

Enclosure 1 – Narrative Technical Comments
Atlantic Sunrise DEIS

Enclosure 1 includes Narrative Technical Comments on the following topics:

- 1) Purpose and Need
 - 2) Alternatives
 - 3) Geology
 - 4) Streams and Wetlands
 - 5) Vegetation
 - 6) Rare, Threatened and Endangered Species
 - 7) Land Use, Recreation and Public Lands
 - 8) Conservation and Visual
 - 9) Cumulative Impacts
 - 10) Climate Change
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Detailed Technical comments on these and other topics are provided in Enclosure 2.

1) Purpose and Need

EPA is concerned that the need is not part of the calculus in combination with the stated purpose to provide transport ability of 1.7 MMDth/d natural gas. The purpose alone may narrow and limit the range of available alternatives to need a prescribed need. As stated in the above letter, establishing a project need is critical to help determine alternatives that should be studied and the degree to which the proposed action or other alternatives may meet the stated purpose and need. Specific dekatherm capacities are provided, although it is unclear how these units were determined or generated. In the absence of this type of supporting documentation (markets, etc), it is unclear if the stated purpose and need is too narrow thereby limiting the available range of alternatives. We suggest that a broader purpose and need statement be developed which would allow for a broader range of alternatives to be considered in the EIS. For example alternatives which include a lesser diameter pipe, or a different capacity level could meet needs.

The EIS notes that there are precedent agreements for 1.7 MMDth/d of capacity, which are able to be terminated under certain conditions are not met, including regulatory approvals. Additional information on these agreements should be provided, and clarification provided to identify if these agreements are duplicative of other agreements entered into by the applicant for other pipeline projects in this region. Table 1.1 provides the shippers and contract quantities. Information on the receipt points and gas receivers has not been provided, which is essential to understanding the purpose and need of the proposed project.

2) Alternatives

EPA is concerned that there may be alternatives to the applicant's preferred alternative that may meet the project objectives which were not considered in detail in the DEIS. Some alternatives which at the screening level would have similar impact may need to be considered further for detailed study. A higher level of study would allow for complex resources and

project impacts to be fully evaluated and considered. The alternatives analysis should describe alternatives that were dismissed from further study as well as the rationale for their dismissal. Alternative locations for project beginning and end points should also be evaluated.

We believe FERC should consider in greater detail available system alternatives, including PennEast and the Transco system alternative. Based on the limited information provided, it appears that the system alternative has potential to meet the stated purpose and need/objectives of the applicant's preferred alternative and could be a reasonable alternative which should be considered in the DEIS. We encourage FERC to consider this system alternative in greater detail alongside of the proposed project in the EIS. Upon detailed evaluation it is possible that there are environmental advantages or that there are less damaging practicable alternatives to the applicant's preferred alternative.

The Transco system alternative included several of the same components as the applicant's proposal (the Unity and Chapman loops, portions of CPL North, compression at CS 517 and 520, and pipe replacement) as well as additional compression and 10 pipeline loops. The Transco system Alternative would be co-located for about 91% of its length. The total amount of compression estimated for this system alternative would be 183,000hp, which is approximately a 25% increase above the compression for the preferred alternative. It is concluded that the Transco system alternative has environmental disadvantages that outweigh the environmental advantages and is not considered to be preferable to the proposed project. It may be beneficial to note that these estimates have not included efforts to avoid and minimize adverse impacts, as was done for the preferred alternative, which could identify additional potential to reduce adverse impacts of the system alternative. Table 3.2.3-1 shows that the Transco system alternative has greater mileage and construction ROW than the preferred alternative; a more detailed analysis could reveal that the collocated project minimizes impacts. It appears that the system alternative has potential to meet the stated purpose and need/objectives of the applicant's preferred alternative. We encourage FERC to consider this system alternative in greater detail alongside of the proposed project in the EIS. Upon detailed evaluation it is possible that there are environmental advantages or that there are less damaging practicable alternatives. EPA is uncomfortable dismissing this alternative without additional information.

An expanded PennEast Project was briefly discussed in Section 3.2.2. The expanded PennEast Project would requiring 80 additional miles of pipeline to the currently proposed PennEast Project, which is 111 miles and would also connect to the Transco Pipeline. As the Atlantic Sunrise pipeline is 198 miles long, if the expanded PennEast project moved forward and Atlantic Sunrise did not, it appears that PennEast would result in approximately the same mileage as Atlantic Sunrise. It is not clear why this alternative has been dismissed as it appears to have the potential to eliminate the construction and operation of 110+ miles. Considering an expanded PennEast route may have the potential to meet the project purpose and need as well as potentially reduce adverse impacts. EPA recommends FERC consider this system alternative in further detail.

We recommend that an alternatives analysis for above-ground facilities, including all compressor stations, be conducted and included in the EIS to potentially minimize impacts to forest and FIDS habitat, aquatic resources, RTE species and air quality. Alternate locations for

compressor stations beyond those included in the proposed action should be considered and included in the EIS. Rationales for why alternative sites were dismissed from further consideration should also be included. Additional detail on the siting criteria used should also be provided. Further comments on alternatives, including system alternatives, major route alternatives and aboveground facility alternatives can be found in Enclosure 2.

3) Geology

Challenging geologic conditions are likely to be encountered during project construction. Steep slopes (15% or greater) or side slopes cross or comprise about 58.1 miles of the proposed route. The EIS notes that there is significant karst topography along portions of Atlantic Sunrise, with approximately 28 miles of CPL South crossing karst topography and one HDD location proposed in karst areas. Sinkholes, subsidence and caves are also noted as common. Rock removal is anticipated as 138 miles (about 70%) of PA pipeline facilities will encounter shallow bedrock. Of these, about 120 miles potentially could require blasting and could require blasting in 55 streams. Twenty-two mine pool drainages were identified close proximity to the workspace; twelve of these are within the workspace.

Blasting, in combination with steep slopes, karst topography, Abandoned Mine Land (AML) and mine pools, has the potential to result in adverse impacts that were not considered or fully evaluated in the EIS. We recommend that the EIS describe the nature, extent, frequency of potential blasting impacts water wells, springs, wetlands, nearby aboveground facilities, and adjacent pipelines and utility lines. It is unclear if there are resources of special concern that may be impacted by blasting, as it does not appear that detailed analysis was conducted. Changes to geology resulting from blasting may directly and indirectly affect wildlife and local residents, which should also be considered within the scope of the EIS. The potential effects of these geologic hazards, including AML related subsidence, landslides and flash flooding, on pipeline construction and operation should also be evaluated. We recommend that impacts, especially in high risk areas, be evaluated specific to this project. Further avoidance and minimization of impacts to effected lands might be appropriate; contingencies should be made clear in the NEPA analysis. Further comments on geology can be found in Enclosure 2.

4) Streams and Wetlands

Avoidance and minimization of adverse impacts to wetlands and streams have been detailed in the Section 404 public notice (PN). The DEIS did not include the same level of detail as the PN, therefore the DEIS should clearly describe the avoidance and minimization efforts are being incorporated into the project design and construction. For analysis in the EIS avoidance and minimization measures not only apply to direct impacts, such as the discharge of fill material or crossings, but also indirect impacts (e.g. potential increased downstream sedimentation), as well as by the proposed water withdrawal. Water withdrawal can affect recreational and biological uses, stream flow, and result in impacts to stream and wetland habitat. EPA recommends that FERC conduct further detailed analysis of specific streams and wetlands of concern or high sensitivity and work with the resource agencies to determine if additional avoidance and minimization efforts may be necessary to reduce impacts to these important resources.

Page 4-101 states that a detailed site-specific blasting plan will be prepared for each location requiring blasting in or near a stream. We suggest that these plans be approved by both FERC and the USACE, and if appropriate, other regulatory agencies, in advance of blasting. Site specific plans should identify special resource considerations during blasting to determine if a pre-blasting, and post blasting monitoring plan is appropriate, including the need for secondary impacts including effects to stream base flow. A map with the waterbody locations that may require blasting, including karst topography, wetlands and water withdrawal locations should be include.

At this time the entire proposed project corridor has not been surveyed. Remote sensing of wetlands was used for areas that were not surveyed in the field. It is stated that about 29% of the surface waters were identified via remote sensing. Please clarify how much of the proposed project was field surveyed. EPA recommends that these surveys be completed and verified prior to the issuance of a CWA Section 404 permit or the FERC certificate. The applicant should use an appropriate functional assessment to evaluate the impacts, both temporary and secondary, to the aquatic ecosystem. Using an appropriate assessment will ensure that functions and values are accounted for in the impact assessment and that the proposed compensation plan is adequate to offset the loss, including temporary loss, of aquatic resource functions. Without completed surveys and a functional assessment of the aquatic resources, it is unclear if sufficient wetland and stream information has been collected to support informed decision-making.

Transco is proposing off-site permittee-responsible compensatory mitigation for palustrine forested wetlands disturbed by construction and operation of the Project. The DEIS indicates an impact ratio of 2:1 is proposed for palustrine forested conversions and exceptional value palustrine forested wetlands would be mitigated at a ratio of 2.5:1. Additional conceptual mitigation information was provided in the PN which was not incorporated into the EIS. A detailed compensatory mitigation plan (CMP) has not been included as part of the EIS or the PN. EPA requests an opportunity to review and comment on the CMP. We suggest that additional detailed information included in the PN be incorporated in the EIS. It is unknown if the proposed mitigation to address the conversion and temporal loss of wetlands and aquatic resources will be adequate. Information is not provided on how the success of these proposed mitigation sites will be determined. The CMP should include appropriate success criteria as well as a monitoring plan of the converted wetlands to assure that they remain waters. FERC may wish to consider whether additional mitigation to address impacts to aquatic resources beyond the CWA Section 404 context may be appropriate.

5) Vegetation

Transco determined it would cross 45 interior forests along CPL North and South and Chapman Loop would affect 270.4 acres of interior forest habitat during construction. About 118.9 acres of the affected interior forest would be permanently eliminated and converted to forest edge habitat due to Transco's maintenance of the right-of-way during operation of the pipeline facilities. Approximately 28% of the forests impacted during construction are interior forests. Newly created edge habitats would be established by maintenance of the permanent right-of-way, and the indirect impacts could extend for 300 feet on each side (600 feet total) of

the new corridor into the remaining interior forest blocks. Transco calculated indirect impacts as a measurement of the acreage 30 feet laterally from the edges of the construction workspaces into interior forests. The Project would indirectly affect 1,993.8 acres of interior forest in this manner. It is unclear how this method of calculating indirect impacts to interior forest was determined. Although the EIS states that indirect impacts could extend 300 feet, a distance of only 30 feet was selected. EPA is concerned that the indirect impacts to interior forests may have been underestimated.

The EIS should consider any state specific vegetation/tree laws and requirements as well as any state specific definitions of interior forest. For example, interior forests that are habitat for forest interior dwelling species are protected under the Maryland Critical Area law, which defines forest tracts which are greater than 50 acres in size. Maryland defines interior forest habitat as forest greater than 300 feet from the nearest forest edge. How would using this definition compare with the method used in the EIS?

6) Rare, Threatened and Endangered Species

Several surveys were incomplete and survey reports for RTE species were not available for the DEIS, including Indiana bat and the Alleghany wood rat. However, in some cases, FERC has recommended that this information be filed prior to the end of the DEIS comment period. We further recommend that this report and all associated data be reviewed and incorporated as appropriate into the Final EIS. It is not clear what specific avoidance and minimization efforts or route and construction changes have been incorporated with regard to RTE species, including the Indiana bat and northern long-eared bat. Please update the status of consultation with US FWS, and include all correspondence relating to ESA requirements in the EIS. If any avoidance and minimization measures are committed to, please be sure to capture those in the Record of Decision. The EIS doesn't conclude whether impacts to RTE species will be significant.

Bog turtles are present, however not all areas have been surveyed, partially due to access restrictions. It appears that some surveys would be completed in 2016. The phase 2/3 report has not been submitted for FWS/FERC review. The DEIS states that Bog turtles are not using the portion of the wetland that will be impacted by the project. What avoidance and minimization measures were taken in order to reduce the potential impact to wetland habitat being used by the bog turtle? Are any ATWS or ROW width being requested for this particular wetland? It is not clear how the conclusion that the project may affect, but not likely to adversely affect the bog turtle was reached.

EPA is concerned that as a result of the many incomplete surveys, there may not be sufficient information for FERC to make a fully informed decision as to the projects effect on RTE species. It is unclear if this information will be available prior to FERCs decision and how survey information once available will be reviewed and incorporated into the decision-making process. Information on the potential impact to RTE species, including the Indiana bat, northern long-eared bat, bog turtle and Alleghany wood rat, should be available to the public, other stakeholders and regulatory agencies for consideration and comment during the NEPA process. This information should be considered, in consultation with FWS and other agencies, and factored into any decisions made by FERC on this project.

7) Land use, Recreation and Public lands

The Project would cross a total of 4.0 miles of state game land (SGL) and forest, and would temporarily affect 80.9 acres of SGL and forestland. In four of the five areas, the pipeline route would follow three existing pipelines and one existing electric transmission line rights-of-way; the new permanent right-of-way would abut the existing rights-of-way in these areas. The project would also cross the Appalachian Trail within SGL 211. Ricketts Glen State Park would be crossed in two locations by the proposed project; this entire length will be collocated with Transco's existing Leidy Line system, resulting in an additional 1.7 acres to be maintained as permanent ROW adjacent to the existing ROW. The Glens Natural Area, a National Natural Landmark, is located 0.4 miles from the proposed route.

Limited discussion of impacts and concerns from PGC and DCNR have been included, although it appears that concern has been voiced regarding the affected state game lands (SGL) and Sproul State Forest. It does not appear that any avoidance and minimization has been considered. Clarify if any of the potential blasting areas are within this pipeline segment. EPA is concerned that pipeline construction may alter ground or surface water flow conditions, which may impact the park resources. It is unclear that appropriate compensatory mitigation has been developed for impacts occurring on these lands. Site specific crossing plans are not available for Ricketts Glen, SGL 206, and others. Please update this information and consider the potential impacts from crossings in the EIS.

8) Conservation and Visual

The proposed action would cross several lands that are part of conservation programs. An unknown amount of lands are enrolled in the CRP and CREP programs which are in the process of being identified. Page 4-153 makes the conclusion that construction across herbaceous CRP and CREP lands will not negatively affect enrollment and that forested lands on the permanent ROW would be permanently effected. Unknown restoration measures would be implemented to ensure that properties remain eligible. It is unclear how many lands enrolled in these programs will be affected, if herbaceous lands within the permanent ROW will remain eligible, and what restoration measures are being proposed. We recommend considering all of this information prior to making the determination that impacts on these conserved lands will not be significantly impacted.

9) Cumulative Impacts

EPA is concerned that the temporal and geographic scope of the study is narrow, which has led to a limited analysis of cumulative impacts. Defining the geographic and temporal framework is the starting point of a cumulative impacts analysis. Establishing appropriate spatial and temporal boundaries is at the very core of the study, the selection of inappropriate boundaries leads to subsequent fundamentally flawed analysis and documentation. It is critical to assess past and future impacts. We suggest defining the geographic and temporal scope (or the region of influence) of the analysis early in cumulative impact section, which can vary depending on the resource being evaluated. For example it appears that 0.5 miles for minor

actions, 10 miles for major actions (including gas wells), within watersheds for major actions that would be crossed by the Project, and within the AQCR crossed by the project for actions with potential to result in longer-term impacts on air quality (for example, natural gas pipeline compressor stations).

Some of the resources included in the cumulative impact analysis appears to only consider impacts that occur during construction of Atlantic Sunrise as the temporal boundary and within the project footprint as the geographic boundary. However, cumulative impacts can occur to resources even if impacts do not occur concurrently. Though construction impacts can be short-termed, there are likely prolonged impacts for instance associated with forest fragmentation, invasive species, etc. Even projects that do not overlap geographically can contribute to cumulative impacts to streams, wetlands, forests, habitat, and other resources. We recommend FERC consider expanding the cumulative impact study beyond what is currently considered in the DEIS. Cumulative impacts temporal boundaries are often set a few decades into past and future to include appropriate trend and facility life expectancy. It is typical to use a baseline time frame of 30 to 50 years past, prior to sprawl and extensive highway networks. It is important to analyze the trends in resources, to identify if there have been repeated impacts or degradation of the resources. A thorough analysis of impacts could help guide the selection or placement of appropriate mitigation for Atlantic Sunrise impacts or highlight areas where additional avoidance and minimization may be warranted. EPA would be interested in discussing the selection of a more appropriate and inclusive boundary with FERC.

EPA is concerned about cumulative impacts to aquatic resources, groundwater, and water quality. We recommend that the cumulative impact analysis of surface and groundwater be expanded, including cumulative impacts to water quality, headwater streams, high quality and/or sensitive aquatic resources. Aquatic resources have the potential to be cumulatively impacted by many factors, including waterbody crossings, change in recharge patterns, clearing, blasting, and water withdraws for hydrostatic testing. It may be prudent to consider these impacts in combination with other past, present and reasonably foreseeable actions at the watershed scale.

The cumulative impact analysis of the DEIS considered natural gas wells, gathering lines, and other FERC jurisdictional and non-jurisdiction projects. It was estimated that 1,135 gas wells were permitted in Pennsylvania counties within 10 miles of the project between 2011 and 2015. The DEIS assumes the same rate of permit issuance, which is approximately 260 per year, and projects that between 700 and 800 new wells could be drilled by the time the Atlantic Sunrise Project is scheduled to be completed. Please include the rationale for selecting this timeframe and distance. EPA appreciates that efforts were made to include a more comprehensive cumulative effects analysis of past, present and reasonably foreseeable natural gas related actions.

EPA is concerned by the potential cumulative impact which could result from the preferred alternative, Marcellus Shale development, and other FERC-regulated and non-jurisdictional actions. The DEIS estimated about 340 gas wells will be needed to supply the Atlantic Sunrise Project, using median production rates for wells. It also noted that production over time goes down, so more wells would likely be necessary to maintain supply. Most wells are located in Susquehanna and Wyoming Counties. There are many of the other natural gas transmission

projects which cross or are nearby to the proposed action. The DEIS concludes that in areas of rapid development like Susquehanna County moderate cumulative impacts on vegetation and wildlife would occur. In areas like Susquehanna County which have the potential for cumulative impacts occur, EPA recommends that a more detailed cumulative impact analysis in this area be conducted. A more detailed consideration of cumulative impacts may include a more detailed breakdown of past, present, and reasonably foreseeable actions, consideration of additional avoidance and minimization efforts, as well as looking for additional opportunities to collocate. Presenting the collocation rate by county or watershed may be a useful way to begin considering avoidance and minimization efforts in areas with cumulative impact potential.

The cumulative impact analysis relies on possible state and federal measures, restrictions and requirements for other past, present and reasonably foreseeable actions to minimize the potential for long-term resource losses, such as for fisheries, aquatic resources, RTE, and land use. The EIS also relies on the Atlantic Sunrise ECP and Plans and Procedures to minimize and mitigate for resource-specific cumulative impacts. We recommend that the cumulative impact analysis consider potential cumulative impacts regardless of the various prepared or required plans to be implemented by the project or other actions, or permits or regulatory thresholds. While it may be appropriate to recognize or consider the relation to these, please keep in mind that this is not sufficient to determine potential effects of past, current and reasonably foreseeable future activities to resources or if/ how project impacts can be mitigated.

10) Climate Change

The climate change section is within the cumulative impact portion of the EIS, which concludes that the project would not significantly contribute to GHG cumulative effects or climate change. EPA is concerned that this conclusion is not well supported and that the discussion presented could be improved by considering in further detail the potential impacts of the project contributing to climate change as well as the potential impact of climate change on the proposed action.

The EIS describes and compares the magnitude of Pennsylvania statewide GHG emissions, concluding that the project would have minor emissions when compared to the PA GHG emission inventory (less than 0.1 percent of the 2005 PA total). We do not recommend comparing project level GHG emissions to total state or U.S. emissions because these comparisons obscure rather than explain how to consider GHG emissions under NEPA and do not provide meaningful information for a project level analysis. We recommend using estimated direct and indirect GHG emissions levels as a general proxy to compare emissions levels from the proposal, alternatives, and potential mitigation.

The DEIS does not contain estimates of methane leakage during operation of the proposal. We recommend that FERC estimate expected GHG emissions from leakage and consider potential BMPs to reduce leakage of methane associated with operation of the expansion facilities. EPA has compiled useful information on technologies and practices that can help reduce methane emissions from natural gas systems, including specific information regarding emission reduction options for natural gas transmission operations. This information may be found at <http://www3.epa.gov/gasstar/methaneemissions/index.html>.

The discussion on climate change in the DEIS generally states what constitutes climate change, summarizes the IPCC and USGCRP and some of their associated findings and reports. Some general observations of environmental impacts to the northeast region were described. The EIS should describe potential changes to the affected environment that may result from climate change. Including future climate scenarios in the EIS would help decision makers and the public consider whether the environmental impacts of the alternatives would be exacerbated by climate change. If impacts may be exacerbated by climate change, additional mitigation measures may be warranted.

The EIS further states that other major projects considered in the cumulative impact analysis would have air permits and that these permits would minimize GHG emissions in accordance with air permitting requirements. Although not specifically mentioned in Section 4.13.8.10 Climate Change, other activities such as development and production of natural gas were included in the cumulative impact analysis and could be better represented in the discussion of climate change. We recommend the EIS also estimate GHG emissions from the development and production of natural gas being transported through the proposed pipeline, as well as estimate the GHG emissions associated with the end use of the gas due to the reasonably close causal relationship of this activity to the project. In Section 4.13.8.10, FERC states that “Natural gas is a lower CO₂ emitting fuel when compared to other fuel sources.” While combustion of natural gas results in lower amounts of GHG emissions than combustion of coal or fuel oil, lower relative levels of impacts do not exempt consideration of the indirect impacts of the proposal and measures to avoid, reduce, or compensate for those effects. Section 4.13.3.1 Wells estimates the number of wells permitted within 10 miles of the project, the rate that new wells could be added, and the number of wells required to provide quantities of gas to supply the project. We recommend that the GHG emissions be estimated the wells, gathering systems, and other natural gas pipeline projects that are included in the cumulative impact analysis.

EPA has recommended that FERC consider additional alternatives beyond the applicant’s preferred alternative. Should additional alternatives be retained for detailed study, we recommend that the EIS estimate the GHG emissions potentially caused by these alternatives. These emissions levels can serve as a basis for comparison of the alternatives with respect to GHG impacts. There are a considerable resources, tools and methodologies to estimate project contribution to climate change. We strongly recommend that these be utilized in the EIS. Example tools for estimating and quantifying GHG emissions can be found on CEQ’s NEPA.gov website.[1]

Climate adaptation measures based on how future climate scenarios may impact the project in the EIS should be considered. The National Climate Assessment (NCA), released by the U.S. Global Change Resource Program, contains scenarios for regions and sectors, including energy and transportation. Use of NCA or other peer reviewed climate scenarios can inform alternatives analysis and possible changes to the proposal which may improve resilience and preparedness for climate change.