



PennEast Pipeline Company, LLC

PENNEAST PIPELINE PROJECT

**APPENDIX L-3F
CUMULATIVE IMPACTS ANALYSIS
LUZERNE COUNTY**

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Submitted by:

PennEast Pipeline Company, LLC



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Acronym List

ABACT	Antidegradation Best Available Combination of Technologies
ATWS	Additional Temporary Workspace
BMP	best management practices
CIA	Cumulative Impacts Assessment
CIAA	Cumulative Impacts Assessment Area
CHP	Combined Heat and Power
EA	Environmental Assessment
eFACTS	Environment, Facility, Application, Compliance Tracking System
E&S	Erosion and Sediment
E&SCP	Erosion and Sediment Control Plan
EV	Exceptional Value
FERC	Federal Energy Regulatory Commission
HDD	horizontal directional drill
HQ	High-Quality
JPA	Joint Permit Application
kV	Kilovolt
LF	linear feet
LNG	Liquefied Natural Gas
MMcfd	Million Cubic Feet per Day
MMDth/d	Million Dekatherms per Day
MP	milepost
Pa. Code	Pennsylvania Code
Pa.C.S.	Pennsylvania Consolidated Statutes
PADEP	Pennsylvania Department of Environmental Protection
PEDA	Pennsylvania Energy Development Authority
PEM	palustrine emergent
PennDOT	Pennsylvania Department of Transportation
PennEast	PennEast Pipeline Company, LLC
PFO	palustrine forested
Project	PennEast Pipeline Project
PSS	palustrine scrub-shrub
ROW	right-of-way
T&E	Threatened and Endangered
Transco	Transcontinental Gas Pipeline Company, LLC
U.S.C.A.	United States Code Annotated
WQS	Water Quality Standard

1.0 Introduction

PennEast Pipeline Company, LLC (PennEast) proposes to construct, install and operate an approximate 115-mile pipeline (Project or PennEast) extending from Luzerne County, Pennsylvania, to Mercer County, New Jersey. Approximately 77.5 miles of the pipeline is located in Pennsylvania, with approximately 23 miles in Luzerne County, approximately 28 miles in Carbon County, approximately 1 mile in Monroe County, approximately 24 miles in Northampton, and approximately 2 miles in Bucks County. The Project facilities include a 36-inch diameter pipeline to provide approximately 1.1 million dekatherms per day (MMDth/d) of year-round transportation services from northern Pennsylvania to markets in New Jersey, eastern and southeastern Pennsylvania and surrounding states. The 24-inch diameter Hellertown Lateral will be an approximately 2.1-mile new pipeline in Northampton County, Pennsylvania. The 4-inch diameter Blue Mountain Interconnect Lateral will be an approximately 0.5 mile new pipeline in Carbon County, Pennsylvania.

To minimize impacts, PennEast has co-located the construction right-of-way (ROW) adjacent to or in proximity to existing ROWs to the greatest extent practicable (e.g., gas pipeline, electrical transmission line or product pipeline). Approximately 30.7 miles (approximately 38 percent) of new ROW located in Pennsylvania will be co-located with existing utility corridors, including 50 percent (11.4 miles) of the Project in Luzerne County, 56 percent (15.9 miles) of the Project in Carbon County, 100 percent (1 mile) of the Project in Monroe County, and 9 percent (2.4 miles) of the Project in Northampton.

An Alternatives Analysis of the proposed Project was prepared during planning, pipeline routing, and aboveground facility siting; a county-specific Alternatives Analysis is provided in JPA Section S. PennEast sited the ROW to avoid and minimize impacts to wetlands and watercourses to the extent practicable for the entire Project. However, because this is a linear project, complete avoidance of all wetlands and watercourses was not possible or practicable. The Project will result in 208 watercourse and/or floodway crossings and 181 wetland crossings in Pennsylvania.

The Project will result in temporary and permanent wetland and watercourse impacts. The majority of impacts are temporary. Wetlands and watercourses will either be temporarily impacted using conventional trenching techniques, where pre-construction contours and hydrology will be restored after the pipeline is constructed, or surface impacts will be avoided by installing the pipe using trenchless crossing techniques such as horizontal directional drilling (HDD) or boring. Although the majority of impacts are temporary, there will be some permanent impacts. The Project will permanently impact approximately 7.097 acres of wetland associated with the permanent conversion of palustrine forested (PFO) and palustrine scrub-shrub (PSS) cover types to palustrine emergent (PEM) and PSS wetlands. The PFO and PSS wetland cover type conversion will result in some functional loss, but impacts will be offset through the enhancement of three offsite compensatory mitigation sites, described in the Compensatory Mitigation Plan in JPA Section L-4B. As presented in JPA Section L (Environmental Assessment [EA]) and JPA Section S (Alternatives Analysis), with implementation and proper installation and maintenance of the Project's best management practices (BMPs), pre-construction wetland function and values within temporarily impacted wetlands will be restored, and impacts to wetlands and watercourses will be minor and mostly temporary, and result in no more than minimal individual and cumulative adverse environmental effects. In addition to the permanent conversion of PFO and PSS to PEM wetlands within the 30-foot wide maintained ROW, the Project will also result in permanent impacts to PEM wetlands, PFO mosaic wetlands, and three watercourses. Approximately 0.036 acres of PEM wetlands and 0.024 acres of PFO wetland mosaic will be filled to construct and operate the Kidder Compressor Station in

Carbon County. The Project would also result in permanent watercourse impacts associated with the installation of three culverts. Two culverts along existing access roads will be replaced in-kind, and one new culvert will be installed for access to the proposed Kidder Compressor Station.

PennEast submitted Chapter 105 Water Obstruction & Encroachment Joint Permit Applications to the Pennsylvania Department of Environmental Protection (PADEP) in February 2016 requesting permits to construct and maintain various water obstructions and encroachments associated with the Project, including crossings of wetlands and interrelated wetland areas (inclusive of adjacent watercourses). In compliance with PADEP's regulations, PennEast has assessed the potential cumulative impacts associated with Project crossings of wetlands and interrelated wetland areas.

This cumulative impacts assessment (CIA) has been prepared to comply with the requirements of 25 Pennsylvania Code (Pa. Code) Section (§) 105.14(b)(14) and 105.15 and the PADEP's technical guidance document entitled *Comprehensive Environmental Assessment of Proposed Project Impacts for Chapter 105 Water Obstruction and Encroachment Permit Applications Technical Guidance Number 310-2137-006* ("PADEP's technical guidance") to evaluate the cumulative impact of the Project and other potential or existing projects, and if numerous piecemeal changes may result in a major impairment of the wetland resources, in consideration of interrelated wetland areas, affected by the Project. This CIA also has been prepared to comply with the requirements of § 105.18a(a)(6) and 105.18a(b)(6) to evaluate if the effect of the Project when considered in combination with the impacts of other potential or existing projects, including consideration of interrelated wetland areas (inclusive of adjacent watercourses), may result in the impairment of the Commonwealth's exceptional value (EV) wetland resources or a major impairment of the Commonwealth's other wetland resources, respectively.

This CIA addresses the cumulative impact of the Project, and other potential or existing projects within the Cumulative Impact Assessment Area (CIAA) of the Project (see Section 2.5 for a discussion of the CIAA). As part of this analysis, the wetland impacts presented in the Chapter 105 applications related to this Project and other projects have been evaluated to determine if the impacts may result in the impairment of the Commonwealth's EV wetland resources or a major impairment of the Commonwealth's other wetland resources.

The methodology for preparing this CIA is discussed in Section 2.0. Section 3.0 describes the cumulative actions included in this assessment. Section 4.0 summarizes the cumulative impacts for this Project and other potential or existing projects within the CIAA. Information on the Project impacts to wetlands and interrelated wetland areas (inclusive of adjacent watercourses) is included in Section 4.1 and other projects impacts within the CIAA are described in Section 4.2.

2.0 Methodology

In accordance with Section 5a and 5b of the PADEP's technical guidance, PennEast used due diligence for identifying and considering other existing and potential projects permanently impacting each wetland resource including:

- a. Other Existing Permanent Project Impacts – Existing permanent wetland impacts in, along, across or projecting into the wetland resource.
- b. Other Potential Projects Proposing Permanent Impacts – Future anticipated permanent wetland impacts in, and along, across or projecting into the wetland resource including:

- (i) Proposed but not yet built permanent wetland impacts proposed by the applicant; or
- (ii) Other permanent wetland impacts proposed by other entities within the wetland resource currently under review by the PADEP; and
- (iii) Other permanent wetland impacts from projects proposed by other entities authorized by valid PADEP Chapter 105 Water Obstruction and Encroachment Permits (issued in the last five years; i.e., not expired), but not constructed.

As indicated in PADEP’s technical guidance, where a temporary wetland impact is proposed to be properly restored, the applicant does not need to identify the temporary impact as an adverse cumulative impact on the wetland resource. Therefore, temporary impacts and their restoration measures have been discussed as provided in EA Modules 3 and 4 (JPA Sections L-3 and L-4, respectively), but those temporary impacts are not considered an adverse cumulative impact and have not been discussed within this CIA.

In addition, other project actions greater than five years in the past (i.e., projects where construction occurred greater than 5 years from the date of filing administratively complete Joint Permit Application (JPA) – projects have been constructed and placed in service more than the last five years) are considered to be contributing to the existing environmental conditions, and those impacts have not been included in the CIA. Therefore, only other potential or existing projects located within the CIAA and which have occurred within the last five years were evaluated as part of the CIA.

In order to identify existing and other potential proposed projects in the area that may contribute to cumulative impacts to past, existing and future anticipated permanent wetland and watercourse impacts, PennEast reviewed the PADEP’s *Pennsylvania Bulletin* for Chapter 105 and other land development permit applications and permits, reviewed Pennsylvania’s Environment Facility Application Compliance Tracking System (eFACTS), conducted file reviews of projects at PADEP’s regional office, and consulted with municipalities and county planning agencies. The cumulative impacts assessment is also based on information about projects obtained from resources such as planning commissions and county and municipal departments, available transportation improvement plans, meeting minutes and communications with county staff, input provided at Federal Energy Regulatory Agency (FERC) Project Open Houses, and industry sources.

2.1 Wetland Definitions

As defined in 25 Pa. Code § 105.1, wetlands are areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs and similar areas.

As defined in 25 Pa. Code § 105.17, wetlands are categorized as either *Exceptional Value (EV) Wetlands* or *Other Wetlands*. EV wetlands are wetlands that exhibit one or more of the following characteristics:

- i. Wetlands which serve as habitat for fauna or flora listed as “threatened” or “endangered” under the Endangered Species Act of 1973 (7 U.S.C.A. § 136; 16 U.S.C.A. § 4601-9, 460k-1, 668dd, 715i, 715a, 1362, 1371, 1372, 1402 and 1531—1543), the Wild Resource Conservation Act (32

- P. S. § 5301—5314), 30 Pa.C.S. (relating to the Fish and Boat Code) or 34 Pa.C.S. (relating to the Game and Wildlife Code).
- ii. Wetlands that are hydrologically connected to or located within 1/2-mile of wetlands identified under subparagraph (i) and that maintain the habitat of the threatened or endangered species within the wetland identified under subparagraph (i).
 - iii. Wetlands that are located in or along the floodplain of the reach of a wild trout watercourse or waters listed as exceptional value under Chapter 93 (relating to water quality standards [WQS]) and the floodplain of watercourses tributary thereto, or wetlands within the corridor of a watercourse or body of water that has been designated as a National wild or scenic river in accordance with the Wild and Scenic Rivers Act of 1968 (16 U.S.C.A. § § 1271—1287) or designated as wild or scenic under the Pennsylvania Scenic Rivers Act (32 P. S. § § 820.21—820.29).
 - iv. Wetlands located along an existing public or private drinking water supply, including both surface water and groundwater sources, that maintain the quality or quantity of the drinking water supply.
 - v. Wetlands located in areas designated by PADEP as “natural” or “wild” areas within state forest or park lands, wetlands located in areas designated as federal wilderness areas under the Wilderness Act (16 U.S.C.A. § § 1131—1136) or the Federal Eastern Wilderness Act of 1975 (16 U.S.C.A. § 1132) or wetlands located in areas designated as national natural landmarks by the Secretary of the Interior under the Historic Sites Act of 1935 (16 U.S.C.A. § § 461—467).

Other wetlands are defined as wetlands that are not categorized as EV wetlands.

2.2 Wetland Functions

Wetland functions that have been analyzed are defined within 25 Pa. Code § 105.1 and include the following:

- Serving natural biological functions, including food chain production; general habitat; and nesting, spawning, rearing and resting sites for aquatic or land species.
- Providing areas for study of the environment or as sanctuaries or refuges.
- Maintaining natural drainage characteristics, sedimentation patterns, salinity distribution, flushing characteristics, natural water filtration processes, current patterns or other environmental characteristics.
- Shielding other areas from wave action, erosion or storm damage.
- Serving as a storage area for storm and flood waters.
- Providing a groundwater discharge area that maintains minimum base flows.
- Serving as a prime natural recharge area where surface water and groundwater are directly interconnected.
- Preventing pollution.
- Providing recreation.

2.3 Interrelated Wetland Areas

Permanent impacts resulting from the Project and other ongoing and future projects in the vicinity of the Project, when considered cumulatively, could result in potentially greater cumulative impacts to specific

wetlands and the interrelated wetland area, which includes adjacent watercourses. This CIA considers impacts to wetlands based on the previously-listed functions. In addition, as a conservative approach, an analysis of watercourses crossed by the Project and other ongoing and future projects in the vicinity of the Project has been included within this CIA to address the interrelated wetland areas, regardless of whether watercourses are adjacent to affected wetlands.

2.4 Impairment and Major Impairment

The terms “impairment” and “major impairment” are not defined in Chapter 105; however, because wetlands are subject to PADEP’s antidegradation requirements set forth at 25 Pa. Code § Chapter 93, PADEP must protect the level of water quality necessary to protect the current uses pursuant to 25 Pa. Code § 93.4a(b).1. In addition, any wetlands that are impaired must be replaced in accordance with 25 Pa. Code § 105.20a, as pursuant to 25 Pa. Code § 105.18a(b)(7). For the purposes of this assessment, “impairment” and “major impairment” are defined as the long-term loss of water quality necessary to protect the current uses where replacement of those impaired wetlands cannot be attained.

2.5 Cumulative Impact Assessment Area

Pursuant to the requirements of 25 Pa. Code § 105.14(b)(14), 105.15, 105.18a(a)(6), and 105.18a(b)(6) and PADEP’s technical guidance, the CIAA for this analysis includes the ROW utilized by the Project that is the subject of this CIA, and any permanent wetland or watercourse impacts in, along, across or projecting into the wetland resource from the Project or other existing and other potential projects. Additionally, consideration of impacts to wetlands and interrelated wetland areas (inclusive of adjacent watercourses) included the use of detailed in-field data located within the 400-foot wide survey corridor of analysis for the Project. As indicated in PADEP’s technical guidance, where a temporary wetland impact is proposed to be properly restored, that temporary impact has not been identified as an adverse cumulative impact on the wetland resource.

3.0 Cumulative Actions

Pursuant to the requirements of 25 Pa. Code § 105.14(b)(14), 105.15, 105.18a(a)(6), and 105.18a(b)(6) and PADEP’s technical guidance, the evaluation focused on this Project and other potential or existing projects within the CIAA. PennEast has identified other projects that could potentially contribute to cumulative impacts when considered with the proposed Project. These include natural gas development projects (natural gas wells, pipeline gathering systems, and interstate pipelines); electric generation and transmission projects; transportation projects; and residential, commercial and industrial development projects.

Based on the methodology described above, a total of seventeen other project actions were identified as other potential or existing other projects to be considered in the CIA for the Project. Nine of these other project actions were identified within the CIAA in Luzerne County. Table LU-L-3F-1 provides a brief description of these actions, identifies the locations of the actions relative to the Project and county-specific location, and characterizes the timeframe for these actions (e.g., past, present and future). The figure in Appendix LU-L-3F-1 shows the location of these potential or existing projects within the CIAA.

Table LU-L-3F-1
Projects Evaluated for Potential Cumulative Impacts in Luzerne County

Project ^a	Proposed Activities	Location	Project Status (Past, Present, Future) ^b
Natural Gas Projects			
MARC II Pipeline	20-mile natural gas pipeline with 1.0 Bcf/d connecting to the proposed PennEast pipeline, providing a new interconnection to Transco’s Leidy Line and Transco’s Atlantic Sunrise expansion project	Luzerne County, PA	Future
Auburn Line Extension (Auburn and Leidy Interconnects)	27.4-mile, 20-inch diameter pipeline and compressor station capable of delivering approximately 200,000 Dth/d	Luzerne County, PA	Past
Transco “Leidy A” Recoating/ Maintenance	Installation of temporary access to the existing “Leidy A” natural gas pipeline for the purpose of recoating and maintenance	Luzerne County, PA	Past
Electrical Transmission Projects			
Susquehanna-Roseland Project	500 kV transmission line that runs 101-miles in PA	Luzerne County, PA	Past
Northeast Pocono Reliability Project	Construction of three new electrical substations, 57 miles of new 230 kV transmission lines, and various shorter segments of 69 kV sub-transmission lines. Rebuilt one 20 mile long kV line	Luzerne County, PA	Past
Transportation Projects			
Interstate 81	Replacement of four bridges, two over Jumper Road and two over Sunset Road	Luzerne County, PA	Past
Residential/Commercial/Industrial Development Projects			
Cobleigh Subdivision	Construction of single family homes	Luzerne County, PA	Past
Subaru Dealership on Highway 315	Construction of an automobile dealership	Luzerne County, PA	Past
Planned residential subdivision	Proposed subdivision	Luzerne County, PA	Future
Notes: a. Identified projects through a review of permit applications submitted and/or approved by PADEP in the Pennsylvania Bulletin, review of Pennsylvania’s Environment Facility Application Compliance Tracking System (eFACTS), and PADEP File reviews. b. Past Projects are those where construction occurred within the past 5 years from the date of filing administratively complete JPA. Present projects are recently completed or under construction as of 2018. Future projects are expected to be under construction in the same timeframe as and crossed by the Project.			

4.0 Cumulative Impacts

Cumulative impacts are estimated by aggregating the impacts of the Project with the impacts of other potential or existing projects. The analysis of cumulative impacts is presented on both a state-wide and county-specific basis. A summary of the wetland and interrelated wetland area (inclusive of adjacent watercourses) impacts within the CIAA for the overall Project in Pennsylvania are included within Table LU-L-3F-2 and Table LU-L-3F-3, respectively. The narrative discussion of the cumulative impacts below



provides additional information about specific resources that are affected by the Project and other projects in the CIAA.

4.1 Proposed Project Impacts

PennEast has routed the proposed pipeline facilities and work areas to avoid and minimize effects on wetlands and watercourses to the greatest extent practicable while maintaining engineering standards and safety. However, because this is a linear project, complete avoidance of all wetlands and waterbodies was not possible or practicable. The routing process has allowed PennEast to identify a constructible pipeline alignment that will minimize disturbances on the environment while maintaining engineering standards and safety. With the proper installation and maintenance of the Project's BMPs, impacts to wetlands and watercourses will be minor and mostly temporary, and result in no more than minimal individual and cumulative adverse environmental effects.

The Project will result in temporary disturbance to watercourses and wetlands during construction and also permanent impacts to wetland resources during operation. Disturbances were calculated using the engineered Project area, which incorporated additional temporary workspace (ATWS), access roads and utilized a typical construction workspace of 75 feet, a 50-foot wide permanent ROW, and a 30-foot wide operational/maintained ROW. PennEast will limit the typical width of the construction ROW to 75 feet within wetlands and across watercourses, unless an alternative measure is requested at specific crossings. After the Project is constructed and placed in service, PennEast will maintain a 10-foot corridor in an herbaceous state to facilitate periodic corrosion and leak surveys. Conversion of PFO and PSS wetlands to PEM and PSS wetlands will occur within the 30-foot wide maintained ROW. Trees within 15 feet of the pipeline (including trees located within wetlands and riparian buffers), which may have roots that could damage the pipeline coating, will be cut and removed from the permanent ROW.

As further demonstrated in JPA Section L (EA) and JPA Section S (Alternatives Analysis), with the proper installation and maintenance of the Project's BMPs, impacts to wetlands and watercourses will be minor and mostly temporary, and will result in no more than minimal individual and cumulative adverse environmental effects.

Wetland Impacts within Luzerne County

The wetland impact table (Table LU-L-3-F-2) summarizes potential permanent wetland impact acreages for wetlands crossed by the pipeline facilities by county. As a result of PennEast's wetland avoidance and minimization effort, the Project will cross a total of 56 wetlands in Luzerne County, resulting in 1.715 acres of permanent conversion of PFO and PSS wetlands to PEM wetlands within the 30-foot wide maintained ROW. Twenty-six of the 56 wetlands that will be impacted in Luzerne County are classified as EV wetlands, and 0.914 acres of EV wetlands would be permanently converted to PEM and PSS wetlands. The permanent ROW conversion of PFO and PSS wetland to PEM would not result in a significant change in the functions and values of the wetlands impacted by the Project: some functions/values may be slightly reduced (wildlife habitat), some will not be altered (groundwater discharge), and others may be increased due the establishment of a thick herbaceous ground cover (sediment retention and nutrient removal). There will be no net loss of wetlands proposed for the Project in Luzerne County.

Table LU-L-3F-2
Summary of Potential Cumulative Impacts to Wetlands from the Proposed Project and Other Projects in the CIAA

County	Total Proposed Permanent Project Impacts (acres) ^{1,2}	Total Other Projects Impacts within CIAA (acres) ¹	Overlap of Wetland Impacts (acres) ¹	Total Cumulative Impacts (acres) ¹
Luzerne	1.715	0.05 ³	-	1.765
Carbon	3.951	-	-	3.951
Northampton	1.468	-	-	1.468
Bucks	-	-	-	-
TOTAL	7.134	0.05 ³	-	7.184

Notes:

- Individual and aggregate acreage values are rounded to the nearest hundredth of an acre, such that county subtotals and the Project-wide total may not necessarily equal the individual rounded values presented. A dash (“-“) indicates no impacts.
- Proposed permanent impacts include the conversion of PFO and PSS wetlands to PEM and PSS wetlands within the 30-foot wide maintained ROW, where there will be no loss of wetland acreage. Permanent impacts also include PEM and PFO mosaic wetlands that will be filled at the Kidder Compressor Station in Carbon County.
- Approximately 0.05 acre of permanent wetland impacts associated with the Northeast Pocono Reliability Project are discussed in the Cumulative Impacts Analysis in the Luzerne County JPA.

As indicated in PADEP’s cumulative impact technical guidance, where a temporary impact is proposed to be properly restored, that temporary impact has not been identified as an adverse cumulative impact on the resource. All temporary impacts as part of the Project have not been included in the CIA since they will be restored after construction. Because PEM wetlands would be restored to pre-construction conditions and allowed to revegetate, no long-term or permanent impacts to PEM wetlands would result from the pipeline.

Wetlands that will be temporarily altered will be restored to pre-construction conditions and allowed to revegetate. Restoration of temporarily impacted PFO and PSS wetlands will be enhanced by planting trees and shrubs as described in the Wetland and Riparian Reforestation Plan in Appendix L-4A. Upon completion of construction in wetlands, topsoil that is disturbed during construction will be replaced to restore original soil horizons, and pre-construction contours will be restored. Trench plugs will be installed at the edges of wetlands before the trench is backfilled to restore hydrology to pre-construction conditions. Trench plugs will also be installed at 100-foot intervals within wetland crossings that exceed 100 feet. These BMPs will restore the drainage patterns to pre-construction conditions and will promote re-establishment of wetland hydrology and hydrophytic vegetation. Therefore, no long-term or permanent impacts on PEM wetlands will result from pipeline construction or operation.

The standard crossing method within wetlands would be conventional open trench construction. PennEast would minimize the length of time that topsoil is segregated and the trench is open to the extent possible. BMPs, including the use of timber mats and assembling the pipeline in upland locations, would be implemented to further minimize wetland disturbance. Where trench dewatering is necessary, water would be discharged through a filter bag into a well-vegetated upland area to minimize sedimentation and scour associated with discharge.

To maintain water quality in wetland resources crossed by the Project or downgradient (potential secondary impacts) of the construction ROW, PennEast will implement pollution prevention procedures. PennEast will implement an approved Erosion and Sediment Control Plan (E&SCP) that will be executed throughout the duration of the Project to reduce risks of erosion, sedimentation, and stormwater runoff from construction areas with exposed soils. The stormwater BMPs for the Project have been planned to minimize the extent of the proposed earth disturbance, maximize protection of existing drainage features and vegetation, minimize soil compaction and employ measures and controls that minimize the generation of increased stormwater runoff. Stormwater management site planning techniques were used throughout the site design process to preserve natural systems and hydrologic functions to the maximum extent possible through the use of non-structural BMPs. Erosion controls, such as compost filter socks, will be utilized in an effort to avoid the transport of disturbed sediments to wetlands to the maximum extent practicable. To verify that BMPs are correctly implemented, Environmental Inspectors (EIs) will oversee the installation of erosion control devices and once installed, BMPs will be monitored by EIs and maintained by contractors until grading and restoration efforts are finalized.

Watercourse Impacts within Luzerne County

The watercourse impact Table LU-L-3F-3 summarizes permanent watercourses impacts proposed in Luzerne County and for the overall Project in Pennsylvania. Permanent watercourse impacts will be limited to the in-kind replacement of one existing culvert along an access road in Luzerne County.

**Table LU-L-3F-3
 Summary of Potential Cumulative Impacts to Watercourses from the Proposed Project and Other Projects in the CIAA**

County	Total Proposed Permanent Impacts (linear feet) ^{1,2}	Total Other Projects Impacts within CIAA (linear feet) ¹	Overlap of Watercourse Impacts (linear feet) ¹	Total Cumulative Impacts (linear feet) ¹
Luzerne	11	162 ³	-	173
Carbon	20	-	-	20
Northampton	-	-	-	-
Bucks	-	-	-	-
TOTAL	31	162³	-	193

Notes:

1. A dash (“-”) indicates no impacts.
2. Proposed permanent impacts include the installation of one new culvert and the in-kind replacement of two existing culverts along access roads.
3. Approximately 162 linear feet of permanent watercourse impacts associated with the Auburn Line Extension Project are discussed in the Cumulative Impacts Analysis in the Luzerne County JPA.

Temporary impacts to surface watercourses during construction activities include watercourse bank vegetation removal, watercourse bank disturbances and, in some instances, flow modifications during dry-crossing construction. The crossing of all watercourses located within the Project ROW will use temporary equipment bridge installation and/or timber matting to facilitate the crossing of watercourses with vehicles, equipment and haul trucks. As indicated in PADEP’s technical guidance, where a temporary impact is proposed to be properly restored, that temporary impact has not been identified as an adverse cumulative impact on the resource. All temporary impacts as part of the Project have not been included in the CIA since they will be restored after construction.

PennEast proposes to cross watercourses with flow at the time of construction using a combination of trenchless and conventional dry-crossing methods. During dry construction installations, natural drainage patterns, flushing characteristics and current flow patterns of watercourses may be temporarily disturbed. However, the normal quantity of watercourse flow will continue unabated by diverting flows through (i.e., flume) or around (i.e., dam and pump) the installation area. Upon completion of construction in watercourses, watercourse grades will be restored to pre-construction conditions, which will re-establish natural flow patterns and hydrology. Construction of the proposed Project will not affect natural drainage patterns. There are no watercourse relocations, new enclosures, or channel deepening/dredging activities proposed in conjunction with the Project.

PennEast will conduct construction and restoration activities in accordance with Chapter 102 Permit requirements and will implement erosion and sediment control BMPs, including appropriate antidegradation best available combination of technologies (ABACT) measures for high-quality (HQ)/EV watercourse resources. Within Luzerne County, the proposed Project will cross a total of 29 watercourses and/or floodways that are classified as HQ; no watercourses are classified as EV waters. In accordance with the PADEP's antidegradation requirements contained within the Chapter 93, WQS (Title 25 Pa. Code, Chapter 93), which require the maintenance and protection of existing WQS for HQ and EV watercourses, PennEast is proposing to implement specific BMPs for HQ and EV waters to minimize impacts to the greatest extent practicable. Specifically, PennEast will employ a number of BMPs classified by PADEP as ABACT to reduce impacts at HQ watercourse crossings. JPA Section L-3E provides an Antidegradation Analysis, the Project Narrative in JPA Section J provides a detailed description of the watercourse crossing construction methods, and EA Modules 3 and 4 (JPA Sections L-3 and L-4) discuss the potential impacts to watercourses, including the impact avoidance and minimization measures PennEast has and/or will implement.

4.2 Other Project Impacts

PennEast has identified other projects that could potentially contribute to cumulative impacts when considered with the proposed Project. These include natural gas development projects (natural gas wells, pipeline gathering systems and interstate pipelines); electric generation and transmission projects; transportation projects; and residential, commercial and industrial development projects.

Eighteen other projects, including four natural gas projects, two electrical transmission projects, four transportation projects and eight residential, commercial and industrial development projects are past (have been constructed and placed in service within the last five years), present (currently under construction), or proposed for construction in the near future (2019 to 2020). Within Luzerne County, nine projects were identified as part of the CIA. These projects are described below, and the locations are depicted in Appendix LU-L-3F-1.

Natural Gas Projects

Three other natural gas pipeline projects including the, MARC II Pipeline, Auburn Line Extension (Auburn and Leidy Interconnects), and the Transcontinental Gas Pipeline Company "Leidy A" natural gas pipeline recoating and maintenance project are past, present, or proposed for construction in the near future. Refer to Table LU-L-3F-1 for status (past, present or future).



There are no natural gas wells permitted for extraction within 0.25 miles of the proposed Project. As a result, PennEast does not anticipate that construction and operation of natural gas wells would result in cumulative impacts.

The following information is a brief description of each proposed other natural gas project and the impacts to wetlands and watercourses within the CIAA of the Project area.

MARC II Pipeline

The MARC II Pipeline project is still in the preliminary planning stage and includes a proposed approximately 20-mile natural gas pipeline with 1.0 Bcf/d that would connect to the proposed PennEast Pipeline Project, providing a new interconnection with Transco's Leidy Line and Transco's proposed Atlantic Sunrise Expansion Project.

Because the project is in the preliminary planning stage, the MARC II project does not have published wetland and watercourse impacts; therefore, no quantitative wetland and watercourse impacts can be evaluated as it relates to cumulative impacts. As a result, this project is not considered to contribute to potential cumulative impacts to wetlands or interrelated wetland areas within the CIAA at this time. If additional information becomes available, it will be analyzed as part of the CIA.

Auburn Line Extension Project

The completed Auburn Line Extension project has been in-service since late 2013 and is located approximately 0.2 miles east of MP 0.0R1 to MP 4.4R3 in Luzerne County (Auburn Pipeline 2014). The 27.4-mile, 20-inch diameter pipeline is capable of delivering more than 500,000 Dth/d and connects the UGI Energy Services' Auburn system with the Transco system.

As part of permanent access road construction for the Auburn Line Extension Project, two watercourses that intersect with the proposed PennEast workspace were permanently impacted by the installation of culverts, resulting in 162 LF (65 and 97 LF, respectively) and 0.0216 acres (0.0044 and 0.0172 acres, respectively) of permanent watercourse impacts. These impacts have been included in the CIA. The PennEast Project will result in temporary impacts to these two watercourses (Watercourse IDs 020916_BT_1002_I_MI and 020916_BT_1003_P_MI near MP 4.3R2).

Transco "Leidy A" Recoating/Maintenance Project

The PADEP issued Chapter 105 permits for the Transco Leidy A Recoating/Maintenance Project in 2017. The project involved the installation of temporary access to the existing "Leidy A" natural gas pipeline for the purpose of recoating and maintenance. Temporary timber matting will be placed through 312 LF of PEM/PSS wetlands within the Little Shades Creek watershed and through 176 LF of PEM wetlands and 347 LF of PEM/PSS wetlands within the Meadow Run watershed. This project takes place in Bear Creek Township, Luzerne County and is adjacent the proposed Project from MP 16.8 to MP 17.7.

The PennEast Pipeline Project will result in temporary impacts to one unnamed tributary to Meadow Run, one unnamed tributary to Little Shades Creek, and two PEM/PFO wetlands between MP 16.8 to MP 17.7. Approximately 0.38 of PFO wetlands will be converted to PEM wetlands within the permanent ROW in

this area. Due to the temporary nature of any impacts that would have occurred as a result of the maintenance project, these impacts have not been included in this CIA.

Electrical Transmission Projects

Two electrical transmission projects within Luzerne County, including the Susquehanna-Roseland Project and Northeast Pocono Reliability Project are past projects that were identified in the CIAA. The following information below is a brief description of each of the other electrical transmission projects and their impacts to wetlands and watercourses within the CIAA of the Project area in Luzerne County.

Susquehanna-Roseland Project

PPL Electric Utilities energized the Pennsylvania portion of the Susquehanna-Roseland transmission line on May 11, 2015 (PPL Electric Utilities 2008). The project consisted of a new 500-kilovolt (kV) power line that runs 101-miles north from Berwick, Pennsylvania to Hawley and southeast to Bushkill, where it crosses the Delaware River. The Project crossed the Susquehanna-Roseland transmission line corridor at MP 4.5R3 in Luzerne County.

PennEast did not identify any wetlands or watercourses in the vicinity of the Susquehanna-Roseland project at MP 4.5R3 to MP 4.6R3; therefore there are no permanent impacts are proposed within the CIAA. As a result, this project is not considered to contribute to potential cumulative impacts to wetlands or interrelated wetland areas within the CIAA.

Northeast Pocono Reliability Project

As part of the Northeast/Pocono Reliability Project, PPL Electric Utilities constructed approximately 57 miles of new 230-kV power line, three electrical substations, and several short segments of 69-kV line in Lackawanna, Monroe, Wayne, Pike and Luzerne Counties, Pennsylvania. The project was completed in 2016. One segment of the Northeast/Pocono Reliability project, the Jenkins to West Pocono Route, Alternate A, starts at the PPL Electric Utilities Jenkins Substation in Plains Township and parallels an existing transmission line ROW that the proposed PennEast pipeline would follow from MPs 15.8 to 18.6.

As part of the Northeast Pocono Reliability project's access road construction, approximately 0.05 acres of wetland was permanently filled for the construction of a crushed stone entrance/exit and roadway off Meadow Run Road in Luzerne County. The PennEast Pipeline Project will also impact a PSS wetland at this location (Wetland ID 112014_JC_001_PSS); however, the PSS wetland is not within the 30-foot wide maintained ROW, and no permanent impacts are anticipated at this wetland. The Northeast Pocono Reliability Project's permanent wetland impacts have been included as part of the CIA. All other proposed impacts as part of this project are temporary impacts that will be restored, and as such, those temporary impacts have not been included in this CIA.

Transportation Projects

Within Luzerne County, one transportation project, the Interstate 81 Project is a past project that was identified within the CIAA. The following information is a brief description of the transportation project and its impacts to wetlands and watercourses within the CIAA of the Project area.

Interstate 81

Pennsylvania's Department of Transportation's (PennDOT's) Interstate 81 Project in Plains Township, Luzerne County, Pennsylvania consists of the replacement of four bridges, two over Jumper Road and two over Sunset Road. The project is located 0.1 to 1.7 miles to the southwest of PennEast MP 10.4R2 in the Upper Susquehanna watershed. This transportation project was completed in July 2016.

PennEast did not identify any wetlands or watercourses in the vicinity of the Interstate 81 project at MP 10.4R2; therefore, there are no permanent impacts within the CIAA. As a result, this project is not considered to contribute to potential cumulative impacts to wetlands or interrelated wetland areas within the CIAA.

Residential/Commercial/Industrial Development Projects

Within Luzerne County, three Residential/Commercial/Industrial Development Projects including the Cobleigh Subdivision, Subaru Dealership on Highway 315, and a planned residential subdivision are past, present, or proposed for construction in the near future.

Cobleigh Subdivision

Construction of two single family homes at the corner of Gypsy Lane and Saddle Ridge Drive and the addition of a pool added to an existing single family home occurred between June 2016 and September 2017. These projects are located in Dallas Township, Luzerne County adjacent to MP 1.1R3.

PennEast did not identify any wetlands or watercourses in the vicinity of the newly built homes at MP 1.1R3; therefore, there are no permanent impacts within the CIAA. As a result, this project is not considered to contribute to potential cumulative impacts to wetlands or interrelated wetland areas within the CIAA.

Subaru Dealership on Highway 315

Construction of a new Subaru Dealership began in the fourth quarter 2015 and was completed in the fourth quarter 2016. The footprint of the dealership is approximately 12 acres. This project is located in Plains Township, Luzerne County and is adjacent to the proposed Project from MP 10.2R2 to MP 10.3R2.

The proposed Project anticipates temporary impacts to one unnamed tributary to Mill Creek at MP 10.1R2, approximately 0.10 mile from the Subaru Dealership project. Due to the temporary nature of these impacts and planned restoration of the watercourses, these impacts have not been included in this CIA. In addition, PennEast did not identify any wetlands or watercourses immediately adjacent to the Subaru Dealership project; therefore, there are no permanent impacts within the CIAA. As a result, this project is not considered to contribute to potential cumulative impacts to wetlands or interrelated wetland areas within the CIAA.



Planned Residential Subdivision

PennEast has identified a proposed residential subdivision in the vicinity of MP 8.5R3; in fact, while working with the landowner, PennEast modified its route to avoid this future planned development. PennEast did not identify any wetlands or watercourses in the vicinity of this subdivision. The subdivision has yet to submit development plans. Therefore, any wetland or watercourse impacts are unknown. This project is not considered to contribute to potential cumulative impacts to wetlands or interrelated wetland areas within the CIAA.

4.3 Cumulative Impacts to Wetlands

As shown in Table LU-L-3F-2, the Project will permanently impact approximately 1.71 acres of wetlands in Luzerne County. When added to the wetland impacts from all other projects in the CIAA in Luzerne County (approximately 0.05 acres of wetlands), a maximum of 1.76 acres of wetlands could be impacted, resulting in a cumulative areal extent of wetland impact of approximately 1.76 acres. However, as described in Section 4.2, PennEast's proposed temporary wetland impacts near the Northeast Pocono Reliability Project's permanent wetland impact will not result in cumulative permanent impacts.

With the implementation of each potential or existing project in compliance with BMPs and permit conditions, the disturbances to wetlands are (existing projects) or are anticipated to be (potential projects) minor and temporary, and will result in no more than minimal individual and cumulative adverse environmental effects.

4.4 Cumulative Impacts to Watercourses

As shown in Table LU-L-3F-3, the Project will permanently impact approximately 11 LF of watercourses in Luzerne County. When added to the watercourse impacts from all other projects in the CIAA in Luzerne County (approximately 162 LF of watercourses), a maximum of 173 LF of watercourses could be impacted. As described in Section 4.2, PennEast's proposed temporary watercourse impacts near the Auburn Line Extension Project's permanent watercourse impacts will not result in cumulative permanent impacts.

With the implementation of each potential or existing project in compliance with BMPs and permit conditions, all of the remaining disturbances to watercourses are or are anticipated to be minor and temporary, and result in no more than minimal individual and cumulative adverse environmental effects.

5.0 Conclusion

PennEast has routed the proposed pipeline facilities and work areas of the Project to avoid and minimize effects on wetlands and watercourses to the greatest extent practicable while maintaining engineering standards and safety. The routing process has allowed PennEast to identify a constructible pipeline alignment that will minimize disturbances on the environment while maintaining engineering standards and safety.

Permanent modification of vegetative cover type of PFO wetlands and PSS wetlands to PEM wetlands is anticipated in establishing a new maintained ROW for the Project. The Project will permanently impact approximately 7.157 acres of wetlands in Pennsylvania including 0.036 acres of PEM wetlands and 0.024



acres of PFO wetland mosaic at the proposed Kidder Compressor Station and approximately 7.097 acres associated with the permanent conversion of PFO and PSS cover types to PEM wetlands. Specifically, within Luzerne County, the Project will result in 1.715 acres of conversion (1.174 acres of PFO conversion and 0.541 acre of PSS conversion), which will be mitigated with 3.270 acres of offsite wetland enhancement. Additional permanent impacts within watercourses are proposed to replace two existing culverts and install one new culvert. Within Luzerne County, permanent watercourse impacts are limited to the replacement of one culvert.

Based on the results of this CIA, implementation of the Project and other potential or existing projects evaluated within the CIAA will result in the aggregate cumulative areal extent of permanent wetland impact of approximately 1.765 acres in Luzerne County, and the cumulative permanent watercourse impact of approximately 173 LF. With the implementation of each potential or existing project in compliance with BMPs and permit conditions, all of the remaining disturbances to wetlands and watercourses are or are anticipated to be minor and temporary, and result in no more than minimal individual and cumulative adverse environmental effects.

Based on these aggregate (i.e., cumulative) impacts of the Project and other potential or existing projects evaluated within the CIAA, the wetland impacts associated with all the Chapter 105 applications related to this Project, in consideration of interrelated wetland areas (inclusive of adjacent watercourses), will not result in the impairment of the Commonwealth's EV wetland resources or a major impairment of the Commonwealth's other wetland resources.

6.0 References

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