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June 27, 2016

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: Draft Environmental Impact Statement for Atlantic Sunrise Project, Docket No. CP15-138

Dear Secretary Bose,

On behalf of the Sierra Club, Lebanon Pipeline Awareness, Concerned Citizens of Lebanon County, and Lancaster Against Pipelines, we respectfully submit these comments on the Draft Environmental Impact Statement (“Draft EIS”) for the Atlantic Sunrise Project. As we detail below, because the Draft EIS is “so inadequate as to preclude meaningful analysis,” 40 C.F.R. § 1502.9, FERC cannot proceed with its review of the Project before circulating a “revised” or “supplemental” statement for public comment.

Specifically, FERC must fix the following information gaps pervading the current draft:

- FERC-identified information gaps: Transco, the company behind the Project, is yet to complete numerous studies, analyses, and other disclosures of the Project’s impacts to vital natural resources, including waterways, wetlands, forests, wildlife, and air sheds. These information gaps are identified—but in no way cured—by the 59 proposed “conditions” for Project certification. See DEIS at 5-21 – 5-32.
- Indirect and cumulative impacts: Even if the FERC and/or Transco were to plug the information gaps identified by FERC, the Draft EIS would still preclude meaningful analysis insofar as FERC and Transco continue to ignore the Project’s indirect and cumulative impacts—impacts that are a mandatory part of environmental reviews under NEPA.
- State and federal environmental reviews: Other state and federal agencies must complete their reviews of the Project, and FERC must incorporate the resulting requirements and underlying records into its revised environmental impact statement. As-is, the Draft EIS precludes meaningful analysis of the Project’s ability to comply with all applicable requirements.

- Pending litigation: There are pending appeals of Pennsylvania’s Section 401 water quality certification for the Project. These appeals, and any other legal challenges of the applicable reviews and permitting decisions, must be resolved before FERC can incorporate the outcomes into the revised statement and circulate it so that meaningful analysis is no longer precluded.

Ultimately, the Project poses a massive threat to local communities and treasured places, as our members testified at the recent hearings on the Draft EIS. *See e.g.*, <http://goo.gl/j7f1zQ>. With stakes so high, and the public record on the Project’s costs and benefits so ill developed, it would be both unlawful and unconscionable for FERC to proceed with its certification decision before fixing its environmental review as we outline above and detail below. Therefore, with these comments, we implore FERC to stay its review of the Project for as long as it takes to fully address each flaw, and then circulate a revised statement, as required by NEPA and good faith public service.

I. Background

On March 31, 2015, Transco filed an application with FERC under Section 7(c) of the Natural Gas Act, 15 U.S.C. § 717f, for a certificate of public convenience and necessity (“Certificate”) for its proposed Atlantic Sunrise Project. *See* FERC Docket No. CP15-138- 000.

The Atlantic Sunrise Project consists of the following proposed facilities in Pennsylvania: (1) 183.7 miles of new 30- and 42-inch diameter greenfield natural gas pipeline known as the Central Penn Line (“CPL”) North and CPL South; (2) 11.5 miles of new 36- and 42-inch diameter pipeline looping known as the Chapman and Unity Loops; (3) two new compressor stations; and (4) additional compression and related modifications at existing compressor stations. *See* FERC Draft Environmental Impact Statement, ES-1 (“Draft EIS”).

The Project would have significant impacts on virtually every vital natural resource in its vicinity, including forests, wildlife, wetlands, watersheds, and airsheds. Notably, the Project includes two new compressor units: consisting of 62,000 hp of compression, filter separators, gas coolers, and other infrastructure such as emergency generators in Pennsylvania. These compressor units, as well as the construction equipment and other new and expanded facilities associated with the Project, will emit criteria pollutants such as nitrogen oxides (“NOx”), and hazardous air pollutants such as volatile organic compounds (“VOCs”), which also are ozone precursors. The Project also will result in the direct emission of climate-change-causing greenhouse gases (“GHGs”): carbon dioxide (“CO₂”) and nitrous oxide (“N₂O”) from compressor engines, line heaters, and generators; fugitive methane emissions from compressors and the pipeline; and black carbon emissions from diesel vehicles and equipment.

Beyond these direct impacts, the Project’s express purpose—to expand gas transportation infrastructure—would have the obvious secondary (or indirect) impacts of inducing more gas extraction in the Marcellus Shale region, including extraction through high volume hydraulic fracturing. The

Atlantic Sunrise Project also will induce construction and operation of a new distribution system for transporting gas from the pipeline to delivery points along the seven-county route, causing additional impacts to the environment surrounding the pipeline area.

All these activities threaten our public health and environment. Key threats that have we have identified to date¹ include:

- Forest fragmentation
- Loss of use of public lands
- Soil compaction
- Noise, structural damage, and aquifer contamination
- Air quality degradation
- Loss of wetlands and water quality degradation
- Stormwater runoff and flooding
- Habitat destruction and impact on threatened and endangered species
- Impact of clean up of the Chesapeake Bay

II. Legal Obligations

The National Environmental Policy Act ("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. To this end, 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 decisionmaking process and the implementation of the decision." *Robertson*, 490 U.S. at 349. As the CEQ NEPA implementing regulations (adopted by FERC) explicitly provide, "public scrutiny [is] essential to implementing NEPA." 40 C.F.R. § 1500.1(b); 18 C.F.R. § 380.1 (adopting CEQ NEPA implementing regulations as FERC's own). 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

¹ We joined many other stakeholders in requesting an extension of the public comment period on the Draft EIS. Moreover, as we note in these comments, the information gaps in the current Draft EIS preclude meaningful analysis, so these comments cannot provide an exhaustive account of all the impacts that concern the undersigned organizations.

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) (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).

Additionally, NEPA requires FERC to consider state laws and policies. See 40 CFR §§ 1502.16(c), 1506.2(d), and 1508.27(b)(10). One of the critically important Pennsylvania laws is set out in the Article I, Section 27 of the Commonwealth’s Constitution. Section 27 states:

The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania’s public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.

As we have consistently advocated in comments on pipelines to be sited in Pennsylvania, the location of Section 27 in the Commonwealth’s Declaration of Rights signifies a particular constraint on government actions because this portion of our charter “delineates the terms of the social contract between government and the people that are of such ‘general, great and essential’ quality as to be ensconced as ‘inviolable.’” *Robinson Township, Delaware Riverkeeper Network, et al. v. Commonwealth*, 83 A.3d 901, 950, 947 (Pa. 2013) (plurality) (citing PA. CONST. art. I, Preamble & § 25). Each of the “three mandatory clauses” in Section 27 establishes distinct “substantive” constraints, and they all reinforce the government’s duty to complete robust environmental reviews before taking action. *Robinson Twp.*, 83 A.3d at 950, 957; see also *Sierra Club et al, Comments of Dec. 29, 2015* (discussing application of § 27 to Commonwealth agency decisions concerning pipeline infrastructure) available at <http://goo.gl/WPQMLE>. The third clause of Section 27 prohibits the government from infringing upon the people’s environmental rights, and from permitting or encouraging the degradation, diminution, or depletion of public natural resources. *Robinson Twp.*, 83 A.3d at 953.

Moreover, Pennsylvania has expressly incorporated Section 27 requirements into its water obstruction and encroachment regulations, and there is no dispute that the latter apply to the Atlantic Sunrise Project. See 25 Pa.Code § 105.2(4) (“The purposes of this chapter are to . . . [p]rotect the natural resources, environmental rights and values secured by PA. CONST. art. I, § 27 and conserve and protect the water quality, natural regime and carrying capacity of watercourse.”) see also 25 Pa.Code § 105.21(a)(4) (“ . . . a permit application will not be approved unless the applicant demonstrates that . . . [t]he proposed project or action is consistent with the environmental rights and values secured by Pa. Const. Art. I, § 27 and with the duties of the Commonwealth as trustee to conserve and maintain public natural resources of this Commonwealth.”). “A person may not construct, operate, maintain, modify, enlarge or abandon a . . . water obstruction or encroachment without first obtaining a written permit from the Department.” 25 Pa.Code § 105.11(a). DEP will only review an application if it is “complete,”

meaning that “the necessary information is provided and requirements under the act and this chapter have been satisfied by the applicant.” 25 Pa.Code § 105.13a.

Yet Pennsylvania has not yet completed the applicable water permitting for the Atlantic Sunrise Project. Nor have several appeals of the Commonwealth’s Section 401 water quality certification for the Project been resolved. FERC’s Draft EIS is will remain “so inadequate as to preclude meaningful analysis,” unless FERC awaits the resolution of the appeals and duly considers the applicable state law and policy requirements, especially those set out in Article I, Section 27 of the Pennsylvania Constitution.

III. The direct effects on protected and sensitive waterbodies and wetlands are significant and require more information about mitigation plans from state and federal agencies.

The Atlantic Sunrise Project would directly impact dozens of protected and Transco proposes at least 327 waterbody crossings in Pennsylvania as part of its Atlantic Sunrise Project. See DEIS at 4-48. 210 crossings would impact perennial waterbodies, 79 would impact intermittent waterbodies, and 38 would impact ephemeral waterbodies. *Id.* Of the 327 waterbody crossings, 58 would impact high-quality, cold water fisheries (“HQ-CWF”) waters. See *id.*, Table 4.3.2-5.

Whether a waterbody qualifies for HQ or EV protection depends on it meeting certain chemical or biological conditions. See 25 Pa. Code § 93.4b(a). “Under the chemical test, a surface water is HQ if long-term water quality (at least 1 year of data) for 12 chemical parameters is better than levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water.” DEP, Water Quality Antidegradation Implementation Guidance, 2 (2003), available at <http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-47704/391-0300-002.pdf>. “Under the biological test, a water is HQ if “(a) in comparison to a reference stream, the water shows a macroinvertebrate community score of 83% or greater using a protocol based on EPA’s Rapid Bioassessment Protocol (RPB); or (b) the water is a Class A wild trout stream designated by the [PAFBC] following public notice and comment.” *Id.*

DEP’s decision whether to permit Transco to cross dozens of HQ streams is a significant matter as DEP has a duty to “conserve and maintain” these protected waterbodies. PA.CONST. art. I, § 27. According to FERC, however, Transco is proposing to use trenchless crossing methods at just two of the HQ stream crossings. See DEIS, App. K, Table K-1. Moreover, of the 327 total waterbody crossings, Transco has proposed trenchless crossings at just 8 of these waterbodies. See *id.* DEP must require Transco to reconsider use of these trenchless methods for the other proposed crossings of HQ waterbodies. This should be included as a condition of DEP’s WQC for the Atlantic Sunrise Project and as a condition by FERC.

It is critically important that DEP and FERC to mandate the use of trenchless crossing techniques. In its recent water quality certification denial for the proposed Constitution Pipeline, the New York Department of Environmental Conservation (“NYDEC”) explained that “[o]pen trenching is a highly impactful construction technique involving significant disturbance of the existing stream

bed and potential long-term stream flow disruption, destruction of riparian vegetation and establishment of a permanently cleared corridor.” NYDEC, Notice of WQC Denial for Constitution Pipeline, p. 8 (Apr. 22, 2016) (“Constitution WQC Denial”), available at http://www.dec.ny.gov/docs/administration_pdf/constitutionwc42016.pdf. In addition, NYDEC explained the importance of looking at the cumulative impacts of pipeline construction: Cumulatively, impacts to both small and large streams from the construction and operation of the [Constitution Pipeline] Project can be profound and include loss of available habitat, changes in thermal conditions, increased erosion, creation of stream instability and turbidity, impairment of best usages, as well as watershed-wide impacts resulting from placement of the pipeline across water bodies in remote and rural areas. *Id.* at 12.

NYDEC’s WQC denial for the Constitution Pipeline is a cautionary tale for DEP as it considers whether to issue permits for the proposed Atlantic Sunrise Project since both projects are part of Williams’ expansion efforts in the Appalachian basin. See Williams, Expansion Projects, available at <http://co.williams.com/expansionprojects/>. According to NYDEC, Constitution Pipeline’s “Trenchless Feasibility Study” did not include information requested by multiple agencies and “did not provide a reasoned analysis to enable [NYDEC] to determine if the [Constitution Pipeline] Project demonstrates compliance with water quality standards.” Constitution WQC Denial at 10-11. NYDEC further explained that:

Of the 251 streams to be impacted by the [Constitution Pipeline] Project, [the Trenchless Feasibility] Study evaluated only 87 streams, in addition to the Schoharie Creek, as part of the Phase I desktop analysis which Constitution used to determine if surface installation methods warranted consideration for a trenchless design. Of the 87 streams reviewed, Constitution automatically eliminated 41 streams from consideration for trenchless crossing because those streams were 30 feet wide or less . . . Using its review criteria, Constitution’s [Trenchless Feasibility] Study finally concluded that only 11 stream crossings of the 251 displayed preliminary evidence in support of a potentially successful trenchless design and were chosen for the Phase III geotechnical field analysis. [NYDEC] staff consistently told Constitution that its November 2013 Trenchless Feasibility Study was incomplete and inadequate.

Id. at 11 (emphasis added) (citation omitted).

Transco has not submitted a similar trenchless feasibility study for the Atlantic Sunrise Project. If not, why not? If so, does DEP have it and does it suffer from the same inadequacies that plagued the one prepared for the Constitution Pipeline? For example, did Transco “automatically eliminate” streams from consideration for trenchless crossing because they were 30 feet wide or less? These are important questions that must be answered in light of the fact that there are more stream crossings involved in the Atlantic Sunrise Project than in the Constitution Pipeline Project and even fewer proposed uses of trenchless crossings.

According to FERC, the only “site-specific crossing plans” that Transco has provided are “for the five major waterbody crossings” of the Susquehanna River (two crossings), Tunkhannock Creek, Conestoga River, and Swatara Creek. DEIS at 4-49 (citation omitted).

This is woefully insufficient. DEP must require Transco to submit site-specific crossing plans for all waterbody crossings and provide a detailed trenchless feasibility study such as the one that NYDEC sought (but never received) in the Constitution Pipeline proceeding. This should be included as a condition for the Atlantic Sunrise Project. FERC cannot approve this project going forward until Transco submits this information and makes it available for additional public review and comment.

A. The Atlantic Sunrise Project does not clear identify dozens of protected and sensitive wetlands in the Commonwealth.

We have previously commented to Pennsylvania DEP that the Chapter 105 of the Pennsylvania code establishes a clear regulatory regime for protecting wetlands. See generally, 25 Pa. Code 105.17-105.18a, et seq. In Pennsylvania, wetlands are classified as either exceptional value (“EV”) wetlands or “other wetlands.” 25 Pa. Code § 105.17(1)-(2). EV wetlands exhibit one or more of the following characteristics:

- (i) Wetlands which serve as habitat for fauna or flora listed as “threatened” or
- (ii) Wetlands that are hydrologically connected to or located within 1/2- mile of
- (iii) Wetlands that are located in or along the floodplain of the reach of a wild trout
- (iv) Wetlands located along an existing public or private drinking water supply,
- (v) Wetlands located in areas designated by the Department as “natural” or “wild” areas within State forest or park lands, wetlands located in areas designated as Federal wilderness areas under the Wilderness Act (16 U.S.C.A. §§ 1131-1136) or the Federal Eastern Wilderness Act of 1975 (16 U.S.C.A. § 1132) or wetlands located in areas designated as National natural landmarks by the Secretary of the Interior under the Historic Sites Act of 1935 (16 U.S.C.A. §§ 461-467).

25 Pa. Code § 105.17(1)(i)-(v).

Any wetlands that do not meet at least one or more of the abovementioned characteristics are defined as “other wetlands.” 25 Pa. Code § 105.17(2). It is important that the correct classification is identified because it determines the level of environmental protection for the wetland and is reflective of the functions and values of that wetland. For example, proposed projects are not permitted to have an “adverse impact” on an EV wetland. 25 Pa. Code § 105.18(a). Neither DEP or the Corps have conducted an independent survey to determine whether all wetlands have been identified and that they have been correctly identified.

Pipeline construction can have significant adverse impacts on wetlands. For example, construction of Tennessee Gas Pipeline Company’s “300 Line” in northern Pennsylvania “highly

impacted” the hydrological connectivity between a wetlands complex and a stream to the point that the stream, which had previously flowed from the wetlands complex, is now “barely discernible.” See Attachment 1.² In addition, according to the Western Pennsylvania Conservancy, construction of a pipeline through Tamarack Swamp in Clinton County “appears to have been particularly disruptive, physically separating contiguous sections of wetland, altering hydrological patterns and introducing strips of highly altered substrate that will not easily recover.” Western Pennsylvania Conservancy, Clinton County Natural Heritage Review at 79 (2002), available at http://www.clintoncountypa.com/departments/county_departments/planning/pdfs/Natural%20Heritage%20Inventory.pdf.

The Atlantic Sunrise Project will almost certainly have significant “adverse impacts” on numerous EV wetlands in Pennsylvania. FERC’s DEIS for the Atlantic Sunrise Project identifies at least 51 EV wetlands that would be crossed by the proposed pipeline. See DEIS at 4-71. In only six of these wetlands, however, is Transco proposing to utilize a conventional bore or horizontal directional drill (“HDD”) crossing method. See *id.* at 4-47. DEP must require Transco to reconsider use of these trenchless methods for the other proposed crossings of EV wetlands. This should be included as a condition of DEP’s WQC for the Atlantic Sunrise Project.

It is also important for DEP or the Corps of Engineers to perform its own, independent analysis to determine whether Transco and FERC have correctly classified and included all EV wetlands. While FERC’s DEIS references the Chapter 105 regulations for EV wetlands classifications, there is no analysis as to how FERC reached its conclusion that there are only 51 EV wetlands that would be crossed by the Project. Thus, it is possible that wetlands that qualify as EV wetlands were improperly omitted from, incorrectly defined, or mischaracterized in the DEIS.

B. FERC must consider the cumulative impacts of the Atlantic Sunrise Project, including shale gas development, on public natural resources.

As part of its review of Transco’s applications for water obstruction and encroachment permits, DEP must consider the cumulative impacts associated with shale gas development on the Commonwealth’s public natural resources. See 25 Pa. Code § 105.14(b).

Secondary impacts are: associated with but not the direct result of the construction or substantial modification of the . . . water obstruction or encroachment in the area of the project and in areas adjacent thereto and future impacts associated with . . . water obstructions or encroachments, the

² This attachment was part of Tennessee Gas Pipeline Company “Aquatic Resources Report” in for its proposed Susquehanna West Project and was included as Appendix 2-A in Resource Report 2. See FERC Docket No. CP15-148-000, Accession No. 20150402-5213.

construction of which would result in the need for additional . . . water obstructions or encroachments to fulfill the project purpose. *Id.* § 105.14(b)(12). DEP must also consider the cumulative impacts of the Atlantic Sunrise Project and “other potential or existing projects.” *Id.* § 105.14(b)(14). “In evaluating the cumulative impact, the Department will consider whether numerous piecemeal changes may result in a major impairment of the wetland resource.” *Id.*

By reversing the flow of its long haul mainline, constructing the Central Penn Line and two loops, and adding new and expanded compressor stations, Transco will provide natural gas companies with greatly increased capacity for transporting current and reasonably foreseeable shale gas production from northern Pennsylvania to other states and international markets. This will cause secondary and cumulative impacts on the Commonwealth’s waterbodies and wetlands as additional forestland is converted to roads, well sites, gathering lines and other infrastructure associated with shale gas development. It will also contribute to secondary and cumulative impacts on other Commonwealth resources, including public lands, threatened and endangered species, and air quality. As the Pennsylvania Supreme Court made clear in Robinson Township:

By any responsible account, the exploitation of the Marcellus Shale Formation will produce a detrimental effect on the environment, on the people, their children, and future generations, and potentially on the public purse, perhaps rivaling the environmental effects of coal extraction.

83 A.3d 901, 976 (Pa. 2013).

It is therefore imperative that FERC (and PADEP) carefully consider the secondary and cumulative impacts of shale gas development “before it acts” on Transco’s certification application. *Id.* at 952 n. 41 (2013) (emphasis added).

C. FERC must consider the cumulative impacts of shale gas on the Susquehanna Watershed and Chesapeake Bay

FERC must consider the cumulative impacts of shale gas development on the Susquehanna River watershed and Chesapeake Bay. The Susquehanna River is the “longest, commercially nonnavigable river in North America” according to the Susquehanna River Basin Commission. The Susquehanna River basin is “comprised of six major subbasins,” has “more than 49,000 miles of waterways,” and is “made up of 63 percent forest lands.”

<http://www.srb.com/pubinfo/docs/SRB%20General%2013%20Updated.pdf>

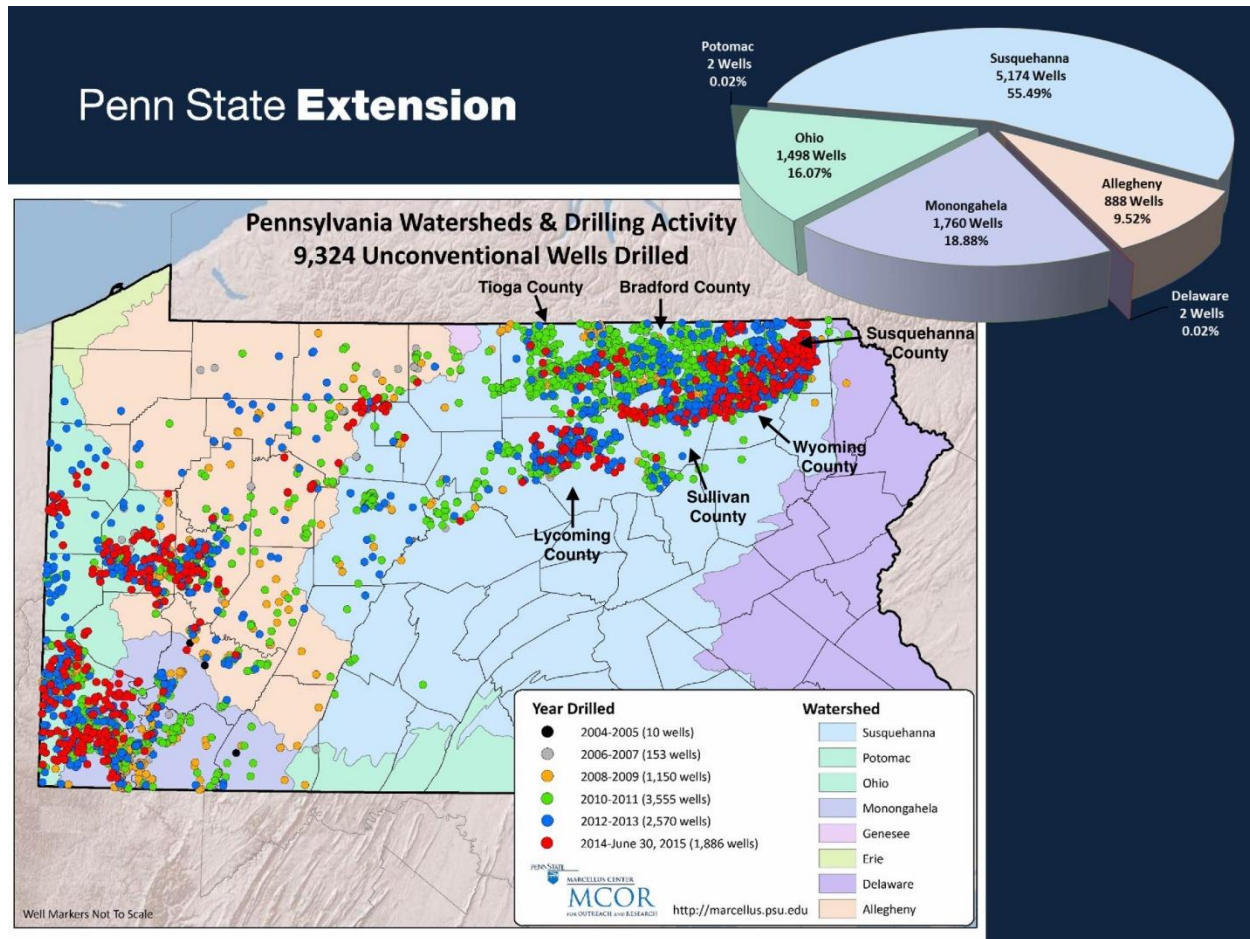
In addition, the Susquehanna River is “the largest tributary of the Chesapeake Bay[.]” *Id.* The Susquehanna River comprises “43 percent of the Chesapeake Bay’s drainage area” and provides “50 percent of its fresh water flows.” *Id.* Thus, [t]he river and the Bay are two integral parts of one ecosystem” and “pollution that flows into Pennsylvania’s rivers and streams [within the Susquehanna River watershed] finds its way to the Chesapeake Bay.” Chesapeake Bay

Foundation, The Susquehanna River, available at <http://www.cbf.org/about-the-bay/more-than-just-the-bay/susquehanna-river>.

Over the past decade, “vast areas of some of the most pristine and sensitive habitats within the [Chesapeake] Bay watershed face an ever growing wave of industrialization” – shale gas development. Chesapeake Bay Foundation, Natural Gas, available at <http://www.cbf.org/about-the-bay/issues/natural-gas-drilling>. “Because of the magnitude and intensification of natural gas drilling and the associated infrastructure it brings, unconventional gas development threatens to have a profound impact on the landscape of the Bay watershed for generations to come.” Id. “The cumulative impacts from the construction and operation of well pads, access roads, pipelines, and compressor stations, as well as the water quality impacts and air pollution from trucks, well drilling, and ships may pose a risk to the Chesapeake Bay and the rivers and streams that feed into it.” Id.

These are important considerations as DEP reviews Transco’s application for the Atlantic Sunrise Project. The entire Pennsylvania component of the Atlantic Sunrise Project is located within the Susquehanna River watershed. See FERC DEIS at 4-48, Table 4.3.2-1. In addition, at least 55% of the over 9,300 shale gas wells that have been drilled in Pennsylvania, have been drilled in the Susquehanna River watershed. See Figure 1 below.

Figure 1: Unconventional shale gas wells drilled in Pennsylvania (2004 – June 30, 2015).



Source: Penn State – Marcellus Center for Outreach and Research, Resources: Maps and Graphs, available at <http://www.marcellus.psu.edu/images/Watershed%20Map%2020150630.jpg>. (Note: County names and arrows added.)

Between 2004 and April 30, 2016, at least 1,356 “unconventional” shale gas wells were drilled in Bradford County, 896 were drilled in Tioga County, 926 were drilled in Lycoming County, 123 were drilled in Sullivan County, 255 were drilled in Wyoming County, and 1,277 were drilled in Susquehanna County. See DEP, Office of Oil and Gas Management, Wells Drilled by County (Northcentral District Office) (Attachment 2). That is over 4,830 shale gas wells drilled over the in this region of Pennsylvania since 2004, all of which are in the Susquehanna River watershed.

FERC must consider the impacts of this level of shale gas development on the Susquehanna River watershed and Chesapeake Bay before it issues any approval for the Atlantic Sunrise Project. Pennsylvania is a partner in the Chesapeake Bay Program³ and has signed the Chesapeake Bay Watershed Agreement.⁴

³ <http://www.chesapeakebay.net/about/partners>

⁴ <http://www.chesapeakebay.net/chesapeakebaywatershedagreement/page>

The Agreement includes the following goals:

- Sustainable Fisheries Goal: Protect, restore and enhance finfish, shellfish and other living resources, their habitats and ecological relationships to sustain all fisheries and provide for a balanced ecosystem in the watershed and Bay.
- Vital Habitats Goal: Restore, enhance and protect a network of land and water habitats to support fish and wildlife and to afford other public benefits, including water quality, recreational uses and scenic value across the watershed.
- Water Quality Goal: Reduce pollutants to achieve the water quality necessary to support the aquatic living resources of the Bay and its tributaries and protect human health.
- Healthy Watersheds Goal: Sustain state-identified healthy waters and watersheds, recognized for their high quality and/or high ecological value.
- Climate Resiliency Goal: Increase the resiliency of the Chesapeake Bay watershed, including its living resources, habitats, public infrastructure and communities, to withstand adverse impacts from changing environmental and climate conditions.
- Land Conservation Goal: Conserve landscapes treasured by citizens in order to maintain water quality and habitat; sustain working forests, farms and maritime communities; and conserve lands of cultural, indigenous and community value.⁵

Pennsylvania is obligated to meet nitrogen, phosphorus, and sediment load limits set by EPA's Chesapeake Bay TMDL⁶. Currently, Pennsylvania is not on track to meet its nitrogen and sediment goals⁷. Pennsylvania's Chesapeake Bay Strategy (2016) is an attempt to remedy this deficiency but focuses on improvements to agriculture and stormwater runoff.⁸

Atlantic Sunrise will contribute to erosion and sediment runoff into the tributaries of Chesapeake Bay during construction as well as during operation (due to vegetation clearing of rights of way)⁹. The erosion and sedimentation contribution to waterways pollution has not been quantified in the draft EIS.

Neither DEP, EPA, FERC, the Corps of Engineers or any other agency has evaluated how the impacts of Atlantic Sunrise would affect the achievement of PA's Chesapeake Bay Watershed Agreement goals or its Chesapeake Bay TMDL goals¹⁰.

In addition, it is critical that DEP consider the impacts on the Susquehanna River watershed and Chesapeake Bay from future shale gas development, especially as this development encroaches upon

⁵ *Id.*

⁶ <https://www.epa.gov/chesapeake-bay-tmdl>

⁷ <http://files.dep.state.pa.us/Water/ChesapeakeBayOffice/DEP%20Chesapeake%20Bay%20Restoration%20Strategy%20012116.pdf>

⁸ *Id.*

⁹ <http://delawariverkeeper.org/sites/default/files/resources/Reports/Jane%20Davenport%20ABA%20Aper%20January%209%202012%20Final.pdf>

¹⁰ See fn. 3.

the most forested part of the Susquehanna River watershed. As Figure 1 above shows, most of the shale gas development that has occurred in the Susquehanna River watershed has been concentrated in six counties in northeastern Pennsylvania. While some of this development has certainly impacted forests, much of the existing shale gas development has occurred areas dominated by agriculture. Compare Figure 1 with Susquehanna River Basin Commission, Susquehanna River Basin – Land Use Land Cover, 2006, available at http://srbc.net/atlas/downloads/BasinwideAtlas/PDF/1507_LandUse.PDF.

As the shale gas industry expands to the south and west of this region, however, it impacts forested lands. This is very concerning since forested lands “contribute[] the lowest loading rate per acre of all the land uses[.]” Environmental Protection Agency, Chesapeake Bay TMDL, Section 4, p. 4-36, available at <https://www.epa.gov/chesapeake-bay-tmdl/chesapeake-bay-tmdl-document> (“Chesapeake Bay TMDL”).

According to the U.S. Geological Survey:

Natural gas exploration and development result in spatially explicit patterns of landscape disturbance involving the construction of well pads and impoundments, roads, pipelines, and disposal activities that have structural impacts on the landscape . . . Forest loss as a result of disturbance, fragmentation, and edge effects has been shown to negatively affect water quality and runoff (Wickham and others, 2008).

Slonecker, E.T., et al., Landscape Consequences of Natural Gas Extraction in Bradford and Washington Counties, Pennsylvania, 2004-2010: USGS Open-File Report 2012-1154, p. 8 (2012), available at <https://pubs.usgs.gov/of/2012/1154/of2012-1154.pdf> (“USGS Report”); see also STAC (Chesapeake Bay Program Scientific and Technical Committee). 2013. Exploring the environmental effects of shale gas development in the Chesapeake Bay Watershed, STAC Publ. #13-01, Edgewater, MD. p. 16, available at http://www.chesapeake.org/pubs/297_Gottschalk2013.pdf (“STAC Report”) (“well pad[s] and associated infrastructure (including roads and pipelines) . . . change the hydrology and sediment, nutrient, and organic export to receiving streams . . . lead[ing] to altered flow regimes and habitats and increased sedimentation and nutrient input into streams”).

It is no surprise that researchers have concluded that one of the “key priorities” for protecting Chesapeake Bay is to require that there is “no net loss of forest lands.” Claggett, Peter, and Thompson, Renee, eds., 2012, Proceedings of the Workshop on Alternative Futures – Accounting for growth in the Chesapeake Bay watershed: USGS Open-File Report 2012-1216, p. 8, available at <http://pubs.usgs.gov/of/2012/1216/OFR2012-1216.pdf>.

FERC and other agencies must consider how the loss of forested areas from past, present and future shale gas development will impact the Susquehanna River watershed and compliance with the Chesapeake Bay TMDL, which EPA approved in 2010. See Chesapeake Bay TMDL. “[A] TMDL specifies the maximum amount of a pollutant that a waterbody can receive and still meet applicable [water quality standards].” Id. at Section 1, p. 1-15. The Chesapeake Bay TMDL identified three pollutants of concern –

nitrogen, phosphorus, and sediment. *Id.* at Section 2, p. 2-7. Clearing forested areas for roads, pipelines, well pads and other shale gas infrastructure will increase sediment loads into the Susquehanna River watershed, which could cause Pennsylvania to fall short of its obligations pursuant to the Chesapeake Bay TMDL.

Regardless of whether shale gas development in the Susquehanna River watershed causes significant impacts on Chesapeake Bay, researchers “agree[] that there is a high probability of a possible-long term landscape effect in Pennsylvania (and maybe all states in the active [shale gas] development area), and each jurisdiction will perhaps need to offset their load allocations.” STAC Report, p. 17. These researchers also stressed the importance of permitting processes that are “project-based rather than individual site-based” and requiring that “permits provide potential build-out scenarios to provide better potential cumulative effects information.” *Id.* at 5. This is not being done in Pennsylvania.

According to the Susquehanna River Basin Commission (“SRBC”), as of 2012, there were at least 2,000 shale gas well pads in the Susquehanna River Basin, “creat[ing] 13,000 acres of disturbed lands” from the well pads themselves and associated road construction. *Id.* at 11. However, “[t]his level of disturbance should be viewed as a minimum, since additional lands must also be cleared for gathering and transmission pipelines.” *Id.* Thus, the acres disturbed from shale gas development is likely much higher than 13,000 acres.

According to the Nature Conservancy, shale gas companies could drill 27,600 wells in the Susquehanna River basin by 2030. *Id.* Extrapolating from the SRBC’s calculations, that would result in approximately 6,900 well pads, assuming four wells per pad. Subtracting the existing 2,000 well pads results in an additional 4,900 well pads, which would create an additional 31,850 acres of disturbed lands. Again, these figures are conservative since they are only based on SRBC’s estimates for the well pad and associated road network. The Nature Conservancy believes that up to 110,000 acres of forested land could be cleared by 2030. *Id.*

FERC must consider how this level of disturbance to forested lands in the Susquehanna River watershed will impact water quality within the basin and sub-basins as well as Pennsylvania’s compliance with the Chesapeake Bay TMDL.

IV. Cumulative impacts of shale gas development on terrestrial and aquatic habitats and wildlife have not been—yet they must be—disclosed in the Draft EIS.

Recent research on the impacts of shale gas drilling on wildlife habitat (terrestrial and aquatic) underscores the importance of considering these impacts before acting on Transco’s permit applications. For example, according to Souther et al. (2014), studies indicate that “shale- gas development will affect ecosystems on a broad scale” but that “site-specific or single variable risk assessments likely underestimate threats to ecological health.” Souther et al. (2014), Biotic impacts of energy development from shale: research priorities and knowledge gaps. *Frontiers in Ecology and the Environment* 12(6): 334, available at

http://www.morgantingley.com/wp-content/uploads/2014/08/SoutherEtAl_FREE2014.pdf. In order to bridge this divide, these researchers emphasized the urgent need to better understand a host of variables, including the “cumulative ecological impacts of shale development.” Id. at 334.

The USGS report on Bradford and Washington Counties documents how shale gas development in Pennsylvania is has already caused “extensive and long-term habitat conversion”:

A recent analysis of Marcellus well permit locations in Pennsylvania found that well pads and associated infrastructure (roads, water impoundments, and pipelines) required nearly 3.6 hectares (9 acres) per well pad with an additional 8.5 hectares (21 acres) of indirect edge effects (Johnson, 2010). This type of extensive and long-term habitat conversion has a greater impact on natural ecosystems than activities such as logging or agriculture, given the great dissimilarity between gas-well pad infrastructure and adjacent natural areas and the low probability that the disturbed land will revert back to a natural state in the near future (high persistence) (Marzluff and Ewing, 2001).

USGS Report at 10.

This “extensive and long-term habitat conversion” does not only impact the terrestrial ecosystem but also the aquatic ecosystem since “[f]orest loss as a result of disturbance, fragmentation, and edge effects has been shown to negatively affect water quality and runoff (Wickham and others, 2008)[.]” Id. at 8.

Indeed, according to recent research that was published in *Environmental Science & Technology*:

Potential effects [of shale gas drilling] on terrestrial and aquatic ecosystems can result from many activities associated with the extraction process and the rate of development, such as road and pipeline construction, well pad development, well drilling and fracturing, water removal from surface and ground waters, establishment of compressor stations, and by unintended accidents such as spills or well casing failures The cumulative effect of these potential stressors will depend in large part on the rate of development in a region. Depending on extent of development, oil and gas extraction has the potential to have a large effect on associated wildlife, habitat and aquatic life.

Brittingham, M.C., et al., *Ecological Risks of Shale Oil and Gas Development to Wildlife, Aquatic Resources and their Habitats*, *Environmental Science & Technology*, pp. 11035-11037 (Sept. 4, 2014) (citations omitted), available at

https://www.researchgate.net/publication/265343414_Ecological_Risks_of_Shale_Oil_and_Gas_Development_to_Wildlife_Aquatic_Resources_and_their_Habitats.

The impacts of shale gas development are significant because it “changes the landscape” as “[l]and is cleared for pad development and associated infrastructure, including pipelines, new and expanded roads, impoundments, and compressor stations[.]” Id. at 11037 (citations omitted). “Seismic testing, roads, and pipelines bisect habitats and create linear corridors that fragment the landscape.” Id.

“Habitat fragmentation is one of the most pervasive threats to native ecosystems and occurs when large contiguous blocks of habitat are broken up into smaller patches by other land uses or bisected by roads, transmission lines, pipelines or other types of corridors.” Id. “Habitat fragmentation is a direct result of shale development with roads and pipelines having a larger impact than the pads.” Id. (citations omitted). In Bradford County, Pennsylvania, “forests became more fragmented primarily as a result of the new roads and pipelines associated with shale development, and development resulted in more and smaller forest patches with loss of core forest (forest > 100 m from an edge) at twice the rate of overall forest loss.” Id. (citation omitted). “Pipelines and roads not only resulted in loss of habitat but also created new edges.” Id. “Fragmentation from linear corridors such as pipelines, seismic lines, and roads can alter movement patterns, species interactions and ultimately abundance depending on whether the corridor is perceived as a barrier or territory boundary or used as an avenue for travel and invasion into habitats previously inaccessible.” Id. (citations omitted).

According to the New York Department of Environmental Conservation, “development of one horizontal [shale] well requires over 3300 one-way truck trips.” Id. at 11038 (citation omitted). “This is a concern because roads of all types have a negative effect on wildlife through direct mortality, changes in animal behavior, and increased human access to areas, and these negative effects are usually correlated with the level of vehicular activity.” Id. (citations omitted). “Even after a well is drilled and completed, new roads and pipelines provide access for more people, which results in increased disturbance.” Id. “In Wyoming, Sawyer et al. found that mule deer migratory behavior was influenced by disturbance associated with coal bed gas development and observed an increase in movement rates, increased detouring from established routes, and overall decreased use of habitat along migration routes with increasing density of well pads and roads. Id. (citation omitted).

Shale gas development “is associated with both short-term and long-term increases in noise.” Id. “In the short term, site clearing and well drilling, [high volume hydraulic fracturing], and construction of roads, pipelines and other infrastructure are a limited time disturbance similar to disturbance and sound associated with clearing land and home construction.” Id. (citation omitted). “Depending on number of wells drilled, construction and drilling can take anywhere from a few months to multiple years.” Id.

“Compressor stations, which are located along pipelines and are used to compress gas to facilitate movement through the pipelines, are a long-term source of noise and continuous disturbance.” Id. (citation omitted). “Because chronic noise has been shown to have numerous costs to wildlife, compressors have potential to have long-term effects on habitat quality. Id. (citation omitted). “For many species of wildlife, sound is important for communication, and noise from compressors can affect this process through acoustical masking and reduced transmission distances.” Id.; see also U.S. Fish and

Wildlife Service Letter January 27, 2015 Letter to FERC (FERC Docket CP14-112-000, Accession No. 20150202-0104) (“[n]oise levels over background levels can adversely affect wildlife, particularly songbirds, that rely on call identification for successful breeding.”). “Studies on effects of noise from compressors on songbirds have found a range of effects including individual avoidance and reduced abundance, reduced pairing success, changes in reproductive behavior and success, altered predator-prey interactions, and altered avian communities . . . Greater sage-grouse (*Centrocercus urophasianus*) gather at leks where males display in order to attract females.” Id. “Lek attendance declined in areas with chronic natural gas-associated noise and, experimentally, sage-grouse were shown to experience higher levels of stress when exposed to noise.” Id. (citations omitted).

“Because of the large overlap between the Appalachian shale play and core forest habitat in the East, many forest species are vulnerable to development.” Id. at 11040. “Area-sensitive forest songbirds are primarily insect-eating Neotropical migrants, are an important component of forest ecosystems, and, as a group, many have declined in numbers in response to forest fragmentation.” Id. (citations omitted). “These birds are area-sensitive because breeding success and abundance are highest in large blocks of contiguous forest, and numerous research studies have documented negative effects of fragmentation on abundance and productivity[.]” Id. “The impact that shale development has on this group of species will depend on the scale and extent of development.” Id. “By some estimates, less than 10% of potential shale gas development has occurred in the Appalachian basin [and] [i]f this is the case, there is the potential for a 10-fold increase in the amount of shale gas development which would likely have negative impacts on area-sensitive forest songbirds and other forest specialists. Id. (emphasis added) (citation omitted).

“Development of shale resources, which clears land for well pads and roads, is occurring across a large portion of the native range of brook trout, especially in Pennsylvania.” Id. (emphasis added) (citation omitted). “If remaining high-quality stream reaches become unsuitable to brook trout, there may be further fragmentation of the larger meta-population.” Id. “Rare species with limited ranges are always a concern when development occurs” and any type of disturbance can be very detrimental to them.” Id. “Freshwater mussels are an additional taxonomic group of interest because of already high numbers of listed species and relative sensitivity to toxicants.” Id. (citation omitted). “Gillen and Kiviati 2012 reviewed 15 species that were rare and whose ranges overlapped with the Marcellus and Utica shale by at least 35%.” Id. “The list included the West Virginia spring salamander (*Gyrinophilus subterraneus*), a species that is on the IUCN Red List as endangered and whose range overlaps 100% with the shale layers.” Id. This salamander “requires high quality water and is sensitive to fragmentation suggesting that this species is at great risk to oil and gas development.” Id. “The list also included eight Plethodontid salamanders, a group that tends to be vulnerable because of the overlap between their range and shale layers, their dependence on moist environments and sensitivity to disturbance.” Id. at 11040-11041.

“Habitat fragmentation, effects on water quality and quantity, and cumulative effects on habitats and species of concern have already been identified as problems and are expected to increase in magnitude as shale resource development continues to expand.” Id. at 11043. Brittingham et al. (2014) “suggests

that species and habitats most at risk are ones where there is an extensive overlap between a species range or habitat type and one of the shale plays (leading to high vulnerability) coupled with intrinsic characteristics such as limited range, small population size, specialized habitat requirements, and high sensitivity to disturbance.” Id.

“Examples include core forest habitat and forest specialists, sagebrush habitat and specialists, vernal pond inhabitants, and stream biota.” Id. Brittingham et al. (2014) demonstrates the substantial impact that shale gas drilling is having and will continue to have on terrestrial and aquatic habitats and wildlife throughout the Marcellus and Utica shale region. Such impacts will only worsen if DEP and FERC continue facilitating such drilling by authorizing infrastructure projects such as the one proposed here without analyzing their cumulative impacts.

The Draft EIS fails to take a "hard look" at these cumulative impacts.

V. Cumulative impacts on public lands have not been properly disclosed.

The Draft EIS lists potential impacts as part of the cumulative impacts review as:

- geology and soils;
- groundwater, surface water, and wetlands;
- vegetation;
- wildlife;
- fisheries and aquatic resources;
- land use, recreation, special interest areas, and visual resources;
- socioeconomics (including traffic);
- cultural resources; and
- air quality and noise.

Draft EIS 4-271

The Draft EIS calculates direct land use impact from drilling well pads and associated facilities due to the flow of the pipeline: “A recent assessment of the land requirements and impacts associated with natural gas wells determined that about 9 acres of land is necessary for each well pad and associated infrastructure (roads, water impoundments, and pipelines). This same assessment concluded that an additional 21 acres of indirect edge effects results from each well (Johnson et al., 2010). Based on these assumptions, the development of 340 wells (the number of wells estimated to supply the volumes associated with the Atlantic Sunrise Project) could affect 3,060 acres of land and have indirect land effects totaling 7,140 acres, much of which is probably forested .” 4-276 However, this calculation assumes that 340 wells are sufficient to supply the gas flow during the entire service life of the Atlantic Sunrise Project and that no replacement wells will need to be put into drilled. As the Draft EIS concedes in another section: “Because well production declines over time, the actual number of wells necessary to supply the Atlantic Sunrise Project over many years would be much higher.” 4-263

The subsection purporting to discuss the cumulative impacts includes a description of potential cumulative impacts associated with the general development of identified FERC-regulated projects, Marcellus Shale development, nearby non-jurisdictional project-related actions, residential

development projects, and transportation projects, the scope of the projects considered is generally limited to those within 10 miles of the proposed pipeline.

The land use changes caused by shale gas development are having and, if not properly regulated, will continue to have profound and long-term ecological consequences in Pennsylvania. While many of these impacts have occurred on private lands, the gas industry continues encroaching on Pennsylvania's public lands, which provide some of the most remote, forested wildlife habitat not only in Pennsylvania but in the eastern United States. DEP has an obligation to "conserve and maintain" Pennsylvania's public resources, including public lands and, therefore, must consider and disclose how its approval of Transco's application would further degrade Pennsylvania's state forests and other public lands.

In 2002, researchers modeled the extent of forest fragmentation in the United States. Riitters, et al., *Fragmentation of Continental United States Forests, Ecosystems* (2002) p. 820, available at http://www.mrlc.gov/pdf/ecosystems_riitters02.pdf The researchers used "[a] lattice of 56.25 km² cells . . . to summarize forest area and fragmentation statistics."

Based on this, the researchers created two maps of forest cover in the continental US. See p.820, Figures 4A and 4B. The maps map clearly shows that northern Pennsylvania not only has the highest amount of "interior forest" in the state but some of the highest amounts of interior forest remaining in the eastern United States. The majority of these remaining "interior forests" are "concentrated in public ownership and/or landforms that are not suitable for agriculture or urban development." p.821

The results underscore the importance of Pennsylvania's public lands. "Fragmentation can have a variety of direct and indirect impacts at the scales examined here, including changes in microclimate and pollution deposition (Erisman and Draaijers 1995; Weathers and others 2000), wildlife movement (Gardner and others 1991), habitat suitability (Pearson and others 1996; Burke and Nol 2000), invasive species (Jones and others 2000), and tree biomass (Laurance and others 1997, 2001)" Id. at 821

Pennsylvania's public lands not only provide some of the most remote, interior forest left in the Commonwealth, they also are an invaluable source for low-impact outdoor recreation. Pennsylvania's "[s]tate forests provide unique opportunities for dispersed, low-density outdoor recreation that can be obtained only through large blocks of forest." DCNR, 2015 Draft State Forest Management Plan, p. 166, available at http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_20031287.pdf.

Pennsylvania's state forests contain "some of the most remote and wild forest in the Mid-Atlantic Region." DCNR, *Impacts of Leasing Additional State Forest for Natural Gas Development*, 14, available at http://www.dcnr.state.pa.us/cs/groups/public/documents/document/d_000603.pdf. "The largest and most remote areas are found . . . in the Northcentral portion of the state." Id. These remote, critically important public forests are threatened by shale gas development.

According to the DCNR:

The majority of [shale gas] development [on state forests] has occurred in the Devonian-aged Marcellus Shale. Approximately 1.5 million acres of state forest lands lie within the prospective limits of the Marcellus Shale. Assuming a drainage area of 120 acres per well, the [DCNR's Bureau of Forestry (Bureau)] expects that approximately 3,000 wells may be drilled to fully develop the lands it currently has leased . . . In recent years, there has been a marked increase in the development of the Ordovician-aged Utica Shale in western Pennsylvania and eastern Ohio . . . As development moves eastward from the Pennsylvania-Ohio border, the [Bureau] has seen an increased interest in the Utica Shale on state forest lands. Development of the Utica has become increasingly prevalent adjacent to state forest lands, primarily in Tioga County and the northwestern section of the state forest system.

DCNR, 2015 Draft State Forest Management Plan, 134-35 (emphasis added).

DCNR further explains how shale gas development would cause long-term impacts on state forest lands:

Unconventional shale-gas development can cause short-term or long-term conversion of existing natural habitats to gas infrastructure. The footprint of shale-gas infrastructure is a byproduct of shale-gas development. The use of existing transportation infrastructure on state forest lands, such as roads and bridges, increase considerably due to gas development . . . Shale-gas development requires extensive truck traffic by large vehicles, which may require upgrades to existing roads to support this use. These upgrades may affect the wild character of roads, a value that is enjoyed by state forest visitors . . . Noise from compressors can dramatically affect a state forest user's recreational experience and generate conflict. Unlike compressors, most sources of potential noise on state forest land are temporary in nature . . . The development of oil and gas resources requires pipelines for delivering the product to market. When compared to other aspects of gas development, pipeline construction has the greatest potential to cause forest conversion and fragmentation due to the length and quantity of pipelines required.

Id. at 136-38.

It is imperative that DEP and other state agencies fulfill their constitutional obligation to "conserve and maintain" Pennsylvania's irreplaceable public lands, which are largely co-extensive with its remaining interior forest habitat.

FERC has an obligation to consider how its decision on Transco's applications will further Marcellus and Utica shale gas development on state forest and other public and private lands. DCNR has modeled how shale gas development in Tioga State Forest, just a few miles south of the Atlantic Sunrise Project area, could quickly erode the forest's "wild character" with new roads and well pads. See DCNR, Impacts of Leasing Additional State Forest for Natural Gas Development, 20-28. First, the model shows this portion of Tioga State Forest as it exists with no gas wells. Id. at 20. Next, DCNR states that an "estimated 54 new well pads could be developed within the next 5-10 years in this ~ 6 5,000 acre landscape view." Id.

at 21. Next, DCNR ranks the existing landscape in terms of its “wild character” before drilling, ranging from “primitive” and “semi-primitive” to “semi-developed.” Id. at 22. When DCNR overlays new roads and well pads, it results in “significant decreases in Primitive and Semi-Primitive” forests and “a dramatic increase in semi-developed [] areas.” Id. at 23-25. DCNR says that 54 new well pads in this part of Tioga State Forest would result in a net loss of 8,171 acres of primitive forest, a net loss of 5,274 acres of semi-primitive forest, and a net gain of 13,545 acres of semi-developed area. Id. at 27. DCNR concludes that any “additional natural gas development involving surface disturbance would significantly damage the wild character of the state forest.” Id. at 28 (emphasis added). In addition to significantly damaging the wild character of the state forests, additional shale gas development would damage waterbodies and wetlands as a consequence of more roads, well pads and associated infrastructure.

As described in detail by Allegheny Defense Project's comments, FERC's approval of Transco's applications would allow Transco and other operators to significantly expand the capacity of pipeline system in Pennsylvania. A likely consequence of that decision would be increased shale gas drilling on nearby state forest lands in the watershed of west branch of the Susquehanna River. The expansion of shale gas development surrounding Pine Creek Gorge is a testament to the fact that the Commonwealth's agencies, including DEP, are failing to “conserve and maintain” these vital public resources for “all the people, including generations yet to come.” PA. CONST. art. I, § 27. The failure to protect public resources has consequences for ecological concerns identified in our comments.

The Draft EIS identifies the development of gas wells and gathering systems in the Marcellus shale region as projects the effects of which warrant inclusion in an analysis of cumulative impacts, but it fails to include the required analysis with respect to the incremental impact of the Project's effects when added to the to the impacts caused by those Marcellus shale development activities. For example, in discussing Sunoco's Mariner East Project, the Draft EIS states: "The Mariner East 2 Pipeline Project would result in impacts similar to the Atlantic Sunrise Project. If constructed in 2016, as currently envisioned, it could contribute to cumulative impacts near where it crosses the Atlantic Sunrise Project pipeline route. The effect, however, would be localized and would be mitigated by measures required by federal, state, and/or local permitting authorities." 4-269.

The Draft EIS impermissibly relies entirely on presumed compliance with permitting requirements to justify its conclusion that no cumulative impacts will result from the Project. It justifies the failure to conduct the requisite cumulative impacts analysis on the false assumption that someone else will be reviewing the proposed Projects. This reasoning ignores the very purpose of a cumulative impacts analysis. Id.

Approving Transco's application for the Atlantic Sunrise Project will likely lead to more shale gas development in this region, which means more fragmentation and impacts to public recreation from new roads, well pads, and other associated infrastructure. DEP and FERC must address these secondary and cumulative impacts before making a decision on Transco's applications.

VI. Cumulative impacts on special-status species have not been properly disclosed.

In addition to wildlife in general, FERC must consider the cumulative impacts of the Atlantic Sunrise Project, including (but not limited to) gas drilling, production and transport, on special-status species, including state-listed threatened, endangered, and candidate species. Transco and FERC acknowledge that the Atlantic Sunrise Project would directly impact habitat and, in some instances, known locations, for several special-status species, including bog turtle, timber rattlesnake, northeastern bulrush, eastern small-footed bat, and Allegheny woodrat. DEP has a constitutional and statutory duty to conserve and maintain these species under PA. CONST. Art. I, Sec. 27. Before FERC can issue an approval of this Project, it must comprehensively examine and fully discuss the cumulative impacts of the Atlantic Sunrise Project on these species.

1. Bog Turtle

The bog turtle is a state-listed endangered species in Pennsylvania. See FERC DEIS at 4-111. It is also listed as “threatened” in Maryland and North Carolina and on the federal endangered species list. Id. “One of the smallest turtles in the world . . . , [t]he greatest threats to the bog turtle are the loss and fragmentation of its habitat.” Id.

Initial surveys for the Atlantic Sunrise Project “identified suitable bog turtle habitat in 18 delineated wetlands, 9 in Lebanon County and 9 in Lancaster County.” Id. at 4-112. Further surveying identified at least one bog turtle population within one wetland complex in Lancaster County. Id. According to FERC, “Transco is currently developing the Phase 2/3 survey report, which will be submitted to the FWS and FERC.” Id. DEP and FERC cannot issue permits until this and other such reports are completed, submitted to the respective agencies, and a conclusion that there will be no impacts to listed species is reached.

Statements in FERC’s DEIS raise serious questions about the potential impacts to bog turtles in this wetland. For example, FERC claims that the “bog turtles in the wetland complex are confined to the northern end of the wetland and are not using the portion of the wetland within or adjacent to the proposed project workspace.” Id. (emphasis added). FERC does not define what it means by “confined” but we doubt that there are impenetrable barriers that prevent bog turtles from “using the portion of the wetland within or adjacent to the proposed project workspace.” Just because bog turtles are not currently using one portion of a wetland at a particular time does not mean that they will not use it at another point in time. FERC and DEP must require that Transco investigate the potential using a trenchless crossing method of this wetland.

2. Timber Rattlesnake

FERC must consider the cumulative impacts of the Atlantic Sunrise Project on the timber rattlesnake, “a state-listed candidate species, [which] has known critical habitat in the proximity of the project area.” FERC EA at 32. A “candidate species” is one that “could achieve endangered or threatened status in the future.” 58 Pa. Code § 75.3(a). Any “persons

who hunt, take, catch or kill” timber rattlesnakes in Pennsylvania must first “have a permit.” 58 Pa. Code § 79.6(a).

It is important to note that the timber rattlesnake is already “extirpated from Maine, Rhode Island, and Ontario,” listed as “state endangered in New Hampshire, Vermont, Massachusetts, Connecticut, Ohio, and New Jersey,” listed as “threatened in New York, and considered a species of concern in West Virginia and Maryland.” PAFBC, Species Action Plan – Timber Rattlesnake, p. 4 (June 2011), available at <http://fishandboat.com/water/amprep/species-plan-timber-rattlesnake.pdf>. In comparison, the timber rattlesnake “continues to persist in relatively large population densities across some regions of Pennsylvania, though these populations are highly disjunct.” Id. “Consequently, Pennsylvania may function as a stronghold for the continued survival of this species.”⁷ (emphasis added) (citation omitted).

According to DCNR, “[t]he largest populations of timber rattlesnakes occur in remote, heavily forested regions of Pennsylvania, which means they often call state forests home.” DCNR, Rattlesnakes in Pennsylvania State Forests (emphasis added), available at <http://dcnr.state.pa.us/forestry/wildlife/rattlesnakes/index.htm>. Pennsylvania’s “2.2 million acres of State Forest lands provide the largest blocks of timber rattlesnake range remaining in the Northeastern states.” Id. (emphasis added).

Pipeline construction and shale gas drilling could permanently change habitat. According to PAFBC, some of the leading threats to timber rattlesnakes include “natural resource extraction and associated infrastructure development,” “habitat destruction or disturbance in hibernacula areas,” “increase of human activity within habitat range,” “new road construction,” and “high vehicular traffic on previously low volume roadways.” Id. at 5. These are precisely the kinds of impacts that result from pipeline construction and shale gas drilling. FERC and other federal agencies have an obligation to conserve and maintain timber rattlesnake and other threatened, endangered, candidate and sensitive species. According to the PAFBC, “in the past decade, encroachment by oil and gas development into Timber Rattlesnake strongholds has increased significantly with the relatively new shale gas industry in this Commonwealth.” 45 Pa.B. 47, 6661, 6694 (Nov. 21, 2015). “The northcentral portions of the range, once considered the core undisturbed populations, have been subject to high volume of exploration, well pad construction, pipeline construction, associated roads and infrastructure.” Id.

The timber rattlesnake is still a protected species in Pennsylvania and DEP has an obligation to “conserve and maintain” this and other threatened, endangered, candidate and sensitive species. PA. CONST. art. I, § 27. Before FERC makes a decision on Transco’s applications, it must consider how the Atlantic Sunrise Project and the cumulative impacts of shale gas development as well as other pipeline projects will impact timber rattlesnake and ensure that this species and its prospects for survival.

3. Northeastern Bulrush

Northeastern bulrush is a state-listed endangered species in Pennsylvania. See FERC DEIS at 4-113. It is also listed as endangered in Maryland and on the federal endangered species list. Id. Northeastern bulrush is a “wetland plant . . . [o]ccurring in isolated areas scattered across seven states [that] is difficult to find and difficult to recognize.” FWS, Northeastern Bulrush, available at <https://www.fws.gov/northeast/pdf/bulrush.pdf>. “[H]abitat alternations that make a site consistently drier or wetter could make life impossible for northeastern bulrush.” Id.

“Activities such as filling or ditching in a wetland can destroy or degrade this species’ habitat and pose a threat.” Id. The key to recovery for northeastern bulrush is “preventing habitat destruction and deterioration at sites where the plan now grows and any additional locations as they are found.” Id.

According to FERC, “northeastern bulrush could occur in Clinton, Columbia, and Luzerne Counties, and its range overlaps with the proposed pipeline route in Columbia and Luzerne Counties.” FERC DEIS at 4-113 (citations omitted). Surveys identified northeastern bulrush in at least one wetland in Luzerne County and a second wetland in northern Columbia County. Id. According to FERC, Transco revised its route to avoid direct impacts on northeastern bulrush in the Luzerne County wetland, but the project “does not avoid the wetland entirely.” Id. The project will also come within 50 feet of the other wetland in Columbia County. Id. The potential impacts requires avoidance or mitigation which is not documented here.

This treatment of cumulative impacts falls short of what is required by NEPA—namely, a comprehensive analysis of the incremental impacts of the Project when considered in addition to other past, present, and reasonably foreseeable future actions. See 40 C.F.R. § 1508.7; *see also Oregon Natural Res. Council Fund v. Brong*, 492 F.3d 1120, 1132–33 (9th Cir. 2007) (“One of the specific requirements under NEPA is that an agency must consider the effects of the proposed action in the context of all relevant circumstances, such that where ‘several actions have a cumulative . . . environmental effect, this consequence must be considered’) (quoting *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1378 (9th Cir. 1998)). Assessing the impacts of a proposed action within the context of existing and foreseeable effects in the same area yields “a realistic evaluation of the total impacts” and ensures that an EIS does not impermissibly “isolate a proposed project, viewing it in a vacuum.” *Grand Canyon Trust v. Fed. Aviation Admin.*, 290 F.3d 339, 342 (D.C. Cir. 2002).

Even if the Commission concludes that the amount of habitat lost because of Atlantic Sunrise Project construction does not constitute a significant adverse impact, the additive impact of this habitat loss along with the destruction of habitat caused by past, present, or reasonably foreseeable gas development activities and other development activities in the region (already identified in the Draft EIS) could constitute an adverse impact. This is precisely the analysis that NEPA requires agencies to undertake.

VII. The Atlantic Sunrise project will have significant impacts on local air quality, which have not been properly disclosed.

The Draft EIS acknowledges that construction and operation of the proposed projects will result in result in emissions of various air pollutants, including NO_x, VOCs, carbon monoxide, particulate matter, sulfur dioxide, and GHGs, particularly methane. These pollutants affect air quality—and therefore human health—in a variety of ways. NO_x is a precursor of both ozone and fine particulate matter (“PM_{2.5}”) particulate matter is linked to increased heart attacks, aggravated asthma and decreased lung function, and for people with heart or lung diseases, premature death, to coughing, chest pain, and throat irritation. VOCs are also an ozone precursor. Ozone exposure can lead to coughing, chest pain, and throat irritation. It also worsens bronchitis, emphysema, and asthma, and can reduce lung function.

The most common hazardous air pollutants associated with natural gas development are n-hexane and the “BTEX compounds” benzene, toluene, ethylbenzene, and xylenes also emitted from natural gas operations, is a probable human carcinogen. Benzene is a known human carcinogen, and formaldehyde, which is also emitted from natural gas operations, is a probable human carcinogen. See Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews, 76 Fed. Reg. 52,738, 52,745 (Aug. 23, 2011).

With respect to air quality, the Draft EIS concludes:

The new and modified compressor stations would have long-term impacts on local air quality. Because Compressor Stations 605 and 610 would have electric-driven compressors, the operational emissions would primarily be minor fugitive methane emissions and would not have a significant impact on local air quality.

Modifications at the Compressor Stations 517, 520, and 190 have the potential to be significant; therefore, we requested that Transco complete an air quality impact analyses at these three stations to document that the proposed emission modifications, along with existing emissions and background air quality, would not have a significant impact on local air quality and would not result in violation of the NAAQS.

Draft EIS at 4-210.

Air quality impacts from compressor stations can be judged by reviewing ambient air quality monitor data, by measuring emissions at full load, and by conducting air quality modeling. Transco has fulfilled none of these requirements.

As to direct emissions from new and modified Transco compressor stations, the Draft EIS states:

The air monitoring data Transco provided for Compressor Stations 517 and 520 were not operating at full load and Compressor Station 190 was not in operation; therefore, we are requesting that Transco update the ambient data to reflect the ambient impacts at full

permitted load. Providing the updated air monitoring data **prior to** the issuance of the final EIS will allow us to adequately and conservatively estimate impacts.

Draft EIS at 4-215.

As to modeled emissions, the Draft EIS states:

[Prior to the end of the comment period], Transco should file . . . the results of an air quality screening (AERSCREEN) or refined modeling analysis (AERMOD or EPA-approved alternative) for all of the emission-generating equipment (including existing equipment) at Compressor Station 190, if Compressor Station 190 is not in operation for a substantial time during the monitoring period between February and July 2016. The results should indicate the local modeled ambient emissions, plus the modeled incremental increase in emissions of criteria pollutants from the modifications. Transco should include supporting calculations and provide a narrative explaining the justification for the modeling methodology.

Id.

Of course, the public cannot comment on these yet un-filed analyses during the comment period. When a significant issue, such as local air quality, is identified but not addressed, the public is deprived of the opportunity to play a significant role in the decision-making process. See Robertson.

In addition, the Draft EIS fails to adequately address fugitive methane emissions from the proposed Atlantic Sunrise project and related facilities. The Draft EIS asserts that fugitive methane emissions from the operation of the proposed pipeline, including compressor stations, are "minor." Draft EIS at 4-210. In particular, the Commission provides no analysis of potential malfunctions of either pipeline or compressors that could lead to unintended emissions of various pollutants. This is a significant oversight, given that the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration ("PHMSA") reports 322 significant pipeline incidents in 2015 alone - resulting in \$322 million in damages.¹¹

FERC's failure to undertake a meaningful analysis of the effects of emissions from the Atlantic Sunrise Project construction and operation is particularly concerning, given that Pennsylvania and Maryland are located in the Northeast Ozone Transport Region ("OTR") and the proposed construction would result in significant emissions of NOx and VOCs. Draft EIS at 4-194.

The area is already a moderate ozone nonattainment area for VOCs and NOx for New Source Review permitting purposes:

¹¹ U.S. DOT, PHMSA, Significant Pipeline Incidents, <https://hip.phmsa.dot.gov/analyticsSOAP/saw.dll?Portalpages> Significant pipeline incidents are defined as those that involve a fatality or injury, \$50,000 or more in total costs, highly volatile liquid releases of five barrels or more or other liquid releases of fifty barrels or more, or liquid releases resulting in an unintentional fire or explosion.

Section 184 of the CAA established the Northeast Ozone Transport Commission to assist in developing recommendations for the control of interstate air pollution in these 13 northeast states, referred to as the Northeast Ozone Transport Region (OTR). All major sources in these states are treated as being in at least a moderate ozone nonattainment area for permitting purposes. Compressor Stations 517 and 520 in Pennsylvania and Compressor Station 190 in Maryland would be affected by these OTR requirements and are described further in this document. Draft EIS at 4-194.

The Draft EIS does not undertake any analysis of the potential impacts from construction emissions and permanent long term emissions from the Atlantic Sunrise project on workers and residents living in an area which is already considered non-attainment for those pollutants.

Conclusion

To date, the Atlantic Sunrise Project has evaded the comprehensive environmental impact disclosure and public participation requirements of NEPA. The current FERC approach – to identify problems to be addressed later - undermines comprehensive, in-depth analysis and long-term planning. It encourages gas development while ignoring myriad adverse impacts on public health, public wellbeing, and public natural resources. If FERC is to fulfill its legal obligations and its function as an agency in the service of the public, FERC must fix the Draft EIS's fatal flaws outlined above.

Because the flaws can only be cured through the disclosure of substantial amounts of missing information, we urge the Commission to (1) collect the missing information, (2) independently verify the accuracy and completeness of the supplemental information, and (3) circulate a revised environmental impacts statement for public review and comment.

We, the undersign organizations, also support the detailed comments filed today by the Allegheny Defense Project et al.

Respectfully submitted,

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Ann Pinca, President
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