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David W. Garg, P.E.
Waterways and Wetlands Program Manager
Department of Environmental Protection
Northcentral Regional Office
208 West Third Street
Williamsport, PA 17701
570-327-3636
dgarg@pa.gov

Re: Transcontinental Pipe Line Company's Chapter 102 Erosion and Sediment Control Permit Application ESCP 2 # ESG 0035 15 0001.

Dear Program Managers:

The Allegheny Defense Project respectfully urges you to deny Transcontinental Pipe Line Company's ("Transco") above-referenced Chapter 102 erosion and sediment control permit ("ESCP") application for the Chapman Loop, which is part of Transco's Atlantic Sunrise Project. *See* 46 Pa.B. 2397, 2453 (May 14, 2016) ("Notice"). As we explain below, at a minimum, the Department should stay any further consideration of the Application's merits until Transco meets the information requirements under federal and state law, including Article I, Section 27 of the Pennsylvania Constitution. These are commonsense look-before-you-leap requirements. They need to be vigorously enforced, especially now given the oil and gas industry's frenetic push to expand pipeline capacity and production.

Now, despite clear direction from the Wolf Administration to "[p]lan, site and route pipelines to avoid/reduce environmental and community impacts," Transco presents the Department and the public with yet another blinkered view of the potential impacts to the Commonwealth's water resources of its planned Atlantic Sunrise Project. *See* Governor's Pipeline Infrastructure Task Force Final Report, p. 6 (Feb. 2016), *available at* http://files.dep.state.pa.us/ProgramIntegration/PITF/PITF%20Report%20Final.pdf.

I. Factual 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 ("FERC DEIS").

On June 20, 2015, DEP published a notice in the Pennsylvania Bulletin proposing to grant Transco's request for water quality certification ("WQC") under Section 401 of the Federal Clean Water Act. *See* 45 Pa.B. 3193, 3274 (June 20, 2015). On September 19, 2015, DEP published in the Pennsylvania Bulletin a notice of Transco's application for a Chapter 105 water obstruction and encroachment permit for the proposed Unity Loop. *See* 45 Pa.B. 5667, 5708 (Sept. 19, 2105). On October 31, 2015, DEP published in the Pennsylvania Bulletin a notice of Transco's application for a Chapter 105 water obstruction and encroachment permit for the proposed Chapman Loop. *See* 45 Pa.B. 6391, 6429 (Oct. 31, 2015).

On April 23, 2016, DEP granted Transco's request for water quality certification ("WQC") under Section 401 of the federal Clean Water Act for the Atlantic Sunrise Project. *See* 46 Pa.B. 2019, 2132 (Apr. 23, 2016). On April 30, 2016, DEP published in the Pennsylvania Bulletin notice of Transco's applications for water obstruction and encroachment permits for various portions of the Atlantic Sunrise Project's Central Penn Line. *See* 46 Pa.B. 2155, 2211-

2215 (Apr. 30, 2016). On May 14, 2016, DEP published in the Pennsylvania Bulletin notice of the instant application for the Chapman Loop. *See* Notice. Also on May 14, 2016, DEP issued the Chapter 105 permit for the Chapman Loop. *See id*. at 2469-70. On May 5, 2016, FERC published the draft environmental impact statement ("DEIS") for the Atlantic Sunrise Project. *See* FERC Docket No. CP15-138-000, Accession No. 20160505-4005, *available at* http://elibrary.ferc.gov/idmws/file_list.asp?document_id=14456690.

Regarding the permit application at issue in these comments, the above-referenced Notice neither provided Transco's application nor identified the DEP's trustee obligations under Art. I, Sec. 27 of the Pennsylvania Constitution to "conserve and maintain" the Commonwealth's resources. In fact, the Notice did not even identify the fact that the permit application pertained to the Chapman Loop or the Atlantic Sunrise Project. Rather, it simply notified the public that Transco was the applicant, stated generally the area that would be directly impacted, and told the public where to submit comments. *See* Notice at 2453.

II. Legal Background

Article I, Section 27 of the Constitution 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.

The location of Section 27 in the Commonwealth's Declaration of Rights signifies a particular constraint on Commonwealth 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 'inviolate.'" *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 Department'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 Department 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.

Pennsylvania's erosion and sediment control regulations require best management practices ("BMPs") "be undertaken to protect, maintain, reclaim and restore water quality and the existing and designated uses of waters of this Commonwealth." 25 Pa. Code § 102.2(b). The Chapter 102 program is integrated into the Chapter 105 water obstruction and encroachment regulations. *See* 25 Pa. Code § 105.46. Chapter 105 expressly incorporate DEP's trustee obligations pursuant to the Pennsylvania Constitution. *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.

In reviewing an application, DEP must "determine the proposed project's effect on health, safety and the environment, in accordance with prevailing practices in the engineering profession and in accordance with current environmental principles." 25 Pa.Code § 105.14(a). DEP also considers several factors to make a determination of the project's impact, including: (i) effects on regimen and ecology of the watercourse or other body of water, water quality, stream flow, fish and wildlife, aquatic habitat, instream and downstream uses and other significant environmental factors; (ii) effects on nearby natural areas, wildlife sanctuaries, public water supplies, other geographical or physical features including cultural, archaeological and historical landmarks, National wildlife refuges, National natural landmarks, National, State or local parks or recreation areas or National, State or local historical sites; (iii) effects of reasonably foreseeable future development within the affected watershed upstream and downstream of the project; (iv) secondary impacts associated with but not the direct result of the project in the area of the project and in areas adjacent thereto; (v) cumulative impact of the project and other potential or existing projects; (vi) consistency with the federal Wild and Scenic Rivers Act and Pennsylvania Scenic Rivers Act; (vii) consistency with State antidegradation requirements and the Clean Water Act; and (viii) impacts on wetlands values and functions. *See* 25 Pa.Code § 105.14(b).

These and other factors form the basis of an "Environmental Assessment." *See* 25 Pa.Code § 105.15. No construction, operation, maintenance, modification, enlargement or abandonment may occur until DEP approves this assessment. *Id*. § 105.15(a). For projects where WQC is required under the Clean Water Act, an applicant "shall prepare and submit" for

DEP's review, "an environmental assessment containing the information required by [§ 105.15(a)] for every . . . water obstruction or encroachment located in, along, across or projecting into the regulated water of this Commonwealth." *Id*. § 105.15(b).

The Clean Water Act Section 401 WQC process is the same for all projects that require a federal license or permit, including interstate gas pipeline projects: First, the state develops state water quality standards. *See* 33 U.S.C. § 1313. Once EPA has approved the standards, Section 401 requires the projects that require a federal license or permit to obtain a certification of compliance with the state water quality standards and other Clean Water Act requirements. *Id*. § 1341(a)(1). The decision to grant or deny Section 401 certification belongs to the state(s) where the discharge originates. *Id*.; *see also* Natural Gas Act, 15 U.S.C. § 717b(d)(3) (preserving states' rights under the Clean Water Act). States have up to one year from receipt of the complete certification request to make their decision. *See* 33 U.S.C. § 1341(1). To avoid waiving certification requirements when more time is needed, states can (1) specify detailed criteria for a certification request to be considered complete, and (2) toll or restart the one-year clock as they work with applicants to develop the record and complete their reviews by the deadline for certification set by federal agencies, if any. *See* EPA, Clean Water Act Section 401 Water Quality Certification: A Water Quality Protection Tool For States and Tribes, pp. 11, 13 (2010), *available at* http://dec.alaska.gov/water/wwdp/wetlands/docs/CWA_401_Handbook_2010_Interim.pdf.

When a state decides to grant Section 401 certification, both the timing and content of the certification must meet the requirements of the Clean Water Act and state law. Timing is key because federal agencies must withhold their authorizations until the required Section 401 certification for the project "has been obtained or has been waived." *Id*. § 1341(a)(1). State-

determined requirements of certification then "become a condition on any Federal license or permit" for the project. *Id*. § 1341(d). States therefore must identify and convey to the relevant federal agencies any and all project-specific requirements, such as effluent limitations or monitoring requirements, in time and with enough specificity to allow the federal agencies to assess whether to authorize the project *with the state-determined requirements*. This also aids EPA's review of whether the project's discharge may affect other downstream states, so that EPA may give any such states the opportunity to protect their water quality by imposing additional conditions on the project. *Id*. § 1341(a)(2). The Clean Water Act only allows states to change conditions after a project receives its federal license or permit in very narrow circumstances, and thus it is especially important that the state complete a thorough review and establish enforceable and project-specific requirements at the time of initial certification.

Pennsylvania's water quality standards for Section 401 certification set out broad information requirements such as an "environmental assessment" that anyone requesting a certification must submit to the Department, as well as detailed plans addressing the project's precise location, the present conditions within the project's footprint, and project's foreseeable impacts to aquatic resources. To be sure, much of this information must be conveyed to the Department *before* it decides whether to grant or deny certification. Pennsylvania's policy and practice also integrates the applicable state reviews and permits into Section 401 certification, including, as explained above, DEP's trustee obligations pursuant to the Pennsylvania Constitution.

Yet for interstate natural gas pipelines, Pennsylvania has strayed from state law requirements, policy, and practice concerning Section 401 certification. Rather than collecting the required pre-certification information and completing the reviews and permitting decisions in

advance, Pennsylvania now defers those reviews and decisions through the use of broad, generic conditions. *See e.g.,* Water Quality Certification for the Atlantic Sunrise Pipeline Project, PADEP File No. WQ02-001, 46 Pa.B. 2019, 2132 (Apr. 23, 2016). We appreciate that the Department has time and resource constraints, and that it has expressed an intention to complete the required record development, project specific reviews, and permitting decisions at a later time. This bifurcated approach, however, violates the law and poses serious threats to Pennsylvania's water quality. We urge the Department to adhere to the letter of the law as well as its policy and past practice by completing the required reviews and permitting decisions in advance of any certification in order to fully protect our state's waters.

III. DEP's failure to coordinate permit processes has resulted in segmented environmental review and requires DEP to withdraw authorizations prematurely issued and to comprehensively evaluate the direct, secondary and cumulative effects of the *entire* Atlantic Sunrise Project.

DEP is required "to coordinate the application for and issuance of permits under [25 Pa. Code § 105] with permit processes conducted under other statutes and regulations administered by [DEP] and with permit processes administered by other Federal and State agencies." 25 Pa. Code § 105.24(a). The permitting process that has unfolded for the Atlantic Sunrise Project, however, has been anything but "coordinated." In fact, as Table 1 below shows, it has been woefully uncoordinated, with various DEP offices issuing public notices for segmented parts of the Atlantic Sunrise Project over the past year.

Table 1: DEP Water-Related Permits/Requests for Atlantic Sunrise Project.

Application / Request	App. / Req. Number(s)	DEP Regional Office	Date Filed	PA Bulletin Notice	Date Issued
WQC Request (entire ASP)	WQ02-001	Northeast	04/13/2015	06/20/2015	04/23/2016
Ch. 105 Permit (Unity Loop)	E41-667	Northcentral	08/07/2015	09/19/2015	N/A
Ch. 105 Permit (Chapman Loop)	E18-495	Northcentral	08/07/2015	10/31/2015	05/14/2016
Ch. 105 Permit (Central Penn Line)	E58-315, E40-769, E54-360, E66-160, E36-947, E38-195, E19-311, and E49-366	Northcentral, Northeast, Southcentral	08/28/2015	04/30/2016	N/A
Ch. 102 Permit (Chapman Loop)	ESCP 2 # ESG 0035-15-0001	Northcentral	08/07/2015	05/14/2016	N/A
Ch. 102 Permit (Unity Loop)	N/A	N/A	08/07/2015	N/A	N/A
Ch. 102 Permit (Central Penn Line)	N/A	N/A	08/28/2015	N/A	N/A
CWA Sec. 402 (Central Penn Line, Chapman Loop, Unity Loop)	N/A	N/A	2Q 2016	N/A	N/A
CWA Sec. 402 (CS 605 and CS 610)	N/A	N/A	4Q 2016	N/A	N/A

Instead of requiring Transco to submit a single application for the above-referenced permits and requests, DEP accepted Transco's submission of isolated parcels of the Atlantic Sunrise Project. Even if one considers a single permit program, Transco submitted isolated parcels of the Atlantic Sunrise Project. For example, instead of submitting a single application for a Chapter 105 permit, Transco submitted three separate applications for the Unity Loop, Chapman Loop, and

Central Penn Line between September 2015 and April 2016. To make matters worse, DEP's public notices for these applications do not reference the other parts of the overall project.

In its Chapter 105 permit application for Unity Loop, for instance, DEP states that the Unity Loop is a "new 8.6 mile long pipe" proposed "as part of the Atlantic Sunrise Project." 45 Pa.B. 5667, 5708 (Sept. 19, 2105). There is no reference to the FERC docket and no reference to the fact that there are approximately another 190 miles of pipeline proposed "as part of the Atlantic Sunrise Project." The public notice for the Chapter 105 permit application for the Chapman Loop suffers from the same lack of information about the true nature and scope of the Atlantic Sunrise Project. *See* 45 Pa.B. 6391, 6429 (Oct. 31, 2015).

It would not be until April 30, 2016, that DEP published the notice of applications for the Central Penn Line part of the Atlantic Sunrise Project. *See* Notice at 2211-2215. Nowhere does the Notice reference the two other parts of Atlantic Sunrise (Unity Loop and Chapman Loop) for which DEP had already solicited comments. Nor does the Notice make clear that all three components (Central Penn Line, Unity Loop, and Chapman Loop) are, in fact, part of the same overall project. And, again, there is no reference to the FERC docket.

The lack of information is exacerbated by the deficient notice for the May 14, 2016 Chapman Loop 102 permit application, the application at issue in these comments. In the Notice, DEP simply states that Transco is the applicant, the area to which the requested permit applies is in Chapman Township, Clinton County, and three exceptional value streams that would be impacted. *See* 46 Pa. B. 2397, 2453 (May 14, 2016). Nowhere does the notice identify that the permit application is for the "Chapman Loop" or that it is part of the broader Atlantic Sunrise Project. And, once again, there is no reference to the FERC docket. To the best of our

knowledge, Transco has not yet submitted 102 permit applications for the other parts of the Atlantic Sunrise Project (*i.e.*, the Central Penn Line and Unity Loop).

This convoluted and fragmented permitting process is the antithesis of coordination. And these are just some of the permit programs administered by DEP. The lack of coordination extends to other permit programs administered by other agencies as well.

As stated above, none of the public notices for the Chapter 105 or Chapter 102 permit applications even referenced the FERC docket. Failing to identify the FERC docket and provide information about how to access materials associated with the FERC proceeding deprives citizens of critical information about the true nature and scope of the overall project. Therefore, DEP should have a policy in place that requires it to include the FERC docket number and information about how to access the docket for all applications and requests that it receives for projects that are part of a FERC proceeding.

Furthermore, DEP should utilize the FERC docket to provide quick and easy access to permit applications and requests. Currently, DEP does not provide a company's application or request when it publishes a notice in the Pennsylvania Bulletin. Rather, DEP tells citizens that if they want to see a particular application or request that they must either pay a fee to have the documents copied and sent in the mail or they can schedule a file review. This is unnecessarily burdensome for several reasons.

First and foremost, as a trustee of the Commonwealth's environmental resources, DEP should not be charging citizens (*i.e.*, beneficiaries) for access to permit applications and WQC requests. *See Robinson Township, v. Commonwealth of Pennsylvania*, 83 A.3d 901, 983 n. 60 ("the Commonwealth has failed to discharge its trustee duty of gathering and *making available to the beneficiaries* complete and accurate information as to the nature and amount of the trust

property.") (emphasis added). *Robinson Township* also referenced the Restatement (Second) of Trusts § 173, noting that the "right of access to trust records is [an] essential part of [a] beneficiary's right to complete information concerning administration of the trust[.]" The court further noted that the "right of inspection has [an] independent source in [the] beneficiary's property interest in [the] trust estate" and that the beneficiary "is always entitled to such information as is reasonably necessary to enable him to enforce his rights under the trust or to prevent or redress a breach of trust." *Id*. In light of DEP's constitutional obligations as a trustee, as well as its statutory obligation to waive fees if it "is in the public interest to do so," 65 P.S. § 67.1307(f)(2), the agency should not charge citizens or citizen groups to access permit applications for activities that would potentially harm trust resources.

Second, file reviews are not an adequate substitute for fulfilling DEP's trustee obligations. This is because file reviews often cannot be scheduled within a reasonable time to afford citizens the opportunity to fully review relevant documents and provide meaningful comments before the end of a comment period. Moreover, since DEP only allows file reviews during normal business hours, it is often difficult for citizens to take off work in order to conduct the file review.

Therefore, when DEP receives a permit application or a WQC request for a project that is part of a FERC proceeding, it should upload those filings to the relevant FERC docket and provide information about how to access those filings when it publishes notice in the Pennsylvania Bulletin. This would better "coordinate" DEP's permit processes with FERC's. 25 Pa. Code § 105.24(a). It would also fulfill its trustee obligations pursuant to Art. I., Sec. 27 of the Pennsylvania Constitution. Moreover, it should not be at all burdensome on DEP since it should take no more than a few minutes to upload the applicant's filings to the FERC docket. If

anything, it should lessen the burden on DEP by reducing the amount of individual records and file review requests.

IV. Due to the lack of information in the Notice, DEP should republish notification and provide a new comment period.

DEP should extend the comment period. As explained above, the Notice for the Chapman Loop 102 permit contained virtually no information about Transco's application. Rather, DEP simply states that Transco is the applicant, the area to which the requested permit applies is in Chapman Township, Clinton County, and three exceptional value streams that would be impacted. *See* 46 Pa. B. 2397, 2453 (May 14, 2016). Nowhere does the notice even identify that the permit application is for the "Chapman Loop" or that it is part of the broader Atlantic Sunrise Project. This does not constitute adequate notice. Therefore, DEP should republish notification, file Transco's application in the FERC docket, and provide a new comment period.

Providing a new comment period will in no way prejudice Transco. On June 1, 2016, DEP extended the comment period for Transco's Chapter 105 permit applications for the Central Penn Line portion of the Atlantic Sunrise Project to August 1, 2016. Moreover, DEP has not even published notification for Transco's 102 applications for the Central Penn Line or Unity Loop. Thus, a new comment period following adequate notice for the Chapman Loop 102 application will not prejudice Transco.

V. DEP must protect riparian buffers and wetlands.

Since the proposed Chapman Loop is part of the broader Atlantic Sunrise Project, these comments address the project as whole. Transco proposes at to disturb "about 3,905.8 acres of land, including the pipeline facilities, aboveground facilities, pipe and contractor are yards and staging areas, and access roads." FERC DEIS at 2-8. Of this, "[p]ermanent operations would

require about 1,208.3 acres, consisting of 1,081.6 acres for the pipeline right-of-way, 109.4 acres for new and modified aboveground facilities, and 17.3 acres for permanent access roads." *Id*. In addition, Transco is requesting additional temporary work space ("ATWS") within 50 feet of a waterbody in nearly 200 locations. *Id*., App. K, Table K-5. This raises significant concerns about accelerated erosion and sedimentation into these waterbodies.

Under Chapter 102, Transco "may not conduct earth disturbance activities within 150 feet of a perennial or intermittent river, stream, or creek, or lake, pond or reservoir when the project site is located in an exceptional value or high quality watershed[.]" 25 Pa. Code § 102.14(a)(1). DEP "may" waive this requirement for pipelines only "upon a demonstration by the applicant that there are reasonable alternatives for compliance with this section, *so long as any existing riparian buffer is undisturbed to the extent practicable* and that the activity will otherwise meet the requirements of this chapter[.]" 25 Pa. Code § 102.14(d)(2) (emphasis added). It is unclear from FERC's DEIS whether the 200 locations where Transco proposes ATWS within 50 feet of a waterbody are in high quality or exceptional value watersheds. If this is the case, DEP must disclose that to the public and require Transco to demonstrate that it will comply with 25 Pa. Code § 102.14 and that existing riparian buffers are left undisturbed. In addition, Transco must protect all wetlands located in the riparian buffer consistent with Chapter 105. *See* 25 Pa. Code § 102.14(c)(2).

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. The Chapman Loop would be constructed in watersheds with receiving

streams that are designated exceptional value ("EV") (Young Woman's Creek, Post Hollow, and Mudlick Run). *See* 46 Pa. B. 2397, 2453 (May 14, 2016).

Whether a waterbody qualifies for HQ 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*.

An EV classification affords the "highest level of protection" and "requires that '*water quality ... be maintained and protected*.'" *Id*. (emphasis in original). A water qualifies for EV if it is an HQ water and meets at least one of the following:

> (1) It flows in a national wildlife refuge or a state game propagation and protection area;
> (2) It flows in a designated state park natural area, state forest natural area, national natural landmark, federal or state wild river, federal wilderness area, or national recreation area;
> (3) It is an outstanding national, state, or local resource water as defined in Section 93.1 of the regulation;
> (4) It is a surface water of exceptional recreational significance as defined in Section 93.1 of the regulation;
> (5) The water achieves a biological test score of 92 percent or greater using the modified RBP; or
> (6) The water is designated a wilderness trout stream by [PAFBC] following public notice and comment.

Id. at 3. "An additional pathway [to an EV classification] is available for waters that possess 'exceptional ecological significance.'" *Id*. Importantly, "a designated use of a surface

water may not be lowered to a use that is less stringent than the existing use for the water." *Id*. at 6.

DEP's decision whether to permit Transco to cross dozens of HQ streams and build pipelines within EV watersheds 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.

It is critically important that DEP 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).

Did Transco prepare 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 of DEP's WQC for the Atlantic Sunrise Project. DEP cannot issue any permits until Transco submits this information and makes it available for additional public review and comment.

Regarding the three EV waterbodies that would be impacted by construction of the Chapman Loop, would construction occur within 150 feet of the riparian buffer? If so, then Transco must demonstrate that it will comply with 25 Pa. Code § 102.14 and that the existing riparian buffer will be left "undisturbed to the extent practicable." 25 Pa. Code § 102.14(d)(2). In addition, Transco must protect all wetlands located in the riparian buffer consistent with Chapter 105. *See* 25 Pa. Code § 102.14(c)(2).

V. DEP must consider the secondary and cumulative impacts of the Atlantic Sunrise Project, including shale gas development, on public natural resources.

Implementation of erosion and sedimentation control plans is integrated into the Chapter 105 permitting process. See 25 Pa. Code § 105.46. As part of its review of Transco's applications for Chapter 105 water obstruction and encroachment permits, DEP must consider the secondary and 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 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 DEP carefully considers the secondary and cumulative impacts of shale gas development "*before* it acts" on Transco's permit applications. *Id*. at 952 n. 41 (2013) (quoting language from questions and answers document distributed to public prior to referendum) (emphasis added).

A. DEP must consider the secondary and cumulative impacts of shale gas development on the Susquehanna River watershed and Chesapeake Bay.

DEP must consider the secondary and 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." Susquehanna River Basin Commission, Information Sheet – Susquehanna River Basin, *available at* http://www.srbc.net/pubinfo/docs/SRB%20General%205_13%20Updated.pdf. 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." *Id*.

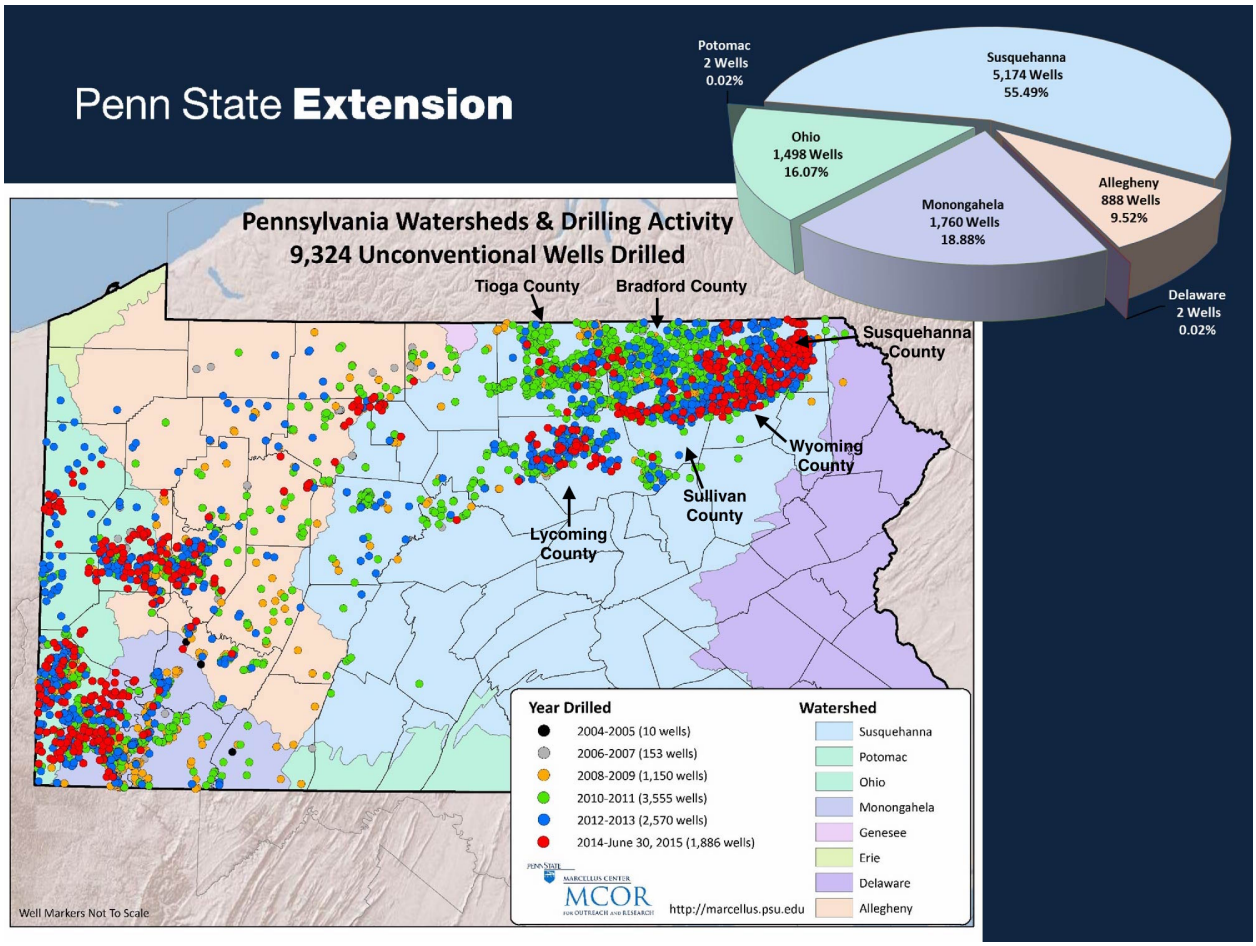
In addition, the Susquehanna River is "the largest tributary of the Chesapeake Bay[.]" *Id*. The Susquehanna River comprises "43 percent of the Chesapeake Bay's drainage area" and provides "50 percent of its fresh water flows." *Id*. Thus, [t]he river and the Bay are two integral parts of one ecosystem" 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 applications 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 1). 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. DEP must consider the impacts of this level of shale gas development on the Susquehanna River watershed and Chesapeake Bay *before* it issues any more permits for the Atlantic Sunrise Project.

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 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.

DEP 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*. DEP 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.

B. Secondary and cumulative impacts of shale gas development on terrestrial and aquatic habitats and wildlife.

1. Research indicates that shale gas development has substantial and long-term impacts on terrestrial and aquatic habitats and wildlife.

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 337.

The USGS report 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 Kiviat 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.

2. Existing shale gas development has already profoundly altered the Commonwealth's landscape and impacted habitat and further shale gas development will only exacerbate these impacts.

As Figure 1 above shows, thousands of shale gas wells have already been drilled in northeastern and northcentral Pennsylvania. This is precisely the region from which the Atlantic Sunrise Pipeline would transport shale gas. *Compare* Figure 1 *with* FERC DEIS at 2-6 (Atlantic Sunrise Project Location Map). The development of thousands of shale gas wells in this region of Pennsylvania is having a profound impact on Pennsylvania's terrestrial and aquatic resources and wildlife.

For instance, it is likely that the dramatic increase in shale gas drilling in this region of Pennsylvania has already disrupted bobcat populations in a manner similar to that documented in the Brittingham et al. (2014) research regarding mule deer. In 2012, NYDEC revised its "Bobcat Management Plan" because:

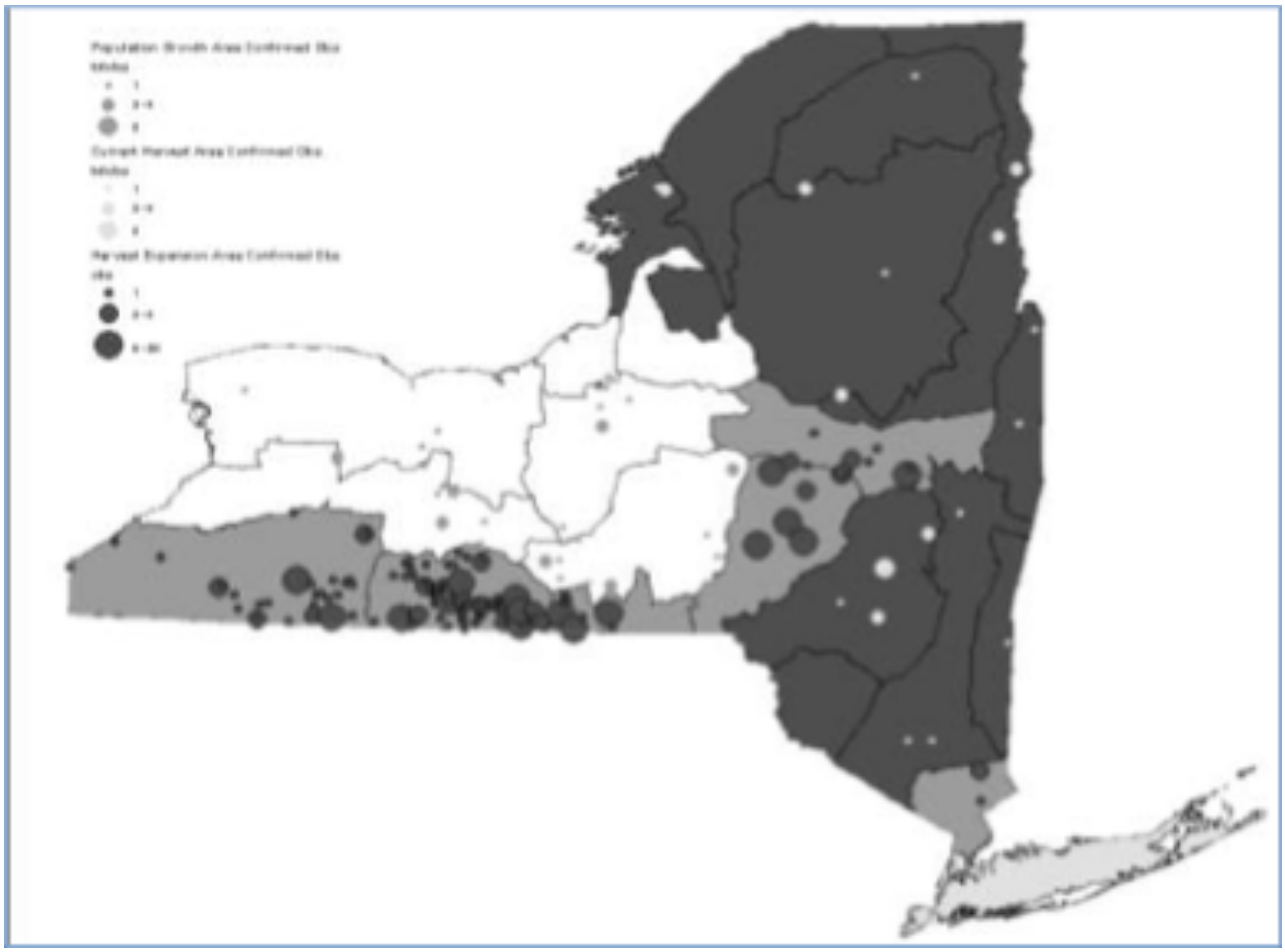
> Observations by hunters and trappers, and reports from the general public suggest that bobcat populations are increasing and expanding throughout New York State outside of their historic core range in the Taconic, Catskill, and Adirondack mountains and into central and western New York. *In addition, emigration of bobcats from Pennsylvania has likely fostered growth of the bobcat population in the southern tier of the state* (Matt Lovallo, Pennsylvania Game Commission, personal communication).

NYDEC. Management Plan for Bobcat in New York State 2012-2017. p. 8. 2012 (emphasis added). *available at:* http://www.dec.ny.gov/docs/wildlife_pdf/finalbmp2012.pdf. The plan further stated:

> The presence of bobcat in New York's Southern Tier has *increased dramatically* over the past decade. What began as occasional sightings along the New York/Pennsylvania border has progressed to large numbers of observations, trail camera photos, and incidental captures and releases by trappers. *Over the past five years* there have been 332 bobcat observations documented in the harvest expansion area[.]

Id. at 17 (emphasis added). The following figure, showing the number confirmed bobcat observations in New York from 2006-2011, reveals a concentration of observations along the Pennsylvania border:

Figure 2: Total Confirmed Bobcat Observations, 2006-2011.



Source: NYDEC Bobcat Management Plan, p. 17.

While NYDEC was documenting an increase in bobcat observations in the southern tier of New York between 2006-2011, hundreds and then thousands of shale gas wells were being drilled in the northern tier of Pennsylvania. *See* Figure 1 above. As Figure 1 indicates, between 2006-2011, gas companies drilled at least 4,858 shale gas wells in Pennsylvania. Many of these wells were drilled in Pennsylvania's northern tier. Thus, at the same time the gas industry began and

then rapidly escalated gas drilling across the northern tier of Pennsylvania, the bobcat population in the southern tier of New York "increased dramatically." Since there has been no shale gas development in New York throughout this time period due to a moratorium (and now ban)[1] on shale gas development, this suggests that the rapid increase in shale gas development in Pennsylvania may be causing "emigration of bobcats from Pennsylvania" into southern New York.

National Fuel's 2013 Annual Report suggests why this could be happening. For example, National Fuel stated that the drilling operations of its exploration and production subsidiary, Seneca Resources, occur 24-hours a day. *See* National Fuel 2013 Annual Report, p. 3 (emphasis added), *available at* http://s2.q4cdn.com/766046337/files/doc_financials/2013/NFG_SAR_13_Final.pdf. If Seneca and other shale gas drilling companies are operating in forested and remote areas 24-hours a day, then it is reasonable to assume that those operations have significant consequences on wildlife that depend on remote, forested habitat for survival. DEP must examine the impacts that 24-hour shale gas drilling operations are having on wildlife populations in Pennsylvania.

Concurrent with the sharp rise of gas drilling in Pennsylvania's northern tier, several companies began expanding their pipeline systems in Pennsylvania. For example, between 2009 – 2011, FERC approved four Tennessee Gas expansion projects along the company's 300 Line in northern Pennsylvania. *See Tennessee Gas Pipeline, L.L.C.*, 153 FERC ¶ 61,215, P 3 (Nov. 19, 2015). Thus, construction of these projects overlapped with the substantial increase in shale gas development and the "emigration of bobcats from Pennsylvania" into southern New York.

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[1] *See* New York State Department of Conservation and Natural Resources, High-Volume Hydraulic Fracturing in NYS, *available at* http://www.dec.ny.gov/energy/75370.html.

Construction of projects like Atlantic Sunrise, which will induce further gas drilling in this region, will only exacerbate these impacts.

It is important to reiterate that, as of 2014 when the Brittingham research was published, "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." Brittingham et al. at 11040. In other words, if wildlife populations are already being displaced when "less than 10% of potential shale gas development has occurred in the Appalachian basin," then it is very likely that wildlife will be far more impacted if agencies like DEP continue issuing permits for shale gas development and pipelines.

In a 2012 presentation provided through the Penn State Cooperative Extension, The Nature Conservancy ("TNC") estimated that 60,000 shale gas wells could eventually be drilled in Pennsylvania. TNC, Marcellus Gas Well & Pipeline Projections, p. 13 (2012), *available at* http://extension.psu.edu/natural-resources/forests/private/training-and-workshops/2012-goddard-forum-oil-and-gas-impacts-on-forest-ecosystems/marcellus-gas-well-and-pipeline-projections. TNC further reviewed how these projected wells would be distributed on the landscape under various well pad development scenarios. *Id*. at 13. TNC also analyzed where Marcellus Shale drilling was likely to occur (*id*. at 15-17) and how many miles of new pipelines and the direct and indirect effects of those pipelines on forests by 2030 (*id*. at 21).

By 2030, TNC estimated that there could be 10,000 – 25,000 miles of new gathering pipelines causing an estimated ***60,000 to 150,000 acres of direct forest clearing and 300,000 to 900,000 acres of forest edge effects***. *Id*. (emphasis added). According to TNC, pipeline mileage in Pennsylvania will at least double if not quadruple by 2030. *Id*. at 22. The footprint from

pipelines alone is projected to be larger than the "cumulative area impacted by all other Marcellus gas infrastructure combined." *Id*.

These are enormous impacts that will have long-term consequences that will not only impact Pennsylvania's terrestrial habitat but also Pennsylvania's waterbodies since construction of shale gas wells, pipelines, and roads requires extensive surface-disturbing activities that cause erosion and sedimentation into water. State officials have already documented the impacts of recent shale gas drilling on fisheries in the Pine Creek watershed, including wild trout populations. According to the PAFBC:

> Looking beyond the mainstem of Pine Creek is where we may have the greatest opportunity to improve management and protection. There are many unassessed streams in the Pine Creek watershed that likely harbor wild trout populations. Many of these streams are located on State Forest Land and were, until recently, considered "safe" from development and mineral extraction. *However, with the recent Marcellus Shale boon* [sic]*, much of the Pine Creek watershed has been leased for natural gas drilling* . . . Our observations of several township roads in the Pine Creek watershed during winter 2009/2010 that were being used to access Marcellus well sites was that *the roads were not built to handle the heavy truck traffic, and were not improved in any manner prior to well development. The roads were heavily rutted and much erosion was occurring.* ***The impacts of sedimentation can be severe, especially for brook trout***[.]

Pine Creek Fisheries Management Plan, 24-25 (emphasis added).

According to the SRBC, there are at least 81 natural gas drilling pads[2] in the Pine Creek watershed. *See* SRBC, Pine Creek Watershed Profile, *available at* http://mdw.srbc.net/remotewaterquality/assets/downloads/pdf/Pine%20CreekBlackwellWatershedProfile.pdf. A lot of this development is in the lower Pine Creek watershed in Tiadaghton State Forest. What was once a mostly intact part of the Pine Creek watershed on state-owned public lands is now fragmented by roads, well pads, and associated shale gas infrastructure. *See e.g.,*

[2] A drilling "pad" is the area cleared for drilling and fracking operations. There can be multiple wells drilled on a single pad. Thus, if there are 81 drilling "pads" in the Pine Creek watershed, there could be more than 81 wells.

Attachments 2 and 3.[3] Each new road and well pad converts forest land to impervious surface, which increases the amount of erosion and sedimentation entering Pine Creek and its tributaries, which impacts habitat for species like brook trout. These secondary and cumulative impacts must be included in DEP's analysis of the Atlantic Sunrise Project.

C. Secondary and cumulative impacts of shale gas development on public lands.

As noted above, 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 applications would further degrade Pennsylvania's state forests and other public lands.

In 2002, researchers modeled the extent of forest fragmentation in the United States. The results underscore the importance of Pennsylvania's public lands. For example, the researchers used "[a] lattice of 56.25 km2 cells . . . to summarize forest area and fragmentation statistics." Riiters, et al., Fragmentation of Continental United States Forests, Ecosystems (2002) 5: p. 820, *available at* http://ww.carmelacanzonieri.com/library/6108-LandscapeEcoPlanning/Ritters-FragmentationUSForests.pdf. Based on this, the researchers created two maps of forest cover. *See id.*, Figures 4A and 4B. In the first map, "[t]he relative amount of forest area within each cell is shaded from low (red) to high (green), for the 106,316 cells that contained more than 0.5%

[3] These images were created using Google Earth. The first image is from June 6, 2005, prior to shale gas development, and was edited to identify Pine Creek and Tiadaghton State Forest. The second image, which shows the same exact location, is from September 26, 2014, after shale gas development.

forest." *Id*. The second map identified "[t]he relative amount of 'interior' forest (7-ha landscapes) from low (red) to high (green) for the 38,169 cells that contained at least 60% forest." *Id*.

The second 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. As the researchers point out:

> Only a few locations (constituting a subset of the green cells in Figure 4B) had relatively large amounts of core forest: the Ouachita, Ozark, southern Appalachian, Adirondack, and *Allegheny mountains*, the northern parts of New England and the Lake States, and the Pacific Northwest."

Id. at 821 (emphasis added). The majority of these remaining "interior forests" are "*concentrated in public ownership* and/or landforms that are not suitable for agriculture or urban development." *Id*. (emphasis added). The dark green area on the second map clearly shows the general outline of the Allegheny National Forest and Pennsylvania's State Forests. *See* Attachment 4. It is imperative that DEP and other agencies "conserve and maintain" Pennsylvania's irreplaceable public lands, which are largely co-extensive with its remaining interior forest habitat.

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.

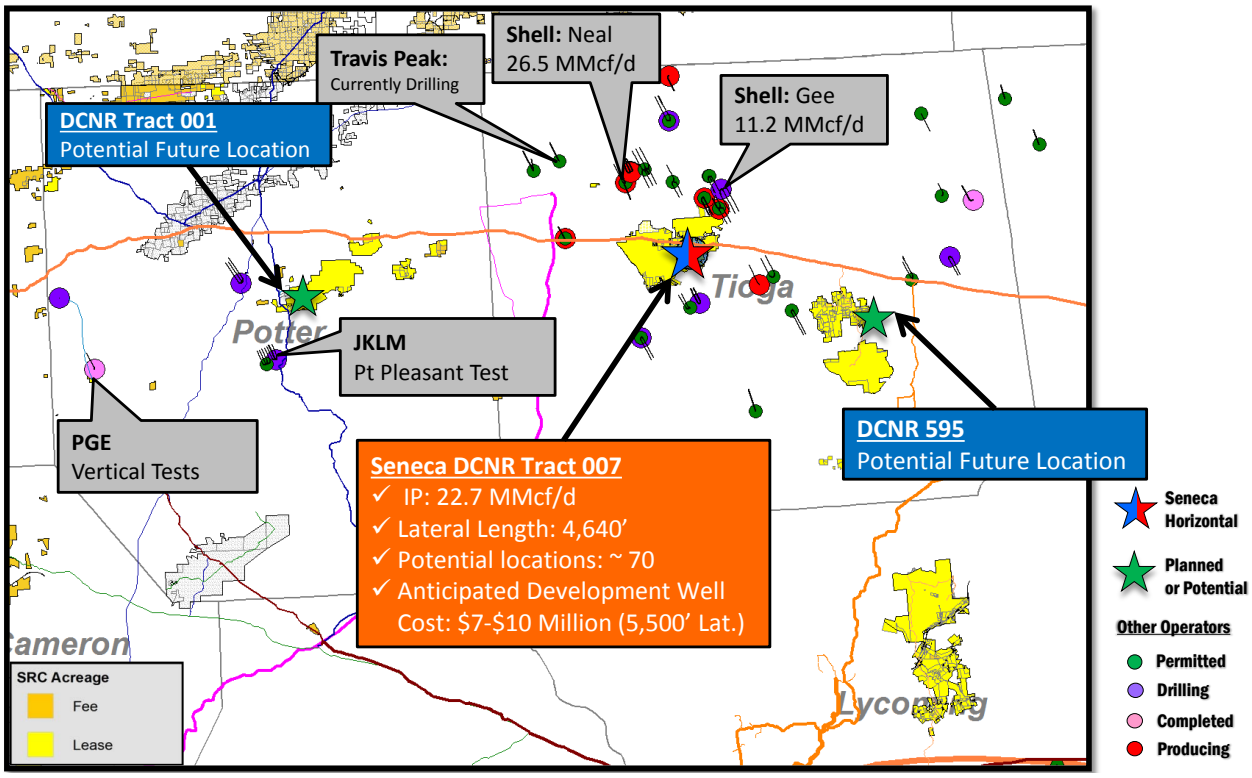
Id. at 136-38. DEP has an obligation to consider how its decision on Transco's applications will facilitate further Marcellus *and* Utica shale gas development on state forest lands.

DCNR has modeled how shale gas development in Tioga State Forest, just a few miles south of the 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 ~ 65,000 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.

DEP's approval of Transco's applications would allow Transco to significantly expand the capacity of its pipeline system in Pennsylvania. A likely consequence of that decision would be increased shale gas drilling on nearby state forest lands. For example, in its April 2016 investor presentation, National Fuel explicitly stated that its production subsidiary, Seneca Resources, would only engage in "*limited* development drilling" in its Eastern Development Area ("EDA") "until firm transportation on Atlantic Sunrise [Pipeline] (190 MDth/d) is available

in late 2017." National Fuel, Investor Presentation, p. 10 (Apr. 2016) (emphasis added), *available at* http://s2.q4cdn.com/766046337/files/doc_presentations/2016/April/20160428_NFG-IR-Presentation.pdf. Seneca Resources' EDA is located primarily in Potter, Tioga, and Lycoming Counties, Pennsylvania. *See id*. As Figure 3 below shows, this same area is where Seneca Resources has at least three leases on state forest lands.

Figure 3: Seneca Resources' Leases on State Forest Lands.



Source: National Fuel Gas Company, Investor Presentation, 57 (Apr. 2016), *available at* http://s2.q4cdn.com/766046337/files/doc_presentations/2016/April/20160428_NFG-IR-Presentation.pdf.

According to Seneca Resources, it has identified "potential future locations" for shale gas development on DCNR Tract 001 in Potter County and DCNR Tract 595 in Tioga County. Tract 001 is located in Susquehannock State Forest. *See* DCNR, Index to Existing Oil and Gas Leases on Pennsylvania State Forest Lands, p. 1(Last Updated Aug. 26, 2014), *available at* http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_20029754.pdf ("DCNR

Index"). Seneca Resources' lease allows it to clear up to 145 acres and construct 29 well pads on Tract 001. *Id*. To date, Seneca Resources has constructed at least one shale gas well pad. *Id*.

Tract 595 is located in Tioga State Forest. *Id*. at 2. Seneca Resources' lease allows it to construct up to 26 well pads on Tract 595. *Id*. However, Seneca Resources' lease for Tract 595 does not specify an "allowable disturbed acres per lease" term. *Id*. Thus, even though Seneca Resources is limited to 26 well pads on Tract 595, it could disturb much more acreage than is needed because there is no lease term to limit the amount of acreage disturbed. To date, Seneca Resources has constructed at least seven shale gas well pads on Tract 595. *Id*.

Seneca Resources has also identified approximately 70 "potential locations" locations for shale gas development on DCNR Tract 007. Tract 007 is also located in Tioga State Forest. *Id*. at 1. To date, Seneca has constructed two well pads on Tract 007. *See* DCNR, Tract 007 Map (Attachment 5).[4] According to DCNR, Seneca Resources' lease allows it to clear up to 200 acres for 40 well pads on Tract 007. *See* DCNR Index at 1. In other words, Seneca Resources could construct another 38 well pads on Tract 007. It is obvious from looking at Attachment 5 that if Seneca Resources is permitted to construct an additional 38 well pads that this part of Tioga State Forest will become highly fragmented with additional roads, well pads, and associated shale gas development. This will further degrade to the "wild character" of Tioga State Forest and and increase erosion and sedimentation into waterbodies.

Looking at Tracts 001, 007, and 595 cumulatively, Seneca Resources' leases allow it to construct up to 95 shale gas well pads. To date, Seneca Resources has constructed at least 10 shale gas well pads. In other words, Seneca Resources has constructed approximately 11% of

[4] This map was created using DCNR's State Forest Shale Gas Infrastructure Interactive Map, available at http://www.gis.dcnr.state.pa.us/maps/index.html?shaledata=true. The leased area is shaded in blue and shale gas wells are identified as red squares.

the well pads that is permitted by its leases. And the company has made clear that it is awaiting construction of the Atlantic Sunrise Project before it moves beyond "limited development drilling." National Fuel, Investor Presentation, p. 10. Therefore, DEP's approval of Transco's permit applications for the Atlantic Sunrise Project will make it much more likely that Tracts 001, 007, and 595 in Susquehannock and Tioga State Forests will become much more fragmented in the future by Seneca Resources' proposed shale gas development. DEP must address these secondary and cumulative impacts of this potential fragmentation before it issues any permits for the Atlantic Sunrise Project.

The areas in which Seneca Resources and other shale gas companies want to frack for shale gas are among the most remote and beautiful public lands in all of Pennsylvania. For example, Tract 007 is in the Pine Creek watershed, which, according to PAFBC, "truly is a Commonwealth treasure." Pine Creek Fisheries Management Plan, 1. The headwaters of Pine Creek:

> . . . ha[ve] a unique geographical distinction and can be considered the starting point, (triple point) of three major U.S. watersheds. The north side of this triple point is where the Genesee River originates and flows north eventually emptying into Lake Ontario, the Saint Lawrence River and Atlantic Ocean. The western slope of this triple point forms the Allegheny River, flowing into the Ohio River in Pittsburgh; which flows to the Mississippi and the Gulf of Mexico. Pine Creek, which flows south of the triple point, drains into the West Branch of the Susquehanna at Jersey Shore at an elevation of 520 feet. The West Branch flows into the Susquehanna River at Sunbury and eventually empties into the Chesapeake Bay, the largest estuary in the United States.

DCNR-Community Partnership Program, Pine Creek Watershed Rivers Conservation Plan, 48 (Oct. 2005), *available at* http://www.dcnr.state.pa.us/cs/groups/public/documents/document/D_001481.pdf. As explained by the Pennsylvania Fish and Boat Commission ("PAFBC"):

> Carving its way through the mountains of Potter, Tioga, and Lycoming counties, Pine Creek is the second largest tributary (based on watershed size) to the West Branch

> Susquehanna River (Figure 1). The Pine Creek watershed is *resplendent with a bounty of natural resources*. It is *primarily forested and publicly owned* and drains 2,536 sq km (979 sq miles). The free-flowing mainstem of Pine Creek which anchors this *predominantly wild and relatively undeveloped region of northcentral Pennsylvania* is a *special destination for anglers and outdoor recreationists alike and truly is a Commonwealth treasure as evidenced by its 1992 classification as a Scenic River under the Pennsylvania Scenic River Act*.

PAFBC, Pine Creek Fisheries Management Plan, 1 (Mar. 2012) (emphasis added), *available at* http://fishandboat.com/water/creeks/pine/pine-creek-plan.pdf. In the 1970s, Pine Creek was recommended for inclusion in the National Wild and Scenic River System. *Id*. at 4. Unfortunately, the Pennsylvania Department of Environmental Resources (now, the Department of Conservation and Natural Resources ("DCNR")) opposed that designation. *Id*. at 5. DCNR did, however, recommend that "Pine Creek be included in the State Scenic River Program which was made official in 1992." *Id*.

Pine Creek is one of only thirteen rivers designated under Pennsylvania's Scenic Rivers Program. *See* DCNR, Scenic Rivers, *available at* http://www.dcnr.state.pa.us/brc/conservation/rivers/scenicrivers/index.htm. Portions of Pine Creek are designated "scenic" while others are designated "wild." *See* http://www.dcnr.state.pa.us/brc/conservation/rivers/scenicrivers/pinecreek/index.htm (click on "Map 1" and "Map 2" to see designations). "Scenic" rivers include "those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and undeveloped, but accessible in places by roads." 32 P.S. § 820.24(b)(2). "Wild" rivers include "those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted." *Id*. at § 820.24(b)(1).

In addition to being a designated State Scenic River, Pine Creek Gorge, which is just a few miles south of Tract 007, is a National Natural Landmark. *See* National Park Service, Pine Creek Gorge, *available at* http://www.nature.nps.gov/nnl/site.cfm?Site=PICR-PA.

Figure 4: Pine Creek Gorge in Tioga County, Pennsylvania.

Source: Marie Cusick / StateImpact Pennsylvania, *available at* https://stateimpact.npr.org/pennsylvania/2015/07/13/project-would-bring-400000-tons-of-drilling-waste-to-pa-s-grand-canyon/.

These are the landscapes that are threatened by shale gas development and related pipeline construction. In addition to Seneca Resources' leases discussed above, much of the land to the west of Pine Creek Gorge has been leased for gas drilling or is underlain by private mineral rights. *See* DCNR, Tract 1040 Map (Attachment 6).[5] Ultra Resources has leased Tract 1040 for gas drilling. *See* DCNR Index, p. 3. Ultra Resources' lease permits it to disturb up to 500 acres on Tract 1040, a substantial amount of land just to the west of Pine Creek Gorge, a National

[5] This map was created using DCNR's State Forest Shale Gas Infrastructure Interactive Map, which is available at http://www.gis.dcnr.state.pa.us/maps/index.html?shaledata=true. The leased area is shaded in blue and shale gas wells are identified as red squares. Private mineral rights underlie the teal-shaded area.

Natural Landmark. *See id*. According to DCNR, Ultra Resources has constructed two well pads on Tract 1040. *Id*. Thus, approval of Transco's permit applications could not only lead to the construction of more well pads on Tract 007 just to the north of Pine Creek Gorge, but also on Tract 1040, just to the west of Pine Creek Gorge.

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. Approving Transco's permit applications 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 must address these secondary and cumulative impacts before making a decision on Transco's applications.

D. Secondary and cumulative impacts on special-status species.

In addition to wildlife in general, DEP must consider the secondary and cumulative impacts of the Atlantic Sunrise Project, including (but not limited to) gas drilling, 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 duty under to conserve and maintain these species. PA. CONST. Art. I, Sec. 27. Before DEP can issue any permits, it must comprehensively examine the secondary and 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 cannot issue any additional 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 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. DEP must require that Transco investigate the potential using a trenchless crossing method of this wetland.

2. Timber Rattlesnake

DEP must consider the secondary and 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**."[6] *Id*. (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

[6] Considering that shale gas drilling has increased substantially across Pennsylvania since PAFBC's Action Plan for timber rattlesnakes was published in 2011, the population density figures could be outdated.

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 that, however. 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.

DEP has 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*.

In light of PAFBC's statements, it is astonishing that the agency has proposed removing timber rattlesnake from the candidate species list. *See id*. Unfortunately, the proposed rule change does not appear to be grounded in science but rather custom-made to make it easier for the oil and gas industry to destroy timber rattlesnake habitat. For example, PAFBC claims that even though "there are increasing threats to Timber Rattlesnakes through exposure to human disturbance," shale gas well pads "thus far are on the top of slopes and plateaus and do not directly interfere directly with den habitat" and pipelines "can provide important additional basking habitat in areas where canopy closure has posed problems for available basking and

gestating habitat." *Id*. There are at least five major problems with PAFBC's assumptions that DEP must consider as part of its analysis of secondary and cumulative impacts.

First, PAFBC's claims are based on "anecdotal evidence" and "Commission observations," not peer-reviewed research. *Id*. Second, as the Brittingham study noted, shale gas drillers have drilled approximately 10% of the shale wells that could be drilled in Pennsylvania. The fact that existing well pads "thus far" have allegedly not directly interfered with den habitat is no indication that substantial interference will not occur if the remaining 90% of shale gas wells are drilled. It is decidedly premature to delist a species when the "*relatively new* shale gas industry" is "encroach[ing] . . . into Timber Rattlesnake strongholds[.]" *Id*. (emphasis added). Third, PAFBC does not weigh the corresponding risks to timber rattlesnake from road construction, increased heavy-truck traffic, and increased human access into previously remote areas. Even if a new pipeline corridor may provide artificial basking habitat, what does that matter if there is increased road mortality? Fourth, PAFBC admits that "[l]arge portions (estimated 50%) of the Timber Rattlesnake range remain unassessed due to lack of landowner permissions or access difficulty." *Id*. Thus, PAFBC's proposed rule change is based on incomplete data and anecdotal evidence.

Regardless of PAFBC's ill-advised rule change, 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 DEP makes a decision on Transco's applications, it must consider how the Atlantic Sunrise Project and the secondary and cumulative impacts of shale gas development as well as other pipeline projects will impact timber rattlesnake and ensure that this species is conserved and maintained.

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. DEP must require that Transco investigate the potential using a trenchless crossing method for these wetlands.

VII. Conclusion

- DEP should deny Transco's application.

- If DEP does not deny the application, it must condition any permit by requiring Transco to demonstrate that it will comply with 25 Pa. Code § 102.14 with respect to riparian buffers in high quality and exceptional value watersheds. In addition, Transco must protect all wetlands located in the riparian buffer consistent with Chapter 105. 25 Pa. Code § 102.14(c)(2).
- Before making a decision on Transco's applications, DEP must consider the indirect and cumulative effects of related shale gas development. Shale gas development causes similar impacts as pipeline construction – removal of forested vegetation from the construction of roads, well pads, gathering lines and other associated infrastructure. This will cause increased erosion, sedimentation and thermal warming, thereby threatening the water quality of streams and rivers. It will also impact Pennsylvania's public lands. DEP has an obligation to "conserve and maintain" these public resources pursuant to Article I, Section 27 of the Pennsylvania Constitution. If the Atlantic Sunrise Project and related shale gas development threatens the conservation and maintenance of these public resources, then DEP must deny Transco's applications.
- Finally, we respectfully request the opportunity to file additional comments and request that DEP hold a public hearing on Transco's application.

Respectfully submitted,

/s/ Ryan Talbott
Ryan Talbott
Executive Director
Allegheny Defense Project
117 West Wood Lane
Kane, PA 16735
(503) 329-9162
rtalbott@alleghenydefense.org

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