

The PennEast pipeline is a significant danger to human life and property.

Pipelines are a serious source of human harm and property damage. According to the Pipeline and Hazardous Materials Safety Administration¹⁰⁷ 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. And the risk of accident, incident and harm is increasing. 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.

The DEIS asserts that: “The frequency of significant incidents is strongly dependent on pipeline age.” But in fact this determination is not supported by the

¹⁰⁷ <https://hip.phmsa.dot.gov/analyticsSOAP/saw.dll?Portalpages>

evidence. Nor was this error addressed in the final EIS. In fact, the hazards of pipelines for human safety and property damage are 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.”¹⁰⁸

The EIS’s improper determination that pipelines constructed more recently are safer resulted in a flawed analysis and discussion of the health and safety ramifications of the proposed PennEast pipeline for communities. The focus of the EIS on compliance with regulations does not excuse the failure to assess the fact that accidents, incidents and explosions are higher than in older, pre-1940 pipelines, and the need to consider why safety is on the decline and whether PennEast will be subjected to the same construction approaches that have made more modern pipelines less safe and more prone to catastrophic events.

In the DEIS, to diminish the serious health and safety threats and harms of pipelines, FERC uses the assertion that:

“The majority of fatalities from natural gas pipelines are associated with local distribution pipelines. These pipelines are not regulated by FERC; they distribute natural gas to homes and businesses after transportation through interstate transmission pipelines. In general, these distribution lines are smaller-diameter pipes and/or plastic pipes

¹⁰⁸ <https://www.snl.com/InteractiveX/Article.aspx?cdid=A-33791090-11060>

that are more susceptible to damage.”

The final EIS did not address DRN’s challenge that given that distribution pipelines are a normal and needed consequence of an interstate transmission line in order to take the induced fracked gas from the well pads into interstate commerce, the harms inflicted by distribution lines must be equally assessed and accounted for in the DEIS as a foreseeable, direct and induced consequence of the PennEast pipeline.

The effort by the EIS to dismiss the devastation that gets inflicted when a pipeline explodes or does damage to a community through an accident or incident is, frankly, disgusting. The DEIS, supported by the final EIS issued, tried to dismiss the devastation to people and families suffered from an explosion of a pipeline, for example, by asserting that the harms associated with pipelines are less than with other activities:

The nationwide totals of accidental fatalities from various anthropogenic and natural hazards are listed in table 4.11.3-2 in order to provide a relative measure of the industry-wide safety of natural gas transmission pipelines. Direct comparisons between accident categories should be made cautiously because individual exposures to hazards are not uniform among all categories. As indicated in table 4.11.3-2, the number of fatalities associated with natural gas facilities is much lower than the fatalities from natural hazards such as lightning, tornados, floods, earthquakes, etc.

In addition to the effort to diminish the devastation to a person or family suffered during an explosion by a natural gas pipeline, the dismissal fails to give

the necessary context or assessment to fairly compare these uses. The necessary comparisons of potential for an incident to occur amongst different threats versus the actual reality of a hazard is lacking in the EIS analysis. Comparing apples to oranges does not work here.

The EIS fails to fulfill the mandates of NEPA in all the ways identified in this comment and all its associated attachments and references. FERC must prepare a new, complete and accurate EIS for public review, comment, hearing and consideration.

16. The Commission erred because the Commission regularly issues letter orders to proceed with tree felling construction activity prior to the issuance of the Clean Water Act Section 401 water quality certifications

Section 401 of the CWA plainly requires “no [federal] license or permit shall be granted until the certification required by this section has been granted or waived.” 33 U.S.C. § 1341(a)(1); *City of Tacoma v. FERC*, 460 F.3d 53, 68 (D.C. Cir. 2006) (“without [Section 401] certification, FERC lacks authority to issue a license.”). The Supreme Court has stated that, consistent with the State’s primary enforcement responsibility under the CWA, Section 401 “requires States to provide a water quality certification *before* a federal license or permit can be issued....” *PUD No. 1 of Jefferson Cnty. v. Wash. Dept. of Ecology*, 511 U.S. 700, 707 (1994) (emphasis added). Likewise, the D.C. Circuit clearly held that “without [Section 401] certification, FERC lacks authority to issue a license.” *City of Tacoma v.*

FERC, 460 F.3d 53, 68 (D.C. Cir. 2006). In addition, the DRBC has made clear that no construction activities may proceed absent a DRBC docket for the project. Until such time that the states of Pennsylvania and New Jersey issue their respective Section 401 water quality certifications, and DRBC issues its docket, FERC is prohibited from issuing letter orders authorizing any construction activity for the Project. This includes but is not limited to tree felling activities.

17. The Commission erred by failing to provide an accurate baseline from which to conduct its environmental review of the Project

The Commission has failed to adequately establish a baseline from which to conduct its environmental review of the Project because it has failed to require, collect, and review critical data related to the quality of the habitat that will be adversely impacted by the Project.

A baseline is not an independent legal requirement, but rather, a practical requirement in environmental analysis often employed to identify the environmental consequences of a proposed agency action. *See* 54 Fed.Reg. 23756 (1989). It has been recognized that “[w]ithout establishing . . . baseline conditions . . . there is simply no way to determine what effect [an action] will have on the environment and, consequently, no way to comply with NEPA.” *Half Moon Bay Fishermans’ Mktg. Ass’n v. Carlucci*, 857 F.2d 505, 510 (9th Cir.1988); *see also* Council on Environmental Quality, *Considering Cumulative Effects under the National Environmental Policy Act* (visited May 11, 1999) (“The concept of

a baseline against which to compare predictions of the effects of the proposed action and reasonable alternatives is critical to the NEPA process”). NEPA requires that the lead agency provide the data on which it bases its environmental analysis. *See Lands Council*, 537 F.3d at 994 (holding that an agency must support its conclusions with studies that the agency deems reliable). Such analyses must occur before the proposed action is approved, not afterward. *See LaFlamme v. F.E.R.C.*, 852 F.2d 389, 400 (9th Cir.1988) (“[T]he very purpose of NEPA’s requirement that an [environmental review] be prepared for all actions that may significantly affect the environment is to obviate the need for speculation by insuring that available data is gathered and analyzed prior to the implementation of the proposed action”) (internal citation and quotation marks omitted).

Here the Commission failed to examine the quality of the functions and values of the wetlands that are to be impacted by the Project. The Commission completely failed to respond to or refute this problem in its Order. To provide an accurate baseline for NEPA review, and to ensure that mitigation measures accurately account for lost and degraded functions and values of wetlands, the EIS must include an analysis of the following missing information.

- 1) It must provide an evaluation of the functions and values of all wetlands in the project area (for example: wildlife habitat, groundwater

- discharge/recharge, flood flow alteration, nutrient removal, carbon sinks, and pollution control etc.)
- 2) The wetlands review must not only include the principle functions and values, but all the functions and values the wetlands provide.
 - 3) For each wetland to be impacted, identify the locations of restrictive layers which contribute to and/or maintain the wetlands' hydrology.
 - 4) Identify and provide a discussion on any potential permanent impacts to wetland hydrology from excavation or alteration from construction of the proposed project. Provide a plan, plan sheets, cross sections, and other details which demonstrate that impacts to the wetlands' hydrology from alteration of restrictive layers have been avoided and minimized.
 - 5) Provide site specific information on the hydrology and soils and data on why the wetlands maintain open water/seasonal inundation and provide site specific construction plans, cross sections, and restoration details to ensure that the hydrology and functions and values of the wetland is not altered and it continues to maintain inundation and seasonal hydrology.
 - 6) Discuss the impacts to each wetland where a vegetative class change is proposed (ex. PFO to PSS). The discussion should be specific to the wetland and its functions and values.

- 7) Provide seasonal water quality data for each waterbody and wetland that may be impacted by the pipeline crossing (ex. Temperature monitoring, macroinvertebrate monitoring, Total Suspended Solids, and Pebble count monitoring).
- 8) Provide soil compaction analysis for Temporary work spaces and Additional temporary workspaces that are adjacent wetlands and streams to document increased stormwater impacts.

Without accurate data regarding the **quality** of the functions and values of wetlands it was simply not possible for the Commission, or the public, to begin to assess whether the impacts would rise to the level of “significant” and necessitate further review. Furthermore, it is not possible for the Commission to accurately calculate the appropriate size, scope, and ratio of wetland restoration that is proposed for appropriate mitigation. The monitoring methods are especially important in anti-degradation waterbodies thru which this pipeline would cross.

Data regarding wetland quality is **crucial information** in the context of the Commission’s NEPA review because States such as Pennsylvania classify their wetlands in a hierarchy based on the differing functions and values that each of the wetlands provide. Some wetlands are simply more functionally valuable than others, and therefore any resulting harms to those wetlands must necessarily be given greater weight or consideration in a NEPA review. *See, e.g.,* 40 C.F.R. §

1508.27(b)(3). For example, wetlands in Pennsylvania are either classified as “exceptional” or “other” wetlands. *See* 25 Pa. Code §§ 105.17(1)-(2). To be classified as “exceptional,” wetlands must meet strict criteria demonstrating that the wetland provides particularly important water quality, wildlife habitat, or other vital ecological services. *See* 25 Pa. Code § 96.3(b); 25 Pa. Code § 93.4a; 25 Pa. Code §§ 105.18a(a)-(1). Degraded wetlands that do not meet any of the criteria are considered “other” wetlands and are subject to other separate protective standards. However, all of this data is entirely missing from the Commission’s analysis.

Accurate information regarding the classification of the wetlands is critical to the Commission’s understanding of the potential harms caused by the construction and operation of the Project, and ultimately whether they result in a significant impact necessitating further environmental review. *See* 40 C.F.R. § 1508.27(b)(3) (“Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.”); *see also* Expert Reports detailing the various permanent impacts to wetlands resulting from the permanent conversion of forested wetlands to emergent wetlands, which is an impact cited in the Environmental Assessment for the Project.

For example, if a pipeline project in Pennsylvania proposed to impact forty wetlands that were non-forested “other” wetlands as categorized pursuant the

Pennsylvania Code, the environmental impact would be significantly less in the context of a NEPA review than if those same forty wetlands were categorized as high-value forested “exceptional” wetlands that are habitat for endangered species. This is exactly why the Commission usually makes a point of analyzing this type of data in its NEPA reviews, but inexplicably fails to do so here. For example, while the Commission failed to properly categorize the wetlands for Transcontinental Pipeline Company’s Leidy Southeast Upgrade Project, at least the Commission attempted to perform the analysis. *See* Transcontinental Gas Pipeline Company, “Leidy Southeast Project (Docket No. CP13-551-000), Environmental Assessment,” August 2014, Appendix I (identifying the “State Wetland Classification” for each wetland in Pennsylvania using criteria “as defined in Pennsylvania Administrative Code 25, Chapter 105.17).

Based on the record before the Commission, it simply cannot answer the question of how it can appropriately compensate for wetlands impacts if it does not have an accurate starting point. *See Oregon Natural Desert Association v. Jewell*, 823 F.3d 1258, 1265 (9th Cir. 2016) (finding that the agency had a “duty to assess, in some reasonable way, the actual baseline conditions” and the agency’s use of “inaccurate data” rendered its decision “arbitrary and capricious”).

Additionally the Commission states that the Project “would cross ephemeral waterbodies and ditches where there is no perceptible flow at the time of crossing

using standard upland crossing techniques.” However, there is no analysis regarding the impact of crossing these waterbodies and sensitive headwater tributaries.

18. In addition to the errors identified by DRN, the Commission also erred by relying on inaccurate or incomplete information as identified by other parties on the Commission’s docket

The wealth of errors, inaccuracies, data gaps, as well as the tremendous volumes of misinformation, missing information and demonstrably false information is so prevalent and overwhelming that FERC was obligated to either require a supplemental EIS or deny the certification of the Project. Among the environmental impacts that are inaccurately reported or are otherwise incomplete, DRN identifies the following deficiencies in the Commission’s EIS:

- It is impossible, from the materials included in the EIS, to directly determine how many stream crossings of Exceptional Value streams in Pennsylvania will involve open cuts in areas that are currently forested conditions, on public lands, on steep slopes or erosive soils, or any combination thereof – but all of these conditions can significantly impact water quality.
- The EIS fails to consider important site specific conditions in determining pipeline location and suitability of construction methods to minimize impacts or protect water quality. For example, approximately 103 dry crossings of streams are in areas of severely erodible soils, approximately 34 of the stream dry crossings are in rugged terrain with slopes greater than 30, and other, often multiple and site specific constraints that increase the likelihood and potential for adverse water quality impacts are not individually or collectively considered in terms of water quality impacts in project documents.

- The EIS fails to comprehensively evaluate each stream crossing with regards to conditions such as existing water quality, erosive soils, existing land use and forested areas, existing slopes, riparian buffers, and the potential need for in-stream blasting.
- The EIS to provide adequate location and construction recommendations to protect water quality, as well as construction techniques specific to conditions at each crossing.
- In fact, almost universally, the EIS fails to consider the unique, site specific conditions at each individual proposed stream and wetland crossing, and the corresponding potential adverse water quality impacts and water way health impacts associated with stream crossings, including open cut crossings.
- The synergistic implications of climate change and the PennEast pipeline on stream flows, quality, temperatures, health, and aquatic life were not assessed in the EIS.
- The denial of any consideration of the combined effects of PennEast for recharge, groundwater and baseflow, coupled with the heightened anticipation of drought due to climate change, is a significant information gap.
- Streams recently categorized as “exceptional value’ in Pennsylvania need to be updated in the EIS.
- The EIS documents at least 131 Wild Trout Waters in Pennsylvania to be cut across by the pipeline. Recent updates to the Fish and Boat Commission Class A lists could alter this figure. The EIS failed to update this list and ensure all designations are accurate.
- 75% of the stream crossings will be undertaken using open cut methods. Only 26% of the 189 road crossings will be open cut. Horizontal Directional Drilling is proposed on 74% of the roadways crossed in order to avoid impacts. Of the seventeen stream crossing locations to be accomplished by Horizontal Directional Drilling, only four are not associated with a road crossing. This clearly demonstrates that FERC places a higher priority on avoiding disturbance of roadways than it places on protecting streams, including streams of the highest quality in Pennsylvania

and New Jersey. FERC has yet to explain why it is appropriate to place a higher priority on protecting roads as compared to protecting streams, wetlands, and vernal pools.

- The EIS presented only generic plans for its Horizontal Directional Drilling activities rather than in-situ evaluations. Transco recently encountered significant issues using Horizontal Directional Drilling for its pipeline in Princeton, which has similar geology to Hopewell Township which is proposed by to be crossed by PennEast. Given that the method used for crossing waterways and wetlands has such a significant and severe affect, knowing exactly what crossings are being proposed or where is an important element to provide for FERC decisionmaking. In the absence of specific plans and proposals for each waterbody, the EIS is markedly incomplete.
- The impacts of maintaining the cleared right of way as is intentionally and unintentionally planned for in the EIS, including enduring compacted soils, dramatically altered vegetative composition, increased runoff volume, altered timing of stormwater runoff, and reduced groundwater recharge have been largely overlooked.
- The vast majority of stream crossings, 87%, will be dry crossings with the greatest potential for adverse water quality impacts and long-term alteration of the channel substrate and riparian buffer. Approximately 55% of the dry stream crossings are in areas of Potential Blasting. The EIS should, but does not, evaluate the potential need for blasting and excavation at all proposed stream and wetland crossings, and this information should inform decisions related to stream crossing locations and construction methods, including decisions for dry crossing methods or Horizontal Directional Drilling.
- The EIS fails to offer primary consideration and discussion of a Horizontal Directional Drilling construction alternative for each and every wetland and waterway crossing. Given the potential for this type of drilling to protect streams from the ravages of open cut, this is a serious deficiency in EIS materials and analyses.
- The discussion of blasting provided in EIS concerns worker safety, not environmental impacts. There are significant ramifications that result from blasting, among them is that blasting leaves nitrogen which can run off with

stormflow and enter streams as nitrate or ammonia. The environmental ramifications of any and all proposed or potential blasting is obviously absent.

- Deviation P-1820 is designed to avoid surface impacts to a wetland and C-1 stream, and to facilitate the trenchless crossing of Rt. 519 in Holland Township, NJ, but requires an access road to the Horizontal Directional Drilling pad which will negatively impact the C-1 stream it is designed to avoid. Discussion of this impact and the ways to avoid it are notably absent from the EIS.
- Deviation P-1710 will cause crossing of two residential roads, impacting C-1 streams and wetlands, as well as 8 homes. Discussion of these water way impacts are notably absent from the EIS.
- Many of the same sub-watersheds subject to development as a result of PennEast were recently, or could be in the future, impacted by construction activity from other pipelines. The cumulative impacts of these cuts is not considered or anticipated in the EIS.
- Consideration of the multiple cuts proposed by PennEast itself in sub-watersheds is lacking needed study and consideration. For example, the proposed right-of-way would cross the Harihokake and its tributaries at 7 different locations – mile post 85.4, 85.6, 85.8, 85.9, 86, 86.3, 86.7. These cuts pose a threat to water quality and waterway health both individually and cumulatively. The cumulative impact of these multiple cuts is not duly considered in the EIS.
- The PennEast pipeline will induce the drilling of 3,000 new wells in Northeast Pennsylvania – specifically in the counties of Bradford, Susquehanna, Lycoming, and Tioga. The implications for climate change affects, waste discharges within the Delaware River watershed, and additional new pipeline construction is notably absent from any consideration of foreseeable impacts due to construction of a PennEast pipeline in the EIS.

- Horizontal Directional Drilling long borings should be, but are not, considered and analyzed for feasibility for each and every waterbody crossing along the route to reduce impacts to sensitive habitats.
- Groundtruthing identified at least 12 vernal pool complexes or groundwater seeps on a half mile section of the route in Blue Mountain State Gameland 168 in Pennsylvania where EIS tables documented the presence of only 2 vernal pool habitats and no groundwater seeps. There has been a clear misrepresentation of water resources that will be impacted in this area.
- The proposed pipeline would run adjacent to the existing right-of-way cutting through new habitat in the Ted Stiles Preserve on Baldpate Mountain, instead of being built within the current right-of-way footprint which means more habitat disturbed, trees cut, increased runoff and erosion, and an extension of forest fragmentation further into the woods. Ted Stiles Preserve has some of the last remaining forest in the region. The EIS does not justify the failure to use the existing right of way versus expanding it.
- The EIS provided multiple new alternative route segments. Full and detailed information on the waterway and water quality impacts of each of these alternatives has not been provided.
- The EIS acknowledges that perennial and intermittent waters in Pennsylvania Exceptional Value and High Quality ("Special Protection") watersheds have 150-foot wide riparian buffers regulated in accordance with Pa. Code Chapter 1028. Yet PennEast project drawings within the EIS do not identify any existing or proposed riparian buffers around any Exceptional Value or High Quality waters.
- The EIS claims that it was not possible to protect, convert, or establish a riparian buffer or riparian forest buffer to satisfy the anti-degradation requirements for the proposed earth disturbances because PennEast does not own the land on which the pipeline will be constructed and because the existing landowners would not accept deed restrictions, conservation easements, or other mechanisms to protect the buffers into the future. No support for these claims is provided, and they appear to be gross generalizations that are unlikely to apply to every landowner along the 79.5-mile route in Pennsylvania.

- The EIS asserts that PennEast will maintain flow rates adequate for downstream uses including aquatic life, water body designated use or withdrawals. However, documents on the record do not indicate any standard for determining the adequate amount of water to accomplish these critical protections. Therefore there is no way for the FERC or the public to determine whether PennEast will in fact ensure protective flows.
- EIS Table 4.3.2-7 lists discharge locations simply as coordinates without listing the receiving stream. This is insufficient disclosure because it is not an analysis of the effects of the discharge on the receiving stream, including limits on the potential flow rate which is important, particularly if the stream is small and the discharge of hundreds of thousands of gallons of water would cause erosion or upset ongoing biologic processes.
- Erosion control measures along the right-of-way usually require lime and fertilizer to be applied so that seed mixes grow rapidly. The addition of lime and fertilizer are like poison to what were once forest soils of low pH and low nutrients. Native herbaceous plants and shrubs almost never outcompete weeds in these altered, nutrient-enriched, high pH soils, and stormwater runoff will pollute local waterways with these added nutrients. These implications and impacts are not discussed or addressed in the EIS, nor are alternatives considered for avoiding these impacts altogether.
- The EIS failed to assess or address comments and experience that shows that the use of standard construction practices will result in environmental violations and degradation such as erosion issues and sediment pollution.
- The evaluation of soil compaction impacts based primarily on a soil's drainage classification that has been provided by in the EIS is incorrect.
- The EIS greatly underestimates the potential for the alteration of soils traversed by the pipeline and the subsequent short- and long-term consequences of soil compaction such as decreased water absorption.
- The stated plan for dealing with spill prevention and control is limited to five (5) simple bullet points, none of which provide any direction on the actions that must be taken in the event of a spill, which would negatively impact waterways.

- A Mercer County Public Park has over 12 miles of marked trails for hiking, horseback riding, mountain biking, and trail running. According to the PennEast alignment sheets within the EIS, this area had been surveyed, but no flagging was observed during ground-truthing for the pipeline center line, or any of the wetlands or streams along the proposed pipeline route encountered as late as July 30, 2016. FERC needs substantiation that areas PennEast says were surveyed for purposes of capturing data and information for its project proposal and assessment were in fact surveyed. Verbal assertions from PennEast are not enough.
- Field-truthing of the pipeline route has documented that an intermittent stream in the Ted Stiles Reserve at Baldpate Mountain was not delineated on the PennEast alignment sheets within the EIS, nor was there flagging present to note this water feature despite the fact that the stream is delineated on state freshwater mapping layers available to the public.
- Despite open cuts making up the majority of the waterbody crossings and despite the exceptions of allowing Additional Temporary Work Spaces within 50 feet of sensitive wetlands at least in 211 instances, it has been asserted there is adequate justification for Additional Temporary Work Spaces and that there will be minimal harm. In fact avoidance of these sensitive areas was not fully and adequately investigated and the assertion of minimal harm has not been demonstrated.
- Most of the wetlands data within the EIS is unreliable because it is largely “based on available remote sensing mapping, and not on field-based investigations.”
- Expert groundtruthing has identified multiple instances where wetlands shown on project drawings appear to be significantly under-mapped.
- 72% of the proposed pipeline alignment in New Jersey and 23% in Pennsylvania has not yet been field investigated for wetlands and other water resources.
- Additional wetlands exist within approximately 19.4 miles of right-of-way, 24% of the proposed pipeline Study Area, that have not been investigated

because access was not (initially) granted. Impacts to all those wetlands have not been acknowledged, calculated, or mitigated for.

- The EIS has failed to assess how the functions and values of each wetland cut, crossed and/or otherwise impacted, will be changed by pipeline construction, operation and/or maintenance.
- There are even internal discrepancies in the reported acreage of many delineated wetlands in the EIS documents.
- Most wetlands within and along the proposed pipeline right-of way are not visibly flagged in the field making field verification and ground truthing difficult, and calling into question whether PennEast ever visited these sites in person. Verification of whether or not they physically visited and assessed each and every wetland along the proposed route is needed as it speaks to the veracity of the assertions in the EIS about all of the project data and impacts how the public and FERC may view the data itself.
- The wetlands tables within the EIS do not indicate the quality of the wetland impacted pursuant to the state classification of the wetland – this is important information that is notably missing.
- Many of the wetlands in the Project area are not appropriately classified pursuant to the Pennsylvania Code and the requirements therein.
- Some wetlands which should be classified as "exceptional value" pursuant to Pennsylvania law were incorrectly identified in the EIS as "other".
- No "existing use" analysis of affected streams has been done, leading to a likely undercount of the number and extent of Exceptional Value Wetlands.
- Bog turtle searches did not encompass the entire area requested by US Fish and Wildlife Service and certain areas of suitable bog turtle habitat were not acknowledged within the EIS. These omissions could negatively impact bog turtles due to the water quality impacts of the pipeline.
- Because the impacts to the functions and values of each wetland proposed to be impacted have not been determined or evaluated there is no appropriate mitigation plan for impacted wetlands.

- The EIS asserts that emergent vegetation regenerates quickly in wetlands, typically within one to three years. The EIS asserts that PennEast would maintain a 10 foot wide corridor centered over the pipeline in an herbaceous state. And the EIS asserts that PennEast would selectively cut trees within a 30-foot-wide corridor centered over the pipeline. The remainder of forested and scrub-shrub vegetation, the EIS states, would be allowed to return to preconstruction conditions and would not be affected during operation. No permanent fill or loss of wetland area would result from construction and operation of the Project, the EIS asserts. But continued and irreversible impacts to wetlands from pipeline crossings is well documented, especially in the context of forested wetlands where tree regrowth can take decades to recover. The EIS has not addressed these demonstrated ongoing impacts that are documented in the PennEast record.
- The EIS proposes Open Cut trenching for 130 of the wetlands proposed to be crossed. Other wetlands not cut by open cut are noted on the record as “not applicable” for crossing type – it is unclear what is meant by “not applicable” – there is no description of that condition in the notes of the table.
- The EIS has asserted that approximately 0.13 acres of vernal pool habitats would be impacted by construction of the PennEast pipeline, with 0.11 acres permanently impacted during operation. Based on the sensitive areas along the 115 mile proposed route, this asserted acreage is low. Spot field checks in short sections of already surveyed areas of the route, make clear that significant numbers of vernal pools and wetlands have been missed and not accurately depicted by field surveys or on the record.
- Field truthing for vernal pools in an area that the EIS stated PennEast had surveyed revealed there were only a few pink flags marked by the PennEast surveyors for a short section of the route and no wetland flagging at all was present at vernal pools located along the proposed route.
- The EIS does not consider the full forest impacts and forest upland habitats at least 1,000 feet from vernal pools that will be cut down and lost and that amphibians rely on for times of the year other than breeding.

- Failure by the EIS to consider upland habitat impacts 1000 feet surrounding vernal pools and wetland habitats exemplifies the incomplete assessments that have been provided for wetland and vernal pool features even when they are located in areas as sensitive and accessible as PA State Gamelands.
- The EIS does not include the thermal and likely hydrological impacts that will change vernal pools compromising water temperature and flow for breeding amphibians.
- The EIS does not include the temperature changes, dry compacted soil conditions and changes to vegetation of a right of way that will make it near impossible for migrating amphibians to return to their breeding pool post pipeline construction.
- The EIS does not include the repetitive pipeline maintenance impacts like herbicide applications to the proposed right of way and routine cutting and unauthorized ATV use that will impact amphibians long term.
- The EIS does not include a thorough mapping of all vernal pools and wetlands that will be impacted.
- The EIS does not consider the climate change impacts that will result to vernal pool and wetland species.
- Prior to construction, PennEast is supposed to file a complete wetland delineation report for the entire project that includes all wetlands delineated in accordance with the US Army Corps of Engineers and the applicable state agency requirements. This is not protective enough nor does it give regulating agencies or the public adequate time to field verify information and to use the results of that verification for decisionmaking purposes.
- Private drinking water supplies are to be protected as Exceptional Value wetlands. The EIS recognizes that private water supplies are not yet mapped, which means that wetlands associated with these water supplies are not yet fully analyzed under Pennsylvania requirements for Exceptional Value wetlands.
- In a wetlands filing where PennEast was required to submit detailed drawings, such as Erosion and Sedimentation Control Plans, it has failed to in fact include such plans.

- In the area between Mile Post 92.0 and Mile Post 92.25, about 1,320 linear feet, where access was not denied, and which a PennEast drawing referenced in the EIS notes as being, quote, "fully surveyed parcel", the wetland proposed to be crossed was not field surveyed but is in fact based on non-regulatory NJDEP mapping.
- Near Mile Post 92.3, there are extensive Natural Resources Conservation Service-mapped hydric soils both within and outside wetlands mapped by NJDEP, but PennEast drawings provided for this area and referenced in the EIS only use what is shown on NJDEP maps. In other places, where National Wetlands Inventory mapped wetlands extend beyond the NJDEP-mapped wetlands, sometimes significantly, only the NJDEP-mapped wetlands, and not the National Wetlands Inventory wetlands, are shown on the project plan maps provided.
- Impacts to Exceptional Resource Value Wetlands in New Jersey have not been minimized, including failure to consider the alternative or routing the pipeline around Exceptional Value Wetlands in order to avoid harm. While rerouting to avoid wetlands is mentioned as a general consideration in pipeline siting and alternatives analyses, specific areas where identified Exceptional Value Wetlands were avoided are nowhere identified or discussed.
- PennEast has planned locating Additional Temporary Work Spaces at or about 50 feet from Exceptional Resource Value Wetlands identified in New Jersey for which there is a 150-foot wide buffer requirement. Failure to meet the state 150 foot standard is not addressed by EIS in any meaningful way.
- Wetlands were delineated within a 400-foot wide (total) study corridor centered on the proposed centerline of the pipeline, meaning 200 feet in each direction from the proposed pipeline. Additionally, proposed construction areas extend out from that centerline, in some cases encompassing the entire width of the study corridor. To have complied with an applicable US Fish and Wildlife Service directive, wetlands should have been delineated within 300 feet of the edge of any limit of proposed disturbance.

- The EIS assumes that there is no difference between the hydrologic response of forested woodland and the compacted, post-construction pipeline right-of-way. As a result its calculations and assessments of impacts are simply wrong.
- In addition, the EIS fails to consider or even acknowledge stormwater impacts from pipeline construction, as no stormwater management is proposed for the pipeline area.
- The current forested conditions in much of the proposed pipeline corridor generates little surface runoff and facilitates groundwater recharge to support baseflow to streams and wetlands. The proposed pipeline conditions will significantly reduce the land surface's ability to retain rainfall and facilitate infiltration, and will increase runoff frequency, volumes, and flow rates, including increased surface erosion and sediment transport to Special Protection or C1 water bodies. As a result of pipeline construction, there will be permanent long term water quality impacts. The EIS fails to address the increase in stormwater runoff, erosion, water quality degradation and habitat impacts that will result from the permanent, long term changes to land use cover and soil conditions, and the corresponding.
- The pipeline route both traverses and is located along steep slopes, requiring significant earth movement for construction. When combined with erodible soils, the ability for construction crews to manage runoff and sediment discharge from the construction site becomes increasingly difficult. Several of these steep slope and erodible soil areas are directly adjacent to wetland or stream crossings, increasing the potential for sediment and runoff discharge to waterbodies. These issues are not well considered or addressed in the EIS.
- The EIS identified approximately 163 areas along the proposed pipeline, totaling 5.9 miles in length, of slopes greater than 30 percent within 200 feet of waterbody crossings, some of which are located immediately adjacent to waterbodies. The clearing and grading of streambanks would reduce riparian vegetation and expose soil to erosional forces. The use of heavy equipment for construction could cause compaction of near surface soils, an effect that could result in increased runoff into surface waters in the immediate vicinity

of the construction right-of-way. These issues are not addressed in the EIS in the assessments, alternatives analyses, or plans.

- The EIS fails to address the fact that the proposed pipeline construction practices and long-term maintenance of the right-of-way in a non-forested condition will alter the land surface conditions and result in greater stormwater impacts.
- The increased scour, sedimentation and turbidity levels within streams after construction due to sediment transport from uplands into surface waters due to construction and post-construction activities, is not meaningfully considered, addressed or minimized in the EIS in the alternative analyses or construction and maintenance plans.
- Blasting and excavation in streams and wetlands for pipeline construction has the potential for short-and long-term impacts to water quality due to erosion and disturbance during construction, permanent alterations and increased instability in the channel substrate, and long-term alterations and instability in the channel configuration and riparian buffer conditions. These impacts are not meaningfully considered, addressed or minimized in the EIS in the alternative analyses or construction and maintenance plans.
- Impacts to stream baseflow due to land use alterations that will alter the surface hydrological response, increasing runoff and decreasing infiltration is not addressed in the EIS either for the proposed route or alternative routes.
- The construction practices for pipeline installation include the use of heavy equipment with no topsoil segregation and no soil restoration unless parcels are residential or agricultural. This results in a soil profile that is highly compacted, lacking organic material, lacking macropores, and extremely reduced in its ability to retain and slow rainfall. The increased stormwater runoff, erosion, and pollutants, and the decrease in recharge to baseflow that will result is not addressed in the EIS.
- The EIS relies upon PennEast's Horizontal Directional Drilling Inadvertent Returns and Contingency Plan for addressing potential impact to groundwater attributable to drilling wastes, asserting the plan provides sufficient protection. The reference provides only a single bullet point that

states, a site specific plan will be implemented. This is a significant deficiency in the EIS and assessments of waterway and water quality impacts.

- The EIS does not address potential groundwater contamination events associated with the operation and maintenance of the pipeline, including the long-term application of herbicides to control the growth of vegetation or the management of invasive plants within and adjacent to the pipeline right-of-way.
- The EIS has failed to recognize potential arsenic contamination and given much of Hopewell Township, for example, is a sole source aquifer, this is of significant concern, and is un-mitigatable.
- The pipeline trench will need to be 7.3 feet deep and because most of the soil in Hunterdon County is less than 32 to 64 inches, the bedrock will have to be excavated. This means that the trench construction, which will in some cases require blasting, will fracture, shatter, excavate, and re-bury arsenic-rich shale exposing it to aerobic conditions and potentially polluting groundwater and other water sources. This reality is not addressed by the EIS.
- The EIS fails to provide a detailed plan for achieving the requirements of New Jersey's no-net loss of forest program, as loss of forest would increase runoff volume and sediment pollution.
- Groundtruthing from about Mile Post 51.1 to Mile Post 51.6 in the Blue Mountain area demonstrates the area is dominated by steep slopes, glacial thin soils and abundant outcroppings and boulder fields indicative of ideal timber rattlesnake habitat. Due to the geology, blasting would likely be required, and there would be very high likelihood of erosion and increased stormwater runoff from tree removal. These issues are not addressed by the EIS.
- "Pipeline construction lowers the water table temporarily by dewatering the trench. It lowers the water table permanently by changing the aquifer properties within the trench. These impacts have not been considered in the EIS in any meaningful way if at all.

- Pipeline construction can change surface drainage patterns which could change the locations of both runoff and recharge. These impacts have not been considered in the EIS in any meaningful way if at all.
- An existing 50 to 100 foot wide treeless swath through a forest could be doubled as the result of the preference to following existing right-of-ways within a forest area. Such a width doubling could have foreseeable effects especially in valuable forest regions such as in Hickory Run State Park and wetlands where areas exposed to solar insolation could significantly increase, resulting in warming impacted waters and increasing evapotranspiration. The EIS does not consider such factors in its comparison of alternatives.
- Trench plugs are used to interrupt flow along trenches. The EIS does not analyze how trench plugs would operate or whether they would do as claimed in terms of impacting flows. A plug with lower conductivity than the rest of the trench backfill would interrupt flow through the trench and potentially cause water to discharge to the ground surface. The EIS does not provide for accommodating this surface flow or consider how it changes groundwater flow.
- The EIS does not assess the potential for ancillary damages to water resources, and other features, caused by vehicular access to the pipeline right-of-way after construction, nor does it consider how to avoid or minimize those impacts, for example by reducing vehicular access after construction is complete and implementing enforcement strategies that prevent vehicular access by the public for motorized recreation such as ATVs and snowmobiles.
- The EIS does not describe groundwater recharge, and therefore fails to describe one of the most important factors of the hydrogeology of the area. Because many aspects of the project could affect recharge, failing to describe the process in the project is a serious deficiency.
- The EIS should, but does not, 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 EIS should, but does not, discuss and assess the roll of topography in controlling conductivity and how fractures control conductivity and how deep recharge may reach in the bedrock.
- The EIS states that critical soil characteristics were summarized, including poorly or very poorly drained, excessively drained, poor revegetation potential, high compaction, severe erosion potential, prime farmland crossed, and slope by percent of proposed route length affected. But the EIS does not provide the specific location for these soil types. In addition to lacking this specific location information, tables on the record fail to consider characteristics which are collocated and as a result could lead to more critical conditions. Materials on the record are generally insufficient for consideration of the soil conditions on water resources impacted by the proposed preferred route.
- Tables on the record show potential groundwater or soils contamination along the pipeline route. However, they do not show the type of contamination at those sites. There is provided no discussion as to the effect the proposed pipeline could have on contaminated soils or, more accurately, the potential for, and ways in which, the proposed pipeline could release contamination from the contaminated soils thereby affecting the environment and natural resources.
- The EIS should, but does not, present mitigation plans to prevent currently contaminated soils from degrading nearby groundwater due to construction disturbance and the enduring presence of the pipeline.
- The EIS acknowledges that surveys for springs and seeps have not been completed. The inventory as presented is only for springs/seeps within 150 feet of the pipeline. It is not possible for the public or FERC to review the impacts of the proposed preferred route and alternative routes on water resources if the inventory of resources is not complete.

- The EIS should, but does not, include needed 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.
- The EIS should, but does not, assess the potential for pipeline construction to generate acid generation or leach metals in all areas where it crosses mine spoil.
- The EIS should, but does not, present avoidance and mitigation discussions focused on preventing the leaching and transport of acid and metals from the site.
- The arsenic analysis provided in the EIS is insufficient to indicate that arsenic leaching from pipeline construction in the Newark Basin would not be a problem for shallow groundwater. PennEast needs to legitimately and scientifically analyze this issue and threat in order to properly inform FERC decisionmaking.
- The EIS completely fails to consider how pipeline construction will affect the water balance of wetlands with groundwater inflow.
- Materials on the record completely fail to consider how pipeline construction will affect recharge into bedrock by not considering how compaction will prevent water from accessing fracture zones.
- The EIS must consider the transport of contaminants, including methane and spills, from the trench to and along the preferential flow pathways and assess where they would discharge. This could be into a stream or spring, or into a broader aquifer where it could affect wells.
- The EIS needs to assess details about the pipeline leak detection it asserts it will implement, including what rate of leak can be detected and what responsive actions would be triggered.
- The EIS should, but does not, analyze the extent that methane could spread from the pipeline through the groundwater due to a leak. This is probably a preferential flow issue in that the methane would disperse along the higher conductivity in the trench until it reaches a receptive fracture intersecting the pipeline or wetland or stream.

- A total of 8 New Jersey state-threatened, endangered or special concern mussel species are completely left out of the record. These species are as follows: triangle floater, brook floater, yellow lampmussel, eastern lampmussel, green floater, tidewater mucket, eastern pondmussel, and creeper.
- Amphibian species are at great risk and they would be put at an even greater risk by the combined impacts of climate change and the construction of the PennEast pipeline. The EIS failed to consider these impacts.
- The conclusion of “absence” as a result of the Phase 2 presence/absence bog turtle surveys does not carry much weight when it is admitted that the project may affect the species and is likely to adversely affect the species because not all areas have been surveyed. The same can be said for the Indiana bat, northern long-eared bat, dwarf wedgemussel, and northeastern bulrush. PennEast’s failure to evaluate the areas where there is likely to be an adverse impact to these species renders materials on the record highly deficient.
- The record notes that 7 wetlands in Pennsylvania are considered suitable bog turtle habitat. However, an independent US Fish and Wildlife Service qualified bog turtle surveyor identified 9 properties containing one or more suitable bog turtle wetlands in the Hunters Creek drainage alone.
- The EIS fails to consider utilizing pre-existing cleared areas in the Blue Mountain Ski area as an alternative. This area is already highly impacted with massive cuts for ski slopes, yet it appears the pipe line proposed near the ski center would add an additional cut rather than utilize one of the current clear cut paths, contributing to erosion and sediment pollution and negatively affecting water quality.
- Results of all geotechnical investigations, including karst areas, necessary for Horizontal Directional Drilling planning and design are missing from the materials on the record.
- Final planned design of each Horizontal Directional Drilling crossing are missing from the materials on the record.

- A revised/final list, based on final surveys, of water wells and springs within 150 feet of any construction workspace (and 500 feet in areas characterized by Karst terrain) are missing from the materials on the record.
- Documentation of the final hydrostatic test water withdrawal sources and locations are missing from the EIS.
- Documentation of all necessary permits and approvals for each hydrostatic test water withdrawal source are missing from the EIS.
- Identification of special construction methods for construction in extremely saturated wetlands are missing from the EIS and PennEast materials on the record.
- Justification for required additional workspace to accommodate special construction methods for extremely saturated wetlands are missing from the EIS and PennEast materials on the record.
- A revised/final table of impacts on vernal pools within or near the proposed workspaces based on completed surveys are missing from the EIS and PennEast materials on the record.
- Horizontal Directional Drilling 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. are all missing from the EIS and PennEast materials on the record.
- Horizontal Directional Drilling water discharge details including the specific volume of anticipated discharge, discharge method, and impacts on receiving streams are missing from the EIS and PennEast materials on record.
- Standards used to guide Horizontal Directional Drilling water withdrawals without preventing impacts on downstream ecological or human uses and needs are missing from the EIS and PennEast materials on the record.
- The EIS fails to provide a table of bedrock aquifers that includes relevant properties, including specific capacity statistics or well yields, and conductivity where available.

- The EIS fails to include mapping, 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.
- The EIS should, but does not, 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.
- The EIS should, but does not, 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.
- The EIS should, but does not, provide 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.
- The arsenic analysis provided in the on the record is insufficient to indicate that arsenic leaching from pipeline construction in the Newark Basin would not be a problem for shallow groundwater and therefore the EIS needs to legitimately and scientifically analyze this issue.
- The EIS should provide the data and references supporting the assertion on the record that “shallow groundwater ... generally have low arsenic concentrations and that high arsenic concentrations ... are the result of more mature groundwater interacting with geochemically susceptible and arsenic-enriched water bearing zones, which are often deeper wells”.
- The EIS should provide the data and references supporting the assertion on the record that there is “no indication that common construction activities that involve shallow excavation, such as home construction, has resulted in increased arsenic concentrations in water supply wells”.
- The EIS needs to 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.

- The EIS has failed 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.
- As part of an analysis of preferential flow, the EIS has failed to analyze the potential for the trench backfill to facilitate the movement of contaminants through the groundwater.
- Materials on the record do not include detailed wetland information necessary for expert review like that of Dr. Schmid to accurately review and determine the quality of the wetlands that are to be impacted.
- The EIS claims that PennEast has negotiated with Suez on Lambertville water supply reservoir. Suez claims no contact. Proof of the negotiation as well as specific items discussed needs to be provided.
- Drought conditions in areas PennEast proposes water withdrawals are not accounted for in the EIS.
- On the record, there is discussion of areas where the route crosses Special Flood Hazard Areas; there are references to two tables, Table 2.3-6 and Table 2.3.6. Yet neither table appears on the record.
- The EIS analysis fails to legitimately examine the potential for landslides resulting from site preparation, construction activities, and post-construction changes to soil properties and vegetative cover.
- Healthy forests are vital for protecting the water resources of the Delaware River watershed. The EIS minimizes or ignores the loss of interior forest. Interior forest impacts are significantly magnified beyond the immediate footprint of the project. There are numerous Interior Forest impacts that are missing from the EIS.
- The EIS failed to provide maps of Interior Forest Impacts wherever they claimed the project was “collocated” in Luzerne and Carbon Counties, Pennsylvania, and Hunterdon and Mercer, New Jersey. PE appears to encroach 150’ deep into Poconos forest. White cross-hatching on maps which denotes Interior Forest Impacts is missing on the following EIS pages and therefore are presumably also misrepresented in all on the record materials:

- Bear Creek, Luzerne County, Pages 205, 211–218, 224
 - Carbon County, Pages 239, 246-249, 255, 260-263, 270-273, 277-281, 289-293
 - Page 414: milepost 94 at the Calandra Property
 - milepost 94-94.3, no impacts are mapped but PennEast mapped cleared right of way as interior forest
 - milepost 105.7 - 108.4 in Baldpate Mountain, impacts are missing for 2.7 miles for Mercer County's largest contiguous forest. In fact PennEast failed to map any impacts at Baldpate except along one access road.
- The EIS fails to consider the potential for encouraging shale gas extraction activities within the boundaries of the Delaware River watershed if the moratorium against drilling were lifted.
 - The EIS fails to consider combined adverse environmental impacts of climate change and the PennEast pipeline and the potential implications for the watershed and water resources.
 - The PennEast pipeline will inflict between 13.3 and 56.6 billion dollars of economic impact including lost jobs, lost wages, lost taxes, reduced property values, lost ecosystem services and more. The PennEast pipeline would cause an initial loss of \$7.3 million in ecosystem services during a one year construction period. For each year the pipeline is in operation, the pipeline would induce an additional loss of \$2.4 million in ecosystem services due to conversion of land in the right of way. Ecosystem services includes water quality protection, flood protection, erosion prevent, and more. These costs are entirely overlooked by the EIS.
 - The EIS fails to consider the adverse impacts to recreation and ecotourism due to healthy and attractive water resources in the watershed.
 - The EIS fails to consider the implications for future investment in open space preservation that is beneficial for water resource protection.
 - The costs to the community to respond to emergencies, to the increased stormwater runoff, pollution inputs, and other adverse impacts that could

result from this project and be foisted upon the shoulders of local towns and residents are given short shrift if they are not assessed by the EIS.

- The EIS fails to identify where exactly any of the end-users of the natural gas are located and the associated implications for water quality in the Delaware River watershed.
- FERC rejected co-locating the PennEast line along Transcontinental's Leidy Line gas transportation system for stated reasons that were not sufficiently explained. This alternative is important given that it might have significant implications for water quality in the watershed.
- According to the EIS, PennEast will cross the Appalachian Trail nearby a scenic overlook and cliff outcropping – it is hard to imagine a more damaging location for harming this important recreational and cultural resource that is such an iconic part of our watershed.
- The area in the Appalachian Trail to be crossed by PennEast is prime rattlesnake habitat; a threat to an important watershed species that the EIS glosses over lightly.
- Deviation P-1710 will negatively impact bobcat habitat, which New Jersey has said should be avoided.
- Deviations proposed to avoid Important Bird Areas will inflict significant impacts on water resources and watershed landscapes. The impacts have not been put forth by EIS for public or agency consideration.
- FERC and PennEast have failed to provide the public with GIS referenced routes and images so they could be plotted in interactive maps for review for full and informed groundtruthing, consideration and comment.
- Alignment sheets fail to include mile posts. The absence of this critically important information renders the information incomplete and unusable for purposes of public, agency or expert review or comment as it impedes the ability to ground truth and review the information, claims and data.
- The original alignment aerials views and backgrounds on the plots are muted out; making it difficult for the landowners and public monitors to ground

truth the information asserted. On other pipeline projects, maps are much more detailed and legible.

- PennEast is using desktop information for design purposes rather than completed “in-situ” evaluations. As such, the EIS is not relying upon the best, publicly-available information.
- The EIS has not demonstrated how impacts to tile drains serving existing farm fields will be mitigated if encountered. Given the implications for water this is a concerning oversight.
- There will be an influx of invasive plant and animal species that will have cascading impacts on the forest ecosystem, which will spread along the right of way and back into the core of the adjacent forest. These impacts are not addressed by the EIS.
- An Invasive Plant Species Management Plan for use during construction and operation is not provided by the EIS.
- A Migratory Bird Conservation Plan is missing from the EIS and project materials.
- Identification of appropriate seed mixes to be used during revegetation efforts is not provided by the EIS.
- Completed surveys identifying all potential suitable habitats for special status species in the project area is not provided by the EIS.
- Remaining site specific construction plans for all residences within 25 feet of the construction ROW and additional temporary workspaces (ATWS) including landowner approval and the potential implications for water resources are not provided by the EIS.
- Update on the status of the site specific crossing plans for each of the recreational and special interest areas in the Delaware River watershed listed as being crossed or otherwise affected by the pipeline are not provided by the EIS.
- Identification of National Park Service concerns with regards to effects to trails and cultural resources is not provided in the EIS.

- A vibration monitoring plan and modification of blasting plan that include a review of potential effects to environmental resources is not provided in the EIS.
- Evaluation of liquefaction hazards along the pipeline route and at the compressor station site are not provided in the EIS.
- Final landslide hazard inventory is not provided in the EIS.
- Necessary mitigation measures and post construction monitoring plan for liquefaction hazards and landslide hazards are not provided in the EIS.
- Evaluations to support routine/mitigation measures through geologically hazardous areas is not provided in the EIS.
- Final landslide inventory is not provided in the EIS.
- Landslide mitigation measures with locations is not provided in the EIS.
- Post construction landslide monitoring plan is not provided in the EIS.
- Final karst mitigation plan is not provided in the EIS.
- Identification of the management and field environmental professionals responsible for notification for contaminated sites is not provided in the EIS.

This partial listing of the many failings of the various PennEast filings provided to FERC makes clear that FERC has failed to take the requisite “hard look” at the Project. To the degree there is helpful information on the record about the PennEast pipeline project, the information makes clear the unavoidable and unacceptable high level of harm the Project will have on our water resources, our environment and our communities today, for decades and for future generations.

IV. COMMUNICATIONS

Communications and correspondence regarding this proceeding should be served upon the following individuals:

Aaron Stemplewicz
Staff Attorney
Delaware Riverkeeper Network
925 Canal Street, Suite 3701
Bristol, PA 19007
(215) 369-1188 x 106 (tel)
(215) 369-1181 (fax)
aaron@delawareriverkeeper.org

V. CONCLUSION

For the aforementioned reasons, the Commission has failed to meet the requirements of the National Environmental Policy Act and its implementing regulations. The EIS cannot serve as the basis for an adequate hard look at the Project's environmental impacts, or provide the basis for a certificate Order. The Commission cannot determine that the public benefits of the proposed Project outweigh its adverse impacts by relying on the flawed and incomplete environmental review that is missing integral data, thus violating the Natural Gas Act and its implementing regulations.

For the foregoing reasons, DRN respectfully requests that the Commission grant this request for rehearing and rescission of the Order. Additionally, DRN requests that the Commission require PennEast to submit the information requested in DRN's comment letter, in a formal evidentiary hearing before the Commission.

Respectfully submitted this 24th day of January, 2018.

s/ Aaron Stemplewicz

Aaron Stemplewicz
Staff Attorney
Delaware Riverkeeper Network
925 Canal Street, Suite 3701
Bristol, PA 19007
(215) 369-1188 x 106 (tel)
(215) 369-1181 (fax)
aaron@delawareriverkeeper.org