1.0 INTRODUCTION

On June 8, 2015, Columbia Gas Transmission, LLC (Columbia Gas) filed an application with the Federal Energy Regulatory Commission (FERC or Commission) under section 7(c) of the Natural Gas Act (NGA) and part 157 of the Commission's regulations to construct, operate, and maintain certain interstate natural gas pipeline facilities in Ohio, Pennsylvania, and West Virginia. On July 1, 2015, NiSource, Inc. created a separate legal company, Columbia Pipeline Group which includes Columbia Energy Group and its subsidiaries Columbia Gas, and Columbia Gulf Transmission, LLC (Columbia Gulf). On July 29, 2015, Columbia Gulf filed an application with FERC under section 7(c) of the NGA and part 157 of the Commission's regulations to construct, operate, and maintain certain interstate related natural gas pipeline facilities in Kentucky. Columbia Gas and Columbia Gulf are seeking Certificates of Public Convenience and Necessity (Certificate), and were assigned Docket Nos. CP15-514-000 and CP15-539-000 for their applications, respectively. On October 23, 2015 and March 18, 2016, Columbia Gas filed supplemental information to the June 8, 2015 application.

Columbia Gas' proposed facilities, referred to as the Leach Xpress Project (LX Project), total about 160.7 miles of new pipeline and 143,000 horsepower (hp) of compression to transport up to 1,500,000 dekatherms per day (Dth/d)[5] of natural gas. Facilities to be constructed are located in:

- Marshall and Wayne Counties, West Virginia;
- Greene County, Pennsylvania; and
- Monroe, Noble, Muskingum, Morgan, Perry Fairfield, Hocking, Jackson, Lawrence and Vinton Counties, Ohio.

Columbia Gulf's proposal, referred to as the Rayne XPress Expansion Project (RXE Project), would involve the construction and operation of 51,800 hp at two compressor stations (CS) in Carter, Menifee, and Montgomery Counties, Kentucky, to enable up to 621,000 Dth/dof firm transportation on its system.

The FERC environmental staff prepared this draft Environmental Impact Statement (EIS) to assess the environmental impacts associated with the construction and operation of the LX and RXE projects in accordance with the requirements of the National Environmental Policy Act (NEPA). The RXE Project facilities are related to the LX Project; therefore, they are being evaluated togetherin this EIS. The U.S. Environmental Protection Agency (EPA), U.S. Army Corps of Engineers (COE), U.S. Fish and Wildlife Service (FWS), Ohio Environmental Protection Agency (OEPA), the West Virginia Department of Environmental Protection (WVDEP), the West Virginia Department of Natural Resources (WVDNR), and the Kentucky Department for Environmental Protection (KYDEP) are participating as cooperating agencies in the preparation of the EIS.[6] The roles of FERC and the cooperating agencies in the review process are described in section 1.2.

[5] A dekatherm is a unit of heating value often used by natural gas companies instead of volume for billing purposes. A dekatherm is equivalent to 10 therms or one million British thermal units.

[6] A cooperating agency has jurisdiction by law or special expertise with respect to environmental impacts involved with the proposed Project and is involved in the NEPA analysis.

1.1 PROJECT PURPOSE AND NEED

While this EIS will briefly describe each of the project's purpose, it will not determine whether the need for the projects exists, as this will later be determined by the Commission. Based on information provided by Columbia Gas:

- the purpose of the LX Project is to expand the capacity of Columbia Gas' existing pipeline system to transport up to 1,500,000 Dth/d[7] of natural gas to meet the market demand for the transportation of stranded natural gas supplies from the existing production region to areas of higher demand, premium markets.

Based on the information provided by Columbia Gulf:

- the proposed RXE Project is necessary to respond to the specific market need to transport up to 621,000 Dth/d of natural gas in a north-to-south direction.

The LX Project is supported by binding precedent agreements[8] with four anchor shippers collectively representing more than 90 percent of the project's capacity. The RXE Project is fully supported by binding precedent agreements with shippers with contract terms of 15 and 16 years from the in-service date.

Under section 7 of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate to construct, operate, and abandon them. If the Commission determines that a project is required by the public convenience and necessity, Certificates would be issued under Section 7(c) of the NGA and Part 157 of the Commission's regulations. The Commission bases its decision on technical competence, financing, rates, market demand, gas supply, environmental impact, long-term feasibility, and other issues concerning a proposed project. The scope of this EIS discusses the environmental impacts of constructing and operating Columbia Gas and Columbia Gulf's natural gas facilities.

1.2 PURPOSE AND SCOPE OF THE EIS

Our[9] principal purposes for preparing the EIS are to:

- identify and assess the potential impacts on the natural and human environment that would result from the implementation of the proposed projects;
- describe and evaluate reasonable alternatives to the proposed projects that would avoid or substantially lessen adverse effects of the projects on the environment while still meeting the project objectives;
- identify and recommend specific mitigation measures, as necessary, to avoid or minimize environmental effects; and
- encourage and facilitate involvement by the public and interested agencies in the environmental review process.

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7 For conceptualization purposes only, a natural gas capacity of 1,500,000 Dth/d would be sufficient to power roughly 14.3 million homes annually (if it were used solely for residential energy production). This estimate assumes an average household energy consumption of 11,000 kilowatt hours per year. If these projects are approved, the natural gas could be used in a variety of applications, not solely for residential energy generation.

8 A precedent agreement is a binding contract under which one or both parties has the ability to terminate the agreement if certain conditions, such as receipt of regulatory approvals, are not met.

9 "We," "us," and "our" refer to the environmental staff of FERC's Office of Energy Projects.

The topics addressed in the EIS include: project alternatives; geology; soils; groundwater; surface waters; wetlands; vegetation; wildlife and aquatic resources; special status species; land use, recreation, special interest areas and visual resources; socioeconomics; cultural resources; air quality and noise; reliability and safety; and cumulative impacts. The EIS describes the affected environment as it currently exists based on available information and the environmental consequences of the proposed projects, and compares the projects' potential impact to that of various alternatives. The EIS also presents our conclusions and recommended mitigation measures.

Our description of the affected environment is based on a combination of data sources including desktop resources such as scientific literature and regulatory agency reports as well as field data collected by Columbia Gas and Columbia Gulf. Columbia Gas has field surveyed about 96.8 miles (47.4 percent) of the total pipeline facilities along the LX Project route. Completion of field surveys has been dependent upon winter weather, project design, and acquisition of survey permission from landowners. If the necessary access cannot be obtained through coordination with landowners and the proposed project is certificated by FERC, Columbia Gas may use the right of eminent domain granted to it under section 7(h) of the NGA to obtain a right-of-way. Therefore, if the LX Project is certificated by the Commission, then the outstanding surveys (and associated agency permitting) would have to be completed after issuance of the Certificate. Columbia Gulf has completed all surveys for the proposed and alternative sites.

We received comments regarding the potential impacts associated with natural gas development activities, including production of natural gas from shale formations. Our authority under the NGA relates only to natural gas facilities that are involved in interstate commerce. The permitting of oil and gas production facilities is under the jurisdiction of various state and federal agencies where those facilities are located. Thus, the facilities associated with the production of natural gas are not under FERC jurisdiction. However, to the extent the review of such facilities are relevant, they are included as part of our analysis of cumulative impacts.

1.2.1 Federal Energy Regulatory Commission Purpose and Role

FERC is an independent federal agency responsible for evaluating applications for authorization to construct and operate interstate natural gas pipeline facilities. FERC is the lead federal agency for the preparation of this EIS in compliance with the requirements of NEPA, the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (Title 40 Code of Federal Regulations [CFR] Parts 1500–1508), and FERC's regulations implementing NEPA (18 CFR 380).

As the lead federal agency for the proposed projects, FERC is required to comply with section 7 of the Endangered Species Act of 1973 (ESA), the Magnuson-Stevens Fishery Conservation and Management Act, section 106 of the National Historic Preservation Act (NHPA), and section 307 of the Coastal Zone Management Act of 1972. These and other statutes have been taken into account in the preparation of the EIS.

1.2.2 U.S. Environmental Protection Agency Purpose and Role

The EPA is an independent federal agency responsible for protecting human health and safeguarding the natural environment. The EPA has delegated water quality certifications under section 401 of the Clean Water Act (CWA) to the OEPA, WVDNR, KYDEP, and the Pennsylvania Department of Environmental Protection (PADEP), but the EPA may assume this authority if no state program exists, if the state program is not functioning adequately, or at the request of a state.

The EPA also oversees the issuance of a National Pollutant Discharge Elimination System (NPDES) permit by the state agency, under section 402 of the CWA, for point-source discharge of water used for hydrostatic testing of pipelines into waterbodies. The EPA has the authority to review and veto the decisions on section 404 permits. The EPA also has jurisdictional authority to control air pollution under the Clean Air Act (CAA) (Title 42 United States Code [USC] Chapter 85) by developing and enforcing rules and regulations for all entities that emit toxic substances into the air. Under this authority, the EPA has developed regulations for major sources of air pollution. The EPA has delegated the authority to implement these regulations to state and local agencies, who are also allowed to develop their own regulations for non-major sources. The EPA also establishes general conformity applicability thresholds, with which a federal agency can determine whether a specific action requires a general conformity assessment.

In addition to its permitting responsibilities, the EPA is required under section 309 of the CAA to review and publicly comment on the environmental impacts of major federal actions including actions that are the subject of draft and final EISs, and responsible for implementing certain procedural provisions of NEPA (e.g., publishing the Notices of Availability of the draft and final EISs in the *Federal Register*) to establish statutory timeframes for the environmental review process.

1.2.3 U.S. Army Corps of Engineers Purpose and Role

The COE is a federal agency within the U.S. Department of Defense with jurisdictional authority pursuant to section 404 of the CWA (33 USC 1344), which governs the discharge of dredged or fill material into waters of the United States, and section 10 of the Rivers and Harbors Act (33 USC 403), which regulates any work or structures that potentially affect the navigable capacity of a waterbody. Because the COE would need to evaluate and approve several aspects of the project and must comply with the requirements of NEPA before authorizing fill activities or work under the above statutes, it has elected to participate as a cooperating agency in the preparation of this EIS. The COE would adopt the EIS per 40 CFR 1506.3 if, after an independent review of the document, it concludes that its comments and suggestions have been satisfied. The LX Project occurs within the Huntington and Pittsburgh Districts of the COE.

Columbia Gas states that the proposed LX Project meets the criteria for a nationwide general permit (Nationwide Permit 12) under Section 404 of the CWA. Nationwide permits are a type of general permit designed to authorize certain activities that have minimal individual and cumulative adverse effects on the aquatic environment and generally comply with the related laws cited in 33 CFR 320.3. Activities that result in more than minimal individual and cumulative adverse effects on the aquatic environment cannot be authorized by nationwide permits. Nationwide Permit 12 has preconstruction notification requirements that trigger case-by-case review of certain activities. Two nationwide permit general conditions require case-by-case review of all activities that may adversely affect federally listed endangered or threatened species or historic properties (i.e., general conditions 18 and 20). Accordingly, Columbia Gas submitted a preconstruction notification to the COE on July 12, 2015.

Columbia Gulf states that the proposed RXE Project meets the criteria for a nationwide general permit (Nationwide Permit 12) under Section 404 of the CWA. Accordingly, Columbia Gulf has submitted a preconstruction notification to the Louisville District COE in August 2015.

As an element of its review, the COE must consider whether the proposed projects represents the least environmentally damaging practicable alternative pursuant to the CWA Section 404(b)(1) guidelines. The term “practicable” means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall purposes of the project. Although this document addresses environmental impacts associated with the proposed project as they

relate to Section 404, it does not serve as a public notice for any of the COE's permits. Based on its participation as a cooperating agency and its consideration of the final EIS (including responses to comments), the COE would issue a Record of Decision to formally document its decision on the proposed action, including section 404(b)(1) analysis and required environmental mitigation commitments.

1.2.4 U.S. Fish and Wildlife Service Purpose and Role

The FWS is responsible for ensuring compliance with the ESA. Section 7 of the ESA, as amended, states that any project authorized, funded, or conducted by any federal agencies should not "…jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined…to be critical…" (16 USC 1536(a)(2)). The FWS also reviews project plans and provides comments regarding protection of fish and wildlife resources under the provisions of the Fish and Wildlife Coordination Act (16 USC 661 et seq.). The FWS is responsible for the implementation of the provisions of the Migratory Bird Treaty Act (MBTA) (16 USC 703) and the Bald and Golden Eagle Protection Act (BGEPA) (16 USC 688).

Section 7 of the ESA requires identification of and consultation on aspects of any federal action that may have effects on federally listed species, species proposed for federal listing, and their habitat. The ultimate responsibility for compliance with section 7 remains with the lead federal agency (i.e., FERC for these projects).

As the lead federal agency for the projects, FERC consulted with the FWS pursuant to section 7 of the ESA to determine whether federally listed endangered or threatened species or designated critical habitat are found in the vicinity of the projects, and to evaluate the proposed action's potential effects on those species or critical habitats. FERC coordinated with the FWS regarding other federal trust wildlife resources, such as migratory birds. The FWS elected to cooperate in preparing this EIS because it has special expertise with respect to environmental impacts associated with the projects.

1.2.5 Ohio Environmental Protection Agency Purpose and Role

The OEPA is a state agency whose goal is to protect the environment and public health by ensuring compliance with environmental laws. Those laws and related rules outline OEPA's authority and what must be considered when making decisions about project-regulated activities. Because the OEPA would need to evaluate and approve several aspects of the project, it has elected to participate as a cooperating agency in the preparation of this EIS.

1.2.6 West Virginia Department of Environmental Protection

The WVDEP is a state agency responsible for implementing and enforcing West Virginia's environmental regulations with respect to managing the state's air, land, and water resources. The WVDEP has authority (through delegation from the EPA) for Section 401 of the CWA Water Quality Certification. Additionally, the WVDEP reviews and approves all applications for NPDES permits. The WVDEP has requested to be a cooperating agency in order to lend their experiences and insight with environmental impacts relative to this type of activity and provide recommendations on assessment, minimization, and mitigation of potential environmental impacts. Therefore, the WVDEP has elected to be a cooperating agency.

1.2.7 West Virginia Department of Natural Resources Purpose and Role

The WVDNR is a state agency charged with enforcing regulations enacted to protect fish, wildlife, and critical habitat resources. Because the WVDNR would need to evaluate and approve several

aspects of the LX Project, it has elected to participate as a cooperating agency in the preparation of this EIS.

1.2.8 Kentucky Department for Environmental Protection Purpose and Role

The KYDEP is a state agency whose mission is to protect and enhance Kentucky's public health, our citizens' safety and the quality of Kentucky's natural resources. Because the KYDEP would need to evaluate and approve several aspects of the RXE Project, it has elected to participate as a cooperating agency in the preparation of this EIS.

1.3 PUBLIC REVIEW AND COMMENT

On September 26, 2014, Columbia Gas filed a request with FERC to implement the Commission's pre-filing process for the LX Project. At that time, Columbia Gas was in the preliminary design stage of the project and no formal application had been filed with FERC. The purpose of the pre-filing process is to encourage the early involvement of interested stakeholders, facilitate interagency cooperation, and identify and resolve issues before an application is filed. On October 9, 2014, FERC granted Columbia Gas' request and established pre-filing Docket No. PF14-23-000 to place information related to the pipeline project into the public record. The cooperating agencies agreed to conduct their environmental reviews of the pipeline project in conjunction with the Commission's environmental review process.

During the pre-filing process, Columbia Gas held seven informational open houses in November 2014. The purpose of the open houses was to provide affected landowners, elected and agency officials, and the general public with information about the pipeline project and to give them an opportunity to ask questions and express their concerns. We participated in the open houses and provided information regarding the Commission's environmental review process to interested stakeholders and to take comments about the proposed pipeline project and the alternatives. An additional open house was held in on April 8, 2015 to account for a major reroute of the LX Project. The substantive questions and concerns raised by the public at the open houses are addressed in this EIS.

In addition, Columbia Gas established a single point of contact to answer questions and provide information, established a website with information about the pipeline project (https://www.cpg.com/current-projects/leach-xpress-project), and sent periodic update newsletters. Columbia Gas also communicated directly with certain landowners where specific issues were raised regarding individual properties.

On January 13, 2015, the Commission issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Planned Leach XPress Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings*. The notice was published in the *Federal Register* on January 20, 2015 and mailed to more than 1,500 interested parties, including federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American Tribes; affected property owners; other interested parties; and local libraries and newspapers. The notice briefly described the project and the EIS process, provided a preliminary list of issues identified by us, invited written comments on the environmental issues that should be addressed in the draft EIS, listed the date and location of three public scoping meetings to be held in the area of the project, and established a closing date for receipt of comments of February 12, 2015.

We held five public scoping meetings to provide an opportunity for agencies, stakeholders, and the general public to learn more about the proposed pipeline project and participate in the environmental analysis by commenting on the issues to be addressed in the draft EIS. The first meeting was in

Moundsville, West Virginia on January 27, 2015, followed by meetings on January 28, 2015 in Caldwell, Ohio; January 29, 2015 in Oak Hill, Ohio; February 3, 2015 in Logan, Ohio; and February 4, 2015 in Huntington, West Virginia. Three people commented at the meeting in Moundsville, four people commented at the meeting in Caldwell, four people commented at the meeting in Oak Hill, eight people commented at the meeting in Logan, and four people commented at the meeting in Huntington. Each meeting was documented by a court reporter, and the transcripts were placed into the public record for Columbia Gas' LX Project.

In addition, during the pre-filing process, we conducted conference calls on an approximately biweekly basis with representatives from Columbia Gas and interested agencies to discuss the pipeline project's progress and issues. Summaries of the calls were placed in the public record and are available for viewing on the FERC internet website (http://www.ferc.gov).[10]

On July 29, 2015, Columbia Gulf filed an application for its proposed RXE Project. On September 4, 2015, the Commission issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Rayne XPress Expansion Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings*. The notice was published in the *Federal Register* on September 11, 2015 and mailed to more than 230 interested parties, including federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American Tribes; affected property owners; other interested parties; and local libraries and newspapers. The notice briefly described the project and the EIS process, provided a preliminary list of issues identified by us, invited written comments on the environmental issues that should be addressed in the draft EIS and established a closing date for receipt of comments of October 5, 2015. In this notice, we stated that we would evaluate the environmental impacts of the RXE Project in the EIS being prepared for the related LX Project.

Table 1.3-1 lists the environmental issues that were identified during scoping and indicates the section of the EIS in which each issue is addressed. In addition to the comments received at the public scoping meetings described above, 57 written comments and 58 motions to intervene were filed with FERC and placed in the public record for the projects. Table 1.3-1 also lists comments that were received after the formal scoping period closed, including the relevant environmental comments raised by individuals requesting to be intervenors in the Commission's proceeding.[11] Additional issues we independently identified are also addressed in the EIS.

Several of the issues identified during our environmental review process involved alternative pipeline route variations to avoid or minimize impacts on resources such as mining areas, water wells or wetlands, and larger resource areas such as aquifers, watersheds, and state parks. These concerns were identified by property owners, stakeholders, FERC staff, and other agency staff. Many of these alternative routes that avoided sensitive resources were developed early in the process and voluntarily incorporated by Columbia Gas into its proposed route of the LX Project. Given this process, subsequent alternative route comparisons often were not necessary if the resource was avoided or the stakeholder's

[10] Using the "eLibrary" link, select "General Search" from the eLibrary menu and enter the docket number excluding the last three digits in the "Docket Number" field (i.e., PF14-23). Be sure to select an appropriate date range.

[11] FERC's Notices of Application for the LX and RXE Projects, issued in the Federal Register on June 22, 2015 and August 11, 2015, respectively, opened the 21-day period for intervention. A total of 38 groups and individuals for the LX Project and 20 groups and individuals for the RXE Project requested intervenor status. Interveners are official parties to the proceeding and have the right to receive copies of case-related Commission documents and filings by other intervenors. Likewise, each intervenor must provide a copy of its filings to the Secretary of the Commission and must send a copy of its filings to all other intervenors. Only intervenors have the right to seek rehearing of the Commission's decision.

concerns were otherwise resolved. Other alternative routes, however, both small and large, remained viable throughout the course of the LX Project. Route adjustments were made throughout the pre-filing and post-filing process. These route adjustments are presented in table 1.3-1 below. Section 3.0 presents our analysis of all the alternatives that were identified since the beginning of our review of these projects in October 2014.

TABLE 1.3-1
Minor Route Alternatives Adopted into the Proposed Pipeline Route for the LX Project

Alternative	Start Milepost	End Milepost	County, State	Description
Deviation A	0.0 (LEX)	8.0 (LEX)	Marshall, WV; Greene, PA	Deviation A was adopted to mitigate the risks of crossing multiple ongoing construction sites and existing underground facilities by avoiding the congested area. Incorporation of this deviation minimizes risks associated with construction on vertical side slopes. This deviation would not require the additional discharge line associated with the original route to cross multiple pipelines resulting in safer and more efficient construction in this area.
Deviation A-1[a]	0.0 (LEX)	1.3 (LEX)	Marshall, WV; Greene, PA	Deviation A-1 was adopted due to the MarkWest Processing Plant's future plans for facility expansion.
Deviation A-2[a]	7.4 (LEX)	7.8 (LEX)	Marshall, WV	Deviation A-2 was adopted to accommodate the proposed Lone Oak CS site relocation, discussed further in section 3.4.1.
Deviation B	16.6 (LEX)	18.6 (LEX)	Marshall, WV	Deviation B was adopted to minimize engineering complexity associated with steep slopes and rocky outcrops. This deviation also reduced aesthetic disturbances on residential properties by reducing the number of residences located 100 feet from the pipeline from six to three.
Deviation C	23.6 (LEX)	27.7 (LEX)	Marshall, WV; Monroe, OH	Deviation C was adopted to avoid difficult and rugged terrain primarily characterized by severe elevation changes and rocky outcrops, thereby minimizing engineering complexity.
Deviation C-1[a]	25.1 (LEX)	26.7 (LEX)	Marshall, WV; Monroe, OH	Deviation C-1 was adopted to minimize workspace necessary to safely conduct drilling operations on vertical side slopes and rocky outcrops.
Deviation D	51.8 (LEX)	59.6 (LEX)	Monroe, OH; Noble, OH	Deviation D was developed and adopted to accommodate the proposed Summerfield CS site located at LEX MP 58.00 along the proposed route. The original Summerfield CS site was removed from consideration due to increased environmental impact.
Deviation D-1[a]	57.8 (LEX)	58.3 (LEX)	Noble, OH	Deviation D-1 was developed and adopted to reduce stream impacts and limit the number of crossings.
Deviation E	122.3 (LEX)	0.4 (LEX1)	Hocking, OH; Fairfield, OH	Deviation E was adopted and would avoid potential impacts on several prehistoric and historic archaeological sites identified on field surveys along the previous route.
Deviation F	68.6 (LEX)	88.7 (LEX)	Noble, OH; Muskingum, OH; Morgan, OH	Deviation F was adopted andwould reduce construction through areas designated as ReCreation Land. This deviation would minimize potential constructability constraints associated with inundated areas and difficult terrain, thus reducing additional environmental impacts requiring increased costs and potential schedule delays associated with additional erosion controls and mitigation.
Deviation G	0.2 (LEX1)	0.4 (LEX1)	Fairfield, OH	Deviation G was adopted to accommodate the future expansion of facilities associated with a nearby school and would result in similar environmental impacts as the previous route.

TABLE 1.3-1 (cont'd)
Minor Route Alternatives Adopted into the Proposed Pipeline Route for the LX Project

Alternative	Start Milepost	End Milepost	County, State	Description
Deviation I [a]	19.4 (LEX)	22.3 (LEX)	Marshall, WV	Deviation I was developed and adopted, in part, to allow Noble Energy to construct a well pad in the vicinity of the previously proposed route. Deviation I also accommodates the Blue Racer Pipeline.
Deviation K [a]	114.0 (LEX)	114.3 (LEX)	Perry, OH	Deviation K was adopted to reroute around a Wetland Reserve Program easement.
Deviation L [a]	127.2 (LEX); K-260 RS	R-System RS Site; Line K-260	Hocking, OH; Fairfield, OH	Deviation L was adopted to avoid cultural resources identified during field surveys.
Deviation M [a]	8.9 (R-801 Loop)	9.4 (R-801 Loop)	Hocking, OH	Although Deviation M increases forest impacts, it was adopted in response to landowner requests.
Reroute 2[b]	14.1	15.8	Marshall, WV	Designed to avoid oil and gas wells and areas with high slip potential
Reroute 3[b]	16.7	17.2	Marshall, WV	Designed to avoid a planned oil well pad and associated tank
Reroute 5[b]	25.2	27.2	Marshall, WV Monroe, OH	Reconfigured proposed HDD crossing of Ohio River and revealed constructability concerns associated with HDD pullback. Determined available space and rugged topography were unsuitable for pullback. A portion of the HDD pullback would have required construction across difficult terrain including vertical side slopes and rocky outcrops.
Reroute 6[b]	50.7	51.1	Monroe, OH	Reconfigured to avoid and provide a safe distance on a planned oil well pumpjack

[a] Deviations adopted into the LX Project Route after the June 8, 2015 Filing.

[b] Deviations adopted into the LX Project Route after the March 18, 2016 Filing.

TABLE1.3-2
Environmental Issues Identified and Comments Received During the Scoping Process for the LX and RXE Projects

Issue/Specific Comment	EIS Section Addressing Comment
Alternatives	
Consideration of alternative routes to avoid populated areas, planned development, and critical infrastructure	3.0
Consideration of alternative routes and construction practices to avoid sensitive resources	3.0
Geology	
Impacts related to future mining operations	4.1.2.1
Impacts from blasting	4.1.2.2
Soils	
Erosion and sediment control	4.2.2
Contaminated soils	4.2.1.7
Water Quality and Aquatic Resources	
Storage of hazardous materials and fuel oil, and spill reporting procedures	4.3.2.6
Impacts on groundwater, existing hydrology, and drinking water supply (including public and private wells)	4.3.1
Impacts on septic systems	4.3.1.7
Waterbody crossing time windows, methods, mitigation, and restoration measures	4.3.2.5
Impacts of horizontal directional drill crossings, including inadvertent releases of drilling mud, drilling spoil management and disposal	4.3.2.5
Impacts on fishery resources	4.3.2
Wetlands	
Impacts on wetlands	4.4.3
Vegetation	
Impacts on mature trees and plants	4.5.5
Revegetation of areas cleared during construction	4.5.5
Plans for invasive species control	4.5.4
Wildlife	
Impacts of wildlife and wildlife habitat	4.6.1.4
Impacts on wildlife from forest fragmentation	4.6.1.4
Timing restrictions and impacts on birds and bats	4.6.1.4
Special Status Species	
Agency coordination and requirements	4.7.1
Evaluation of potential impacts on threatened or endangered species and their habitat	4.7.4
Land Use	
Impacts on future development plans	4.8.3.2
Eminent domain and compensation process	4.8.2
Impacts on existing residences and structures during construction and operation	4.8.3
Impacts on recreational and special interest areas (including agricultural lands)	4.8.4
Visual impacts of aboveground facilities	4.8.6
Impacts on transportation infrastructure (roads, highways, railroads)	4.9.4
Impacts on businesses which rely on the land	4.9.5
Socioeconomics	
Employment opportunities for local contractors and laborers and increased tax revenues	4.9.1
Traffic impacts and maintaining safety during construction	4.9.4
Impacts on homes, businesses, and land values, potential for increased taxes and lowered property values	4.9.6
Potential health impacts associated with proximity to pipeline and compressor stations.	4.12

TABLE 1.3-2 (cont'd)
Environmental Issues Identified and Comments Received During the Scoping Process for the LX and RXE Projects

Issue/Specific Comment	EIS Section Addressing Comment
Cultural Resources	
Tribal consultation and impacts on tribal lands and areas of cultural importance to Native American tribes	4.10.4
Impacts on culturally and historically significant properties	4.10.3.2
Air Quality	
Consistency with the emissions limits and standards	4.11.1
Impacts on air quality from construction equipment	4.11.1
Noise	
Noise impacts resulting from construction activities and proposed mitigation measures to reduce impacts	4.11.2.3
Noise impacts from compressor equipment on nearby residents and proposed mitigation measures to reduce impacts	4.11.2.3
Reliability and Safety	
Safety and reliability of constructing and maintaining the pipeline	4.12
Potential for explosion and loss of life	4.12
Cumulative Impacts	
Analysis of cumulative impacts	4.13

1.4 NON-JURISDICTIONAL FACILITIES

Under section 7 of the NGA, FERC is required to consider, as part of its decision to authorize interstate natural gas facilities, all factors bearing on the public convenience and necessity. Occasionally, proposed projects have associated facilities that do not come under the jurisdiction of the Commission. These "non-jurisdictional" facilities may be integral to the need for the proposed facilities (e.g., a power plant at the end of a FERC-jurisdictional pipeline), or they may be merely associated as minor, non-integral components of the jurisdictional facilities that would be constructed and operated as a result of certification of the proposed facilities.

Non-jurisdictional facilities necessary to operate the LX Project are anticipated to include two new Point of Receipt (POR) facilities located near Majorsville, West Virginia and Clarington, Ohio, as well as the addition of new power supplies and other utilities at the new compressor stations and new regulator stations (RS). Non-jurisdictional facilities for the LX Project are detailed in table 1.4-1.

Non-jurisdictional facilities necessary to operate the RXE Project are limited to the addition of new power and water supply at the Grayson CS and Means CS. Discussions with the local energy providers indicate that no new substations or power-generating facilities would be required to meet the demands of the compressor stations. Additionally, there are existing power lines adjacent to the compressor station sites; therefore, no new power lines would be necessary. Power is anticipated to be provided by Grayson Rural Electric Cooperative Cooperation (Grayson CS) and the Rural Electric Association (Means CS). Water supply is anticipated to come from the Grayson Utilities Commission (Grayson CS) and the Jefferson Water System (Means CS).

TABLE 1.4-1
Non-Jurisdictional Project Facilities for the LX Project

Facility Name	Non-Jurisdictional Service	Summary of Non-Jurisdictional Service
Existing Columbia Gas pipeline system	POR. Connect existing pipeline to third-party systems	Constructed by outside parties near the existing MarkWest Plant in Marshall County, West Virginia and in the Clarington, Monroe County, Ohio area. Columbia Gas would use these POR facilities to connect its existing pipeline system to third-party systems in the Majorsville, West Virginia and Clarington, Ohio areas in order to obtain the new firm transportation service for the proposed project. In general, each of these POR facilities would consist of an approximately 200- by 200-foot fenced facility; however, the scope of these POR facilities is still being developed by the responsible outside parties, and the necessary facilities have not been determined. The POR facilities would be constructed, owned, and operated by currently unidentified outside parties in accordance with all applicable state and local permits.
Lone Oak Compressor Station	New electrical power line, which would interconnect to American Electric Power (AEP), West Virginia's existing 138-kilovolt (kV) overhead poles located 0.7 mile southwest from the proposed facility.	The incoming power would be connected to a new pad mounted service transformer at the station. In addition, a communication system, water well, and sanitary sewer would be installed within the proposed facility fence line.
Summerfield Compressor Station	New electrical power line, which would interconnect to Washington Electric, Ohio's existing 69-kV overhead poles located approximately 3.5 miles southwest from the proposed facility.	The incoming power would be connected to a new pad mounted service transformer at the station. In addition, a communication system, water well, and sanitary sewer would be installed within the proposed facility fence line.
Crawford Compressor Station	None required.	Columbia Gas anticipates that the existing power service to the Crawford Compressor Station would be sufficient for the proposed modifications.
Oak Hill Compressor Station	New electrical power line, which would interconnect to AEP, Ohio's existing 69-kV overhead poles located approximately 3.2 miles west of the proposed facility.	The incoming power would be connected to a new pad mounted service transformer at the station. In addition, a communication system, water well, and sanitary sewer would be installed within the proposed facility fence line.
Ceredo Compressor Station	New substation that would receive 138 kV of incoming power from the adjacent AEP, West Virginia power station.	The incoming power would be connected to a new pad-mounted service transformer located on AEP, West Virginia's property to meet station requirements and distribute 12.5 kV to the new compressor units.
K-260 Regulator Station (LEX1 milepost 0.0)	New electrical power line, which would interconnect to AEP, Ohio's existing overhead distribution poles located 1.3 miles west of the proposed regulator station.	The incoming power from the extension would be connected to a new distribution panel with a main breaker at the station. Columbia Gas anticipates that the extension of the existing power service to the proposed facility would be sufficient for this project.
Receiver facility located at the terminus of LEX1	New electrical power line, which would interconnect to AEP, Ohio's existing 120/240 volt (V) overhead poles located 0.1 mile west of the receiver facility.	The incoming power would be connected to a new distribution panel with a main breaker at the facility.
R-System Regulator Station	New electrical power line from AEP, Ohio. The new power line would interconnect to AEP, Ohio's existing overhead distribution poles located approximately 0.5 mile west of the proposed regulator station.	The incoming power would be connected to a new distribution panel with a main breaker at the station.
Benton Regulatory Station	New electrical power line, which would interconnect with South Central Electric, Ohio's existing 120/240 V overhead poles located approximately 0.1 mile west of the proposed regulator station.	The incoming power would be connected to a new distribution panel with a main breaker at the facility.
Regulator Station 1286	Extension of existing power service from AEP, Ohio's existing 120/240 V overhead poles located 0.05 mile southwest of the regulator station.	Columbia Gas anticipates that the extension of the existing power service to the proposed facility would be sufficient for this project.

TABLE 1.4-1 (cont'd)
Non-Jurisdictional Project Facilities for the LX Project

Facility Name	Additional Service	Summary of Non-Jurisdictional Service
McArthur Regulator Station	New electrical power line, which would interconnect with Buckeye Rural Electrical Cooperative's existing 120/240 V overhead poles located 0.3 mile south of the proposed regulator station.	The incoming power would be connected to a new distribution panel with a main breaker at the facility.
R-486 Odorization Station	New electrical power line, which would interconnect with Buckeye Rural Electrical Cooperative's existing 120/240 V overhead poles located 0.1 mile north of the odorization site.	The incoming power would be connected to a new distribution panel with a main breaker at the facility.
R-130 Odorization Station	Extension of existing power service from AEP, Ohio's existing 120/240 V overhead poles located less than 0.1mile west of the odorization site.	The incoming power would be connected to a new distribution panel with a main breaker at the facility. Columbia Gas anticipates that the extension of the existing power service to the proposed facility would be sufficient for this project.
R543 Odorization Station	Extension of existing power service from AEP, Ohio's existing 120/240 V overhead poles located 0.01mile southwest of the odorization site.	The incoming power would be connected to a new distribution panel with a main breaker at the facility. Columbia Gas anticipates that the extension of the existing power service to the proposed facility would be sufficient for this project.

The non-jurisdictional electrical facilities are part of private construction projects under state and local jurisdiction. The federal government has no financial involvement, no permitting authority, and no federal lands are involved; therefore, there is no cumulative federal control or responsibility associated with these electrical facilities. Additionally, FERC has no authority over the permitting, licensing, funding, construction, or operation of local electric lines. Though construction of the non-jurisdictional electrical facilities may overlap with the construction of the projects, construction of these facilities would result in negligible environmental impacts due to sufficient extension of the existing power service to the proposed facilities; therefore, these facilities are not included in the cumulative impacts analysis in section 4.13.

1.5 PERMITS, APPROVALS, CONSULTATIONS, AND REGULATORY REVIEW

Tables 1.5-1 and 1.5-2 list the major federal, state, and local permits, approvals, and consultations identified for the construction and operation of the LX and RXE Projects. Tables 1.5-1 and 1.5-2 also provide the dates or anticipated dates when Columbia Gas and Columbia Gulf commenced or anticipates commencing formal permit and consultation procedures. Columbia Gas and Columbia Gulf are responsible for obtaining all necessary permits and approvals required to implement the proposed projects prior to construction.

TABLE 1.5-1
Applicable Major Permits, Licenses, Authorizations, and Clearances for the LX Project

Permit/Clearance/Approval	Agency	Status
Federal		
Certificate of Public Convenience and Necessity	FERC	Application submitted June 8, 2015; supplemental application submitted October 23, 2015, supplement submitted March 18, 2016,
Section 10 Navigable Waters Permit and Section 404 Permit: Nationwide Permit 12	COE – Huntington and Pittsburgh Districts	Applications submitted June 12, 2015; supplemental filing anticipated November 6, 2015, modifications anticipated to be submitted April 1, 2016
ESA, Section 7 Consultation	FWS – West Virginia Field Office and Ohio Ecological Services Field Office	Consultations ongoing; notification letter documenting compliance with MSHCP to be submitted April 2016. Request for concurrence for Project activities outside MSHCP covered lands to be submitted April 2016
Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act	FWS – Region 5 Migratory Bird Permit Office	Consultations ongoing
West Virginia		
CWA Section 401 Individual Water Quality Certification	WVDEP	Application submitted June 12, 2015; supplemental filing November 2, 2015, modifications anticipated to be submitted April 1, 2016
National Pollutant Discharge Elimination System Construction General Permit – General Water Pollution Control Permit	WVDEP	Application anticipated to be submitted April 2016,
CAA Permit: Minor New Source Review Permit and Title V Source Operating Permit (Lone Oak Compressor Station) Modification of existing Title V Source Operating Permit (Ceredo Compressor Station)	WVDEP	Minor New Source Review Permit application (Lone Oak Compressor Station) permitted December 7, 2015, Title V Source Operating Permit application anticipated to be submitted within 12 months of facility in-service date
Surface Water Withdrawal Permit (Water Management Plan)	WVDEP	Water Management Plan anticipated to be submitted June 2016
NPDES General Permit for Discharges of Hydrostatic Test Water	WVDEP	Applications anticipated to be submitted June 2016
West Virginia Threatened and Endangered Species Consultation/Clearance	WVDNR	Consultations ongoing; sensitive freshwater mussel species survey reports submitted October 19, 2015
Surface Water Withdrawal Permit	WVDNR	Application anticipated to be submitted June 2016
Office of Land and Streams Stream Activity Application	WVDNR	Applications submitted June 12, 2015; supplemental filing submitted November 6, 2015, modifications anticipated to be submitted April 1, 2016

TABLE 1.5-1 (cont'd)
Applicable Major Permits, Licenses, Authorizations, and Clearances for the LX Project

Permit/Clearance/Approval	Agency	Status
National Historic Preservation Act Section 106 Consultation	West Virginia State Historic Preservation Office	Draft Phase I Reports submitted February 18, 2015; concurrence issued for Draft Initial Phase I Reports on March 20, 2015. Draft Supplemental Phase I Reports submitted October 16, 2015, concurrence issued for Draft Supplemental Phase I reports on November 30, 2015. Second Draft Supplemental Phase I reports submitted March 16, 2016
Pennsylvania		
Chapter 105 Water Obstruction and Encroachment General Permit 5 for Utility Line Crossings (GP-5)	PADEP – Southwest Regional Office, Bureau of Waterways and Engineering and Wetlands	Application submitted MDecember 28, 2015.
CWA Section 401 Water Quality Certification	PADEP – Southwest Regional Office, Bureau of Waterways and Engineering and Wetlands	Application and Environmental Assessment submitted March 18, 2016
PAG-10 NPDES Hydrostatic Testing of Tanks and Pipelines	PADEP– Bureau of Point and Non-Point Source Management	Applications anticipated to be submitted June 2016
Pennsylvania Threatened and Endangered Botanical Species Consultation/Clearance	Pennsylvania Department of Conservation and Natural Resources	Consultations ongoing; Plant survey reports and request for concurrence submitted December 2, 2015. Letter of concurrence issued for plant surveys completed to date on January 6, 2016. Supplemental plant survey reports anticipated to be submitted June 2016.
Pennsylvania Threatened and Endangered Bird and Mammal Species Consultation/Clearance	Pennsylvania Game Commission	Letter received March 27, 2015, deferring to FWS
National Historic Preservation Act Section 106 Consultation	Pennsylvania Historical and Museum Commission, Bureau for Historic Preservation	Letter received September 9, 2015 indicating the project would not affect architectural resources, and no survey is required; Draft Phase I Archeological Survey Report submitted October 16, 2015. Concurrence issued for Draft Phase I Report on November 20, 2015
Ohio		
CWA Section 401 Individual Water Quality Certification	OEPA	Applications submitted June 12, 2015; supplemental filing anticipated November 6, 2015, modifications anticipated to be submitted April 1, 2016
NPDES General Permit for Discharges of Hydrostatic Test Water	OEPA	Application anticipated to be submitted June 2016
CAA Permits: Permit-to-Install and Operate Permit (Summerfield Compressor Station) Title V Source Operating Permit (Oak Hill Compressor Station)	OEPA	Permit-to-Install and Operate permit application (Summerfield Compressor Station) submitted June 18, 2015, Permit-to-Install and Operate for the Summerfield CS issued on September 25, 2015 Permit-to-Install permit application (Oak Hill Compressor Station) submitted June 25, 2015, Permit-to-Install for the Oak Hill CS issued on November 20, 2015 Title V Source Operating Permit application (Oak Hill Compressor Station) anticipated to be submitted within 12 months of facility in-service date

TABLE 1.5-1 (cont'd)
Applicable Major Permits, Licenses, Authorizations, and Clearances for the LX Project

Permit/Clearance/Approval	Agency	Status
Surface Water Withdrawal Permit	Ohio Department of Natural Resources	Application anticipated to be submitted June 2016
Ohio Threatened and Endangered Species Consultation/Clearance	Ohio Department of Natural Resources	Consultations ongoing; mussel survey reports submitted August 26, 2015. Request for concurrence anticipated to be submitted April 2016.
Sunfish Creek State Forest Right-of-Way Lease Agreement	Ohio Department of Natural Resources	Right-of-Way Lease Agreement Application and Environmental Assessment submitted September 2015. Modifications to Environmental Assessment submitted March 18, 2016
National Historic Preservation Act Section 106 Consultation	Ohio State Historic Preservation Office	Draft Initial Phase I Reports submitted February 18, 2015; concurrence issued for Draft Initial Archeological Survey Report on February 28, 2015; Draft Supplemental Phase I Reports submitted October 16, 2015, comments on Draft Supplemental Phase I Archeological Survey Report received January 7, 2016. Revised Draft Supplemental PhaseI archeological Survey Report submitted February 16, 2016, second Draft Supplemental PhaseI Reports submitted March 16, 2016.
Local		
NPDES Erosion and Sediment Control General Permit -2 (Ch. 102)	Greene County Conservation District	Application submitted December 28, 2015

TABLE 1.5-2
Applicable Major Permits, Licenses, Authorizations, and Clearances for the RXE Project

Permit/Clearance/Approval	Agency	Status
Federal		
Certificate of Public Convenience and Necessity	FERC	Application Submitted July 29, 2015
Section 404 Permit: Nationwide Permit 12	COE – Louisville Districts	Applications submitted August 2015
Endangered Species Act, Section 7 Consultation	FWS – Kentucky Ecological Services Field Office	Consultations ongoing; request for concurrence submitted March 5, 2015
Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act	FWS – Region 4 Migratory Bird Permit Office	Consultations ongoing; request for concurrence submitted July 2015
Tribal		
National Historic Preservation Act Section 106 Consultation	Tribal consultations	Request for concurrence submitted June 30, 2015
Kentucky		
Kentucky Heritage Council – State Historic Preservation Office	Section 106 of the National Historic Preservation Act	Request for concurrence submitted July 15, 2015
CWA Section 401 Water Quality Certification; Permit to Construct Across or Along a Stream/ Floodplain Construction Permit	KYDEP	Anticipated submittal date August 2015
Kentucky Pollutant Discharge System General Permit (KYR100000) for Storm Water Discharges Associated with Construction Activities	KYDEP	Anticipated submittal date January 2017
Division of Air Quality State – Origin Operating Permit	KYDEP	Application submitted March 20, 2015
Water Withdrawal Permit	KYDEP	Anticipated submittal date September 2015
Kentucky Pollutant Discharge System Hydrostatic Test Water One Time Discharge Authorization	KYDEP	Anticipated submittal date September 2015
Groundwater Protection Plan	KYDEP	Anticipated submittal date September 2015
State Threatened and Endangered Species Consultations and Clearances	Kentucky State Nature Preserve Commission	Request for concurrence submitted June 12, 2015
State Threatened and Endangered Species Consultations and Clearances	Kentucky Department of Fish and Wildlife Resources	Request for concurrence submitted June 15, 2015
State Threatened and Endangered Species Consultations and Clearances	Kentucky Division of Forestry	Request for concurrence submitted June 15, 2015