

## **EXECUTIVE SUMMARY**

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared this draft Environmental Impact Statement (EIS) to fulfill requirements of the National Environmental Policy Act of 1969 (NEPA) and the Commission's implementing regulations under Title 18 of the Code of Federal Regulations Part 380 (18 CFR 380). On June 8, 2015, Columbia Gas Transmission, LLC (Columbia Gas), filed an application with the FERC under Section 7(c) and 7(b) of the Natural Gas Act (NGA) and Part 157 of the Commission's regulations to construct, install, own, operate, and maintain certain interstate natural gas pipeline facilities in Ohio, Pennsylvania, and West Virginia. On July 29, 2015, Columbia Gulf Transmission, LLC (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.

The FERC is the federal agency responsible for authorizing interstate natural gas transmission facilities under the NGA and is the lead federal agency for preparation of this EIS in compliance with the requirements of NEPA. The U.S. Environmental Protection Agency (EPA), the U.S. Army Corps of Engineers (COE), the U.S. Fish and Wildlife Service (FWS), the Ohio Environmental Protection Agency (OEPA), the Pennsylvania Department of Environmental Protection (PADEP), the Pennsylvania Department of Conservation and Natural Resources (PADCNR), the West Virginia Department of Environmental Protection (WVDEP), the West Virginia Division of Natural Resources (WVDNR), and the Kentucky Department for Environmental Protection (KYDEP) participated as cooperating agencies in preparation of the EIS. A cooperating agency has jurisdiction by law or has special expertise with respect to environmental resource issues associated with a project.

## **PROPOSED ACTION**

Columbia Gas's proposal, referred to as the Leach XPress Project (LX Project), would involve the construction, operation, and abandonment of an existing pipeline. The proposed LX Project's pipeline facilities would total about 160.7 miles of pipe and add approximately 143,000 horsepower (hp) of compression to transport up to 1.5 billion cubic feet per day of natural gas.

Columbia Gas would abandon 28.2 miles of the existing Line R-501 in Fairfield, Hocking, and Vinton Counties, Ohio. By abandoning a segment of Line R-501 and constructing the R-801 Loop, Columbia Gas would enhance the overall reliability and flexibility of its existing R-System and increase the existing system capacity. Various replacement and upgrade projects along its existing R-System would allow Columbia Gas to modernize the system facilities, improve system integrity, and enhance service reliability and flexibility. According to Columbia Gas, the proposed pipeline project was developed in response to market demand for the transportation of stranded natural gas supplies from the existing production region to areas of higher demand and premium markets.

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 in Carter, Meniffee, and Montgomery Counties, Kentucky to enable up to 621,000 dekatherms per day (Dth/d)<sup>1</sup> of firm transportation on its system.

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<sup>1</sup> 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.

Columbia Gas' proposal includes the following:

- two natural gas pipelines in Ohio;
- two natural gas pipeline loops in Ohio;
- abandonment in place of a segment of one existing natural gas pipeline in Ohio;
- construction of new three compressor stations in Ohio and West Virginia;
- modification of two compressor units in Ohio and the abandonment of one compressor unit at an existing compressor station in West Virginia;
- 13 bi-directional pig<sup>2</sup> launcher and/or receiver facilities;
- nine Main Line Valves (MLVs);
- five odorization sites at facilities located along Columbia Gas' existing pipeline system; and
- various appurtenant and auxiliary facilities.

LX Project facilities to be constructed would be 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.

Subject to the receipt of FERC authorization and all other applicable permits, authorizations, and approvals, Columbia Gas and Columbia Gulf propose to start construction of both projects in November 2016 and continue through November 2017. Columbia Gas and Columbia Gulf would request to place the natural gas pipeline facilities into service (i.e., operation) following determination that restoration is proceeding satisfactorily, which is expected to follow shortly after construction is completed.

## **PUBLIC INVOLVEMENT**

On September 26, 2014, Columbia Gas filed a request with the FERC to initiate the Commission's pre-filing process for its pipeline 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 involve interested stakeholders early in the project planning process and to identify and resolve issues prior to filing an application with the FERC. On October 9, 2014, FERC granted Columbia Gas's request and assigned the project a pre-filing docket number (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 process.

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*,

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<sup>2</sup> A pig is an internal tool that can be used to clean and dry a pipeline and/or to inspect it for damage or corrosion.

and *Notice of Public Scoping Meetings*. The notice was published in the *Federal Register* on January 20, 2015, and mailed to more than 1,300 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. We<sup>3</sup> held five public scoping meetings in the project area to provide an opportunity for agencies, stakeholders, and the general public to learn more about the proposed project and participate in the environmental analysis by commenting on the issues to be addressed in the draft EIS. As a result of route modifications, the Commission issued a supplemental letter to parties on April 1, 2015. The notice was mailed to more than 300 interested parties.

On September 4, 2015, the Commission issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Rayne XPress Expansion Project, and 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, listed the date and location of five public scoping meetings to be held in the area of the project, 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 LX Project.

In response to our notices and at our public meetings, we received 57 written comments and 58 motions to intervene from landowners, public officials, non-governmental organizations, and government agencies regarding the Projects. These comments expressed concerns with the proposed location of the pipeline route and the effects of the project on resources, including, but not limited to waterbodies, wetlands, wildlife, vegetation, threatened and endangered species, project safety, blasting, air quality, and cumulative impacts.

A copy of the draft EIS was mailed to those agencies, tribal organizations, and individuals that attended meetings or submitted written comments on the Projects, as well as to our environmental mailing list. The draft EIS has been filed with the EPA, and a formal notice of availability will be issued in the *Federal Register*. The public has 45 days after the date of publication of the EPA's notice in the *Federal Register* to comment on the draft EIS either in the form of written comments or at public meetings to be held along the LX Project pipeline route. All comments received on the draft EIS related to environmental issues will be addressed in the final EIS.

## **PROJECT IMPACTS AND MITIGATION**

Construction and operation of the Projects could result in numerous impacts on the environment. We evaluated the impacts of the Project, taking into consideration Columbia Gas' and Columbia Gulf's proposed impact avoidance, minimization, and mitigation measures on geology, soils, groundwater, surface water, wetlands, vegetation, wildlife, fisheries, special status species, land use, visual resources, socioeconomics, cultural resources, air quality, noise, and safety. Where necessary, we are recommending additional mitigation measures to further minimize or avoid impacts. We also assessed cumulative impacts on past, current, and reasonably foreseeable actions in the project areas. In section 3

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<sup>3</sup> "We," "us," and "our" refer to the environmental staff of the FERC's Office of Energy Projects.

of this EIS, we summarize the evaluation of alternatives to the project including the no-action alternative, system alternatives, major and minor route alternatives, and aboveground facility site alternatives.

Based on scoping comments, agency consultations, and our independent evaluation of resource impacts, the major issues identified in our analysis are associated with the LX Project, including waterbodies, forests, and wildlife habitat. Our analysis of these issues is summarized below and discussed in detail in the appropriate resource sections in sections 3 and 4 of this EIS. Section 5 of this EIS contains our conclusions and a compilation of our recommended mitigation measures.

## **Geology and Soils**

The primary effect of the Projects on geologic resources would be the disturbance to steep topographic features and the excavation of consolidated or shallow bedrock during the construction of the pipeline and aboveground facilities, found along the construction right-of-way. All areas disturbed during pipeline construction would be graded and restored as closely as possible to pre-construction contours during cleanup and restoration.

A number of stone and coal mines were identified within, or within proximity to, the Project areas. Columbia Gas and Columbia Gulf have undertaken geotechnical investigations and have coordinated with the appropriate mining companies regarding the potential for future surface and longwall mining activities. No impacts are expected as a result of longwall mining activity at the Lone Oak Compressor Station (CS) site. In addition, a total of 222 oil and gas wells have been identified within, or within proximity to, the LX and RXE Project areas. These sites would be field verified through civil surveys prior to the start of construction.

Based on the avoidance, minimization and mitigation measures developed by Columbia Gas and Columbia Gulf, including measures outlined in their Project-specific Environmental Construction Standards (ECS), Columbia Gas' Longwall Mining Plan, and Columbia Gas' Blasting Plan, we conclude that construction and operation of the Projects would not have any significant adverse effects on geologic resources in the Projects' aresa.

Landslide impacts were assessed for the Projects and due to steep slopes and underlying soils and geologic conditions in certain areas, 17 minor route deviations were incorporated into the proposed route of the LX Project to avoid site-specific features (e.g., topography, landowner concerns, sensitive habitat, or structures). Many of these deviations occurred to minimize the risks associated with construction on steep side slopes and to avoid difficult and rugged terrain primarily characterized by severe elevation changes and rocky outcrops.

The Projects would traverse a variety of soil types and conditions. Construction activities associated with the Projects, such as clearing, grading, trenching, and backfilling, could adversely affect soil resources by causing erosion and compaction and by introducing excess rock or fill material to the surface, which could hinder restoration of the disturbed areas. However, Columbia Gas and Columbia Gulf would implement the mitigation measures contained in the ECS, which incorporates the measures in FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan), to control erosion, enhance successful revegetation, and minimize any potential adverse impacts on soil resources. Specifically, these measures include topsoil segregation, temporary and permanent erosion controls, and post-construction restoration and revegetation of construction work areas. Additionally, Columbia Gas and Columbia Gulf would implement its Spill Prevention and Response Procedures (Spill Procedures) during construction and operation to prevent and contain and, if necessary, clean up accidental spills of any material that may contaminate soils.

Most impacts on soil would be temporary and short-term. Permanent impacts on soils would occur at the aboveground facilities, where the sites would be covered with gravel and converted to natural gas facility use. With Columbia Gas' and Columbia Gulf's implementation of their best management practices (BMPs), ECSs, and implementation of the measures contained in FERC's Plan, as well as our additional recommendations for Columbia Gas to conduct civil surveys identifying the location of any conventional or unconventional oil and gas well locations (including permitted, drilled, producing and abandoned oil and gas wells) within the LX Project footprint, we conclude that impacts on geological and soil resources would be adequately minimized.

### **Groundwater, Waterbody Crossings, Water Use, and Wetlands**

Regional aquifers in the LX Project area originate from Pennsylvanian and Mississippian principal aquifers. The project would cross 15 drinking water source protection areas (DWSPAs) for public water supplies associated with groundwater sources in Ohio located within 0.5 mile of the project and five (5) DWSPAs are located in within the project workspace. There are no other DWSPAs or wellhead protection areas (WHPA) located within 0.5 mile of the LX Project. The project, including alternate pipe yard sites, would contain 73 water wells within 150 feet of the project area. There are 24 springs identified along the project area in Ohio, 3 in West Virginia, and 1 in Pennsylvania. Columbia Gas has agreed to test all water wells and springs within 150 feet of the construction workspace, at the landowner's request, for water quality and quantity prior to and after construction, and provide an alternative water source or a mutually agreeable solution in the event of construction related impacts.

Construction activities in the LX and RXE Projects would not significantly impact groundwater resources because the majority of construction would involve shallow, temporary, and localized excavation. These potential impacts would be avoided or further minimized by the use of construction techniques and mitigation described in in Columbia Gas' and Columbia Gulf's Project-specific ECS, which incorporates measures contained in FERC's Procedures. Columbia Gas and Columbia Gulf would prevent or adequately minimize accidental spills and leaks of hazardous materials into groundwater resources during construction and operation by adhering to its Spill Procedures.

The LX Project would cross 1,083 waterbodies (170 perennial, 390 intermittent, and 516 ephemeral, and 7 open water) and the RXE project would cross 5 tributaries. Two of the manmade ponds in Ohio which are classified as open water are located within the project workspace; however, the ponds would be avoided during construction activities. Major waterbodies would be crossed via horizontal directional drill (HDD), excluding the Hocking River in Ohio which would be crossed via the open-cut method. Columbia Gas anticipates using the open-cut and HDD methods to cross waterbodies. Columbia Gas would use the HDD crossing method at 17 waterbodies using 5 HDDs. Additional measures outlined in Columbia Gas' ECS would aid in the effective avoidance or minimization of impacts on surface waterbodies.

Construction of the LX project would affect a total of 16.1 acres of wetlands, including 1.4 acres of forested wetlands, 0.8 acre of scrub-shrub wetlands, and 13.9 acres of emergent wetlands. No wetlands would be disturbed for the RXE project. A majority of project wetlands would return to pre-construction conditions. During the operational life of the project, Columbia Gas would maintain a 30-foot-wide corridor with selective removal of trees that could compromise the integrity of the pipeline coating, impacting 1.1 acres of forested and 0.2 acre of scrub-shrub wetlands. Additionally, a 10-foot-wide herbaceous maintained right-of-way would affect 0.1 acre scrub-shrub, and 0.3 acre forested wetlands during project operations.

Based on the avoidance and minimization measures developed by Columbia Gas, including the Project-specific ECS, and pending agency recommendations for wetland mitigation, we conclude that impacts on groundwater, surface water, and wetland resources would be effectively minimized or

mitigated, and would be largely temporary in duration. Construction and operation-related impacts on wetlands would be further minimized or mitigated by Columbia Gas's compliance with the pending conditions imposed in the permits issued by the COE, the KYDEP, Ohio Department of Natural Resources (ODNR), the PADEP, and the West Virginia Department of Natural Resources (WVDNR).

### **Vegetation, Wildlife, Fisheries, and Federally Listed and State-Sensitive Species**

The proposed Projects' impacts on vegetation would range from short-term to permanent due to the varied amount of time required to re-establish certain community types, as well as the maintenance of grassy vegetation within the permanent right-of-way and the conversion of aboveground facility locations to non-vegetated areas. The greatest impact on vegetation would be on forested areas because of the time required for tree regrowth to pre-construction condition. Construction in forest lands would remove the tree canopy over the width of the construction right-of-way, which would change the structure and local setting of the forest area. The regrowth of trees would take years and possibly decades. Moreover, the forest land on the permanent right-of-way would be permanently impacted by ongoing vegetation maintenance during operations, which would preclude the re-establishment of trees directly over the centerline of the proposed pipeline. Although Columbia Gas has attempted to route its pipeline adjacent to existing disturbed areas and outside forested areas where possible, impacts on forest habitat represents a significant impact and still account for about 1,380.6 acres of upland forest impacts and 1.1 acres of forested wetland impacts.

Invasive plant species have the potential to out-compete native plants and colonize areas disturbed by construction of the pipeline. Potential impacts resulting from invasive species establishment would be minimized through Columbia Gas' and Columbia Gulf's employment of their proposed invasive species mitigation practices contained within their ECS, such as minimization of sediment transport, topsoil preservation in wetlands, quick revegetation of native species within the right-of-way during restoration, and restoration monitoring of the construction corridor. In addition, we are recommending that Columbia Gas address agency requests for the use of seed mixes that contain native pollinator plant species in order to benefit pollinating species.

The Projects would affect wildlife and wildlife habitats along the pipeline route and at the compressor stations. These impacts would be temporary, short-term, long-term, or permanent, depending on the habitat type impacted, proposed facility type, as well as the location of that habitat within project workspaces. Overall impacts on wildlife from the projects would be long-term in forested areas, but minor and temporary in other habitats that are previously disturbed. The proposed LX Project would be located near four Important Bird Areas, but would not cross them. Columbia Gas has routed the pipeline and associated facilities to minimize impacts on wildlife to the maximum extent possible. Columbia Gas would minimize impacts on wildlife by collocating the proposed workspace with other existing rights-of-way (approximately 40 percent of the proposed alignment). Columbia Gas and Columbia Gulf would follow measures outlined in their ECS to minimize effects on wildlife and their associated habitat.

Construction has the potential to impact migratory birds within the project area. A variety of migratory bird species, including Birds of Conservation Concern, are associated with the habitats that would be affected by the project. The clearing of vegetation during the nesting season could have direct impacts on individual migratory birds. As recommended by the FWS, Columbia Gas and Columbia Gulf would conduct clearing activities between September 1 and March 31 to minimize impacts. We are recommending that Columbia Gas and Columbia Gulf consult with the FWS regarding measures to be included in a final Migratory Bird Conservation Plan to be filed prior to construction, including avoidance, and minimization mitigation.

The LX Project pipeline would cross a total of 983 freshwater waterbodies including 7 Ohio state-designated superior high quality waters; 3 waterbodies classified by the COE as Section 10

(navigable waterway); 3 Pennsylvania state-designated warmwater streams; 1 PA Fish and Boat Commission approved trout water; and 128 waterbodies listed as 303(d) impaired waters. Columbia Gas would use various crossing methods such as wet open-cut, conventional bore, and HDD and follow measures outlined in the ECS and Procedures to minimize impacts on waterbodies. Crossings of waterbodies that support fisheries of special concern would comply with federal and state regulations and conditions. We are recommending that Columbia Gas construct through waterbodies in compliance with timing windows established by our Procedures unless expressly permitted in writing by the appropriate state agency that alternative time windows are granted.

Columbia Gas would use surface water and municipal sources totaling approximately 42 million gallons for hydrostatic testing. The LX Project proposes to use four waterbodies as sources of hydrostatic test water for the pipeline and municipal and various sources of test water for aboveground facilities. WVDEP recommended that water withdrawn from the Ohio River either be discharged back into the Ohio River or be treated with a WVDEP-recommended biocide prior to discharge. The RXE Project proposes to use municipal sources for water hydrostatic testing.

Based on Columbia Gas' and Columbia Gulf's consultations with FWS and our review of existing records, 19 federally listed threatened or endangered species are potentially present in the project areas.<sup>4</sup> We are requesting FWS consider this draft EIS as the Biological Assessment for the Projects. We have determined that construction and operation of the Projects in accordance with Columbia Gas' and Columbia Gulf's proposed measures and our recommendations would not likely adversely affect the Indiana bat, northern long-eared bat, Gray bat, Virginia big-eared bat, eastern massasauga, fanshell, pink mucket, rabbitsfoot, sheepsnose, snuffbox, clubshell, rayed bean or northern monkshood. We have determined that the proposed Projects would have no effect on the American burying beetle, eastern small-footed myotis, Rafinesque's big-eared bat, or the white-haired goldenrod. Effects on the running buffalo clover and small whorled pogonia are pending species surveys. We determined that the LX Project is not likely to adversely affect most species in the LX Project area, and are recommending additional surveys for the running buffalo clover and the small whorled pogonia prior to construction, in order to complete consultation for these species.

An additional 36 species are state listed as endangered, proposed as endangered, proposed as rare, threatened, or candidate species. We are recommending Columbia Gas file the remaining surveys for state-listed species that may be present in the project areas and identify additional mitigation measures for state-protected mussel species and/or the need for additional surveys in Ohio and West Virginia. In consideration of these recommendations, as well as those described above, we concluded that impacts on state sensitive species would be avoided or adequately minimized.

Columbia Gulf's construction of the RXE Project would have no effect or is not likely to adversely affect any of the federal- and state-listed species identified as potentially occurring in Carter, Menifee, and Montgomery counties in Kentucky.

## **Land Use and Visual Resources**

Construction of the proposed Projects would affect approximately 3,196.0 acres of land, while operations would affect approximately 1,045.0 acres. Right-of-way (including permanent and temporary right-of-way and approved temporary work space (ATWS)) would account for approximately 76.6

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<sup>4</sup> A Supplemental Filing was made just prior to going to print with this draft EIS, in which Columbia Gas and Columbia Gulf expanded their Project areas. Due to the timing of the filing, our review of this information is ongoing and the analyses presented in this section may not always be reflective of these changes. The final EIS will contain our final analyses and conclusions.

percent of all affected land during the construction phase, and approximately 95.0 percent of all affected land during the operations.

Columbia Gas and Columbia Gulf have identified 116 structures within 50 feet of the construction work area, including residences, businesses, and other structures such as barns, sheds, or garages. Of these, 68 are within 25 feet of the construction work area. No planned developments have been identified within 0.5 mile of the project. Columbia Gas and Columbia Gulf have developed site specific residential construction plans for all residences crossed within 50 feet of the Projects' work limits.

The LX Project would have two crossings of the North Country National Scenic Trail; one scenic byway; the Sunfish Creek state forest in Ohio; three recreational trails; one wildlife management area; and one outdoor recreation area. The LEX portion of the LX Project would cross 0.4 mile of the Sunfish Creek State Forest. Since consultations with ODNR regarding impacts, permitting, and regulatory requirements are ongoing concerning the impacts on and restoration of wildlife habitat in the Sunfish Creek State Forest, we recommend continued consultations with the ODNR, formal application and independent Environmental Assessment, as well as any avoidance or mitigation measures developed with this agency regarding the Sunfish Creek State Forest crossing.

The LX Project would also be within 0.25 mile of one nature preserve and its two associated components, an additional nature preserve, one public park, one conservation preserve, and two state parks. The LX Project would also cross the Dunkard Fork Wildlife Management in West Virginia. Impacts on recreation in these areas would be temporary and limited to the period of active construction, which typically would last only several days to several weeks in any one area. These impacts would be minimized by implementation of Columbia Gas's ECS.

The LX Project would cross one parcel enrolled in the Conservation Reserve Program and three conservation easements. The LX Project would also occur within 0.3 mile of one state forest and one easement within the Wetland Reserve Program. Columbia Gas has agreed to continue to coordinate with the owners of these easements and refine the pipeline routes regarding BMPs and mitigation measures to be implemented during construction activities in these areas.

Visual resources along the pipeline route are a function of geology, climate, and historical processes, and include topographic relief, vegetation, water, wildlife, land use, and human uses and development. Approximately 40 percent of the pipeline corridors would be installed within or parallel to existing pipeline and/or utility rights-of-way. As a result, the visual resources along collocated portions have been previously affected by other similar activities. Impacts in other areas would be greatest where a conversion from forested land to a grassy, maintained right-of-way would occur, particularly at viewing locations such as roadways or trails.

Construction and operation of compressor stations and meter stations would result in a greater impact on visual resources. Construction of new aboveground facilities would result in conversion of 133.6 acres of forest, agricultural, and open land into industrial land. Several of the facilities are within the viewshed of residences. Some of these residences have existing visual buffers that would screen their view of the aboveground facilities, while others would experience altered viewsheds. In particular, we are recommending Columbia Gulf develop a visual screening plan for the proposed Means Compressor Station. Overall, visual impacts on residences close to the aboveground facilities would be permanent.

We conclude that overall impacts on land use and visual resources would be adequately minimized, with adherence to Columbia Gas' and Columbia Gulf's proposed impact avoidance, minimization, and mitigation plans, and our recommendations.



## **Socioeconomics**

The primary socioeconomic effects of the projects include an increased population associated with the influx of construction workers and the impact of these workers on public services and temporary housing during construction. Secondary socioeconomic effects include increased sales and property tax revenue, job opportunities, income associated with local construction employment, increased vehicle traffic, and impacts on roads.

We received comments regarding potential adverse effects on property values, traffic safety within the project area during construction, and concern about eminent domain. The actual potential for these impacts is unclear and would likely be highly variable. Based on our experience, we are not aware of instances where an interstate natural gas pipeline has resulted in impacts on property values. To address traffic impacts related to construction across and within roadways and railroads, Columbia Gas has developed an acceptable Traffic Control Plan. During construction of the projects, Columbia Gas and Columbia Gulf would maintain traffic safety through use of appropriate traffic control measures, including the use of flagmen and signs in affected areas. Necessary permits would be obtained for traffic related impacts and contractors would comply with weight limitations and restrictions.

Construction of the projects would result in minor positive impacts from increases in construction jobs, payroll taxes, purchases made by the workforce, and expenses associated with the acquisition of material goods and equipment. Operation of the LX and RXE Projects would have a minor to moderate positive effect on local government tax revenues from an increase in property taxes that would be collected.

## **Cultural Resources**

Columbia Gas and Columbia Gulf conducted archival research and walkover surveys of the area of the proposed Projects to identify historic aboveground resources and locations for additional subsurface testing in areas with potential for prehistoric and historic archaeological sites. Columbia Gas identified 149 historic aboveground resources in Ohio and 16 historic aboveground resources in West Virginia within the area of direct impact for the proposed LX Project. We have determined that one of these historic aboveground resources is eligible for listing in the National Register of Historic Places (NRHP). Sixty sites have been recommended as ineligible, and 104 sites have not been assessed. Columbia Gas has committed to avoiding and monitoring resources. We are recommending Columbia Gas file avoidance plans prior to construction of facilities.

Phase I archaeological surveys and architectural reconnaissance surveys are ongoing at the time of this draft EIS for portions of the pipeline corridor, aboveground facilities, temporary workspaces, contractor/staging/pipe yards and access roads. Columbia Gas and Columbia Gulf would complete and submit all survey information in the proposed Area of Potential Effect to FERC prior to construction.

We consulted with federally recognized Native American tribes (25 associated with the LX Project and 5 with the RXE Project) to provide them an opportunity to comment on the proposed Projects. Several tribes and organizations requested additional consultation or information and the Delaware Tribe of Indians requested they participate as a consulting party. Only the Catawba Indian Nation responded that they have no immediate concerns within the boundaries of the proposed LX Project area, but requested they be notified if any unanticipated discovery is encountered during construction.

To ensure that our responsibilities under Section 106 of the National Historic Preservation Act are met, we are recommending that Columbia Gas and Columbia Gulf not begin construction until any additional required surveys are completed, survey reports and treatment plans (if necessary) have been reviewed by the appropriate parties, and we have provided written notification to proceed.

## Air Quality and Noise

Air quality impacts associated with construction of the proposed projects would include emissions from fossil-fueled construction equipment and fugitive dust. Such air quality impacts would generally be temporary and localized, and are not expected to cause or contribute to a violation of applicable air quality standards. Similarly, emissions associated with modifications at the existing Columbia Gulf's RXE facilities would be intermittent and short-term. Once construction activities in an area are completed, fugitive dust and construction equipment emissions would subside, and the impact on air quality due to construction would go away completely. Further, construction emissions do not exceed the General Conformity thresholds in areas of degraded air quality. Since there are counties in the project areas that are in nonattainment and maintenance areas, we are recommending that Columbia Gas submit a plan for monitoring in the emissions during construction to ensure emissions meet the General Conformity requirements. Therefore, we conclude that the projects' construction-related impacts would not result in a significant impact on local or regional air quality.

Columbia Gas' LX Project would consist of the construction of three new compressor stations, modifications at two existing stations, abandonment of one compressor station, four new regulator stations, modification at one existing regulator station, 13 bi-directional pig launcher and/or receiver facilities, nine mainline valves, and five new odorization stations. Columbia Gulf's RXE Project would consist of the construction of two new compressor stations and modification at a measuring and regulator station. The majority of new emissions from the Columbia Gas' and Columbia Gulf's projects would result from operation of the five new compressor stations and modifications at the three existing compressor stations.

Emissions generated during operation of the pipeline portions of the LX Project would be minimal, limited to emissions from maintenance vehicles and equipment and fugitive emissions (considered negligible for the pipeline). Based on potential emission rates, the proposed Lone Oak, Oak Hill, and Grayson compressor stations would be subject to Title V permitting for the LX and RXE Projects. Columbia Gas would need to apply for a Title V permit for the Lone Oak and Oak Hill compressor stations within twelve months of commencing operation. The Ceredo compressor station currently operates under the authority of a Title V permit; therefore, a Title V application would need to be submitted to revise the existing permit to account for the modifications at the Ceredo compressor station. The Initial Operating Permit obtained for the construction of the Grayson compressor station includes the operating permit requirements for Title V; therefore, a subsequent Title V permit application is not required for the Grayson compressor station.

The New Source Performance Standard (40 CFR 60) (NSPS) Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines) sets emission standards for oxides of nitrogen (NO<sub>x</sub>), carbon monoxide, and volatile organic compounds. Since the project's emergency engines would be greater than 130 hp, the emission standards of Subpart JJJJ would apply to the emergency generators at the LX and RXE Projects and Columbia Gas and Columbia Gulf would comply with the emission standards. NSPS Subpart KKKK (Standards of Performance for Stationary Combustion Turbines) sets emission limits for NO<sub>x</sub> and sulfur dioxide (SO<sub>2</sub>). The combustion turbines at the Lone Oak, Summerfield, Oak Hill, Grayson, and Means CSs would have heat inputs causing them to be subject to Subpart KKKK. Columbia Gas and Columbia Gulf would demonstrate compliance with the NO<sub>x</sub> emission limits through annual performance tests. Columbia Gas and Columbia Gulf would demonstrate compliance with the SO<sub>2</sub> limits through the use of pipeline quality natural gas. The LX and RXE Projects would not trigger any additional NSPS at the existing facilities.

Noise Sensitive Areas (NSAs) near the construction areas may experience an intermittent increase in perceptible noise during construction, but the effect would be temporary and local. Construction of aboveground facilities would be limited to daytime hours. Noise mitigation measures that would be

implemented during construction include the use of sound-muffling devices on engines and installation of barriers between construction activity and NSAs. Additional noise mitigation measures could be implemented to further reduce construction noise disturbances at NSAs. Generally, nighttime noise would not increase during construction, with the exception of HDD activity. Proposed mitigation would reduce noise levels from HDD activity to below 55 dBA  $L_{dn}$  (decibels on the A-weighted scale and day-night noise level). Based on modeled noise levels, our recommendations that Columbia Gas prepare a revised HDD noise mitigation analysis and weekly construction status reports, and the temporary nature of construction, we conclude that the Projects would not result in significant noise impacts on residents and the surrounding communities during construction.

Columbia Gas anticipates five HDD locations. HDD activities would use a wide variety of equipment with a majority of the noise being generated at the entry points. Columbia Gas would implement general mitigation measures in addition to site-specific mitigation measures to reduce noise from HDD activities below the required level.

Columbia Gas's project would require blasting in some areas of the proposed route resulting in potential noise and vibration effects. Columbia Gas has developed a Project-specific Blasting Plan. In comparison with other construction noise, the sound resulting from blasting would be brief and infrequent. Blasting would be conducted in accordance with applicable agency regulations, including pre- and post-blast inspections, advance public notification, and mitigation measures as necessary.

Noise impacts would result from operation of the Project's aboveground pipeline facilities, compressor stations, and meter stations. The new and modified compressor stations would be designed so that the total noise from each of these facilities operating at full capacity would not exceed our requirements, resulting in noise levels at an  $L_{dn}$  of 55 dBA or lower, at the nearest NSA. Columbia Gas and Columbia Gulf would implement noise control measures to reduce noise impacts at aboveground facilities. All site noise sources that could cause perceptible vibration would be adequately mitigated at regulator stations and odorization sites. Based on the analyses conducted, mitigation measures proposed, and our recommendations that Columbia Gas prepare noise surveys after placing the compressor stations in service, we conclude that operation of Columbia Gas' and Columbia Gulf's Projects would not result in significant noise impacts on residents and the surrounding communities.

Given adherence to Columbia Gas' and Columbia Gulf's proposed measures as well as our additional recommendations, we conclude that potential air and noise-related impacts associated with the Projects would be adequately minimized or mitigated.

## **Reliability and Safety**

The pipeline and aboveground facilities associated with the proposed Projects would be designed, constructed, operated, and maintained to meet the Department of Transportation's Minimum Federal Safety Standards in 49 CFR 192 and other applicable federal and state regulations. These regulations include specifications for material selection and qualification; minimum design requirements; and protection of the pipeline from internal, external, and atmospheric corrosion.

Columbia Gas would implement its own management plan for its pipeline facilities, which would be clearly marked at line-of-sight intervals and at other key points to indicate the presence of the pipeline. The pipeline system would be inspected to observe right-of-way conditions and identify soil erosion that may expose the pipe, dead vegetation that may indicate a leak in the pipeline, conditions of the vegetative cover and erosion control measures, unauthorized encroachment on the right-of-way such as buildings and other structures, and other conditions that could present a safety hazard or require preventive maintenance or repairs. Columbia Gas and Columbia Gulf would use Supervisory Control and Data Acquisition systems that would allow for continuous monitoring and control of the Project.

Columbia Gas and Columbia Gulf would prepare emergency response plans that would provide procedures to be followed in the event of an emergency that would meet the requirements of 49 CFR 192.615. The plan would include the procedures for communicating with emergency services departments, prompt responses for each type of emergency, logistics, emergency shut down and pressure reduction, emergency service department notification, and service restoration.

We conclude that Columbia Gas' and Columbia Gulf's implementation of the above measures would protect public safety and the integrity of the proposed facilities.

### **Cumulative Impacts**

Three types of projects (past, present, and reasonably foreseeable projects) could potentially contribute to a cumulative impact when considered with the proposed Projects. Cumulative analysis considered projects meeting one or more of the criteria listed below. These criteria define the Projects' regions of influence used in this analysis to describe the general area for which the proposed Projects could potentially contribute to cumulative impacts. The region of influence for the cumulative analysis included projects within the proposed Projects' boundaries of the eight-digit hydrologic unit code watersheds affecting water resources and aquatic resources; projects located within 0.5 mile of the proposed Projects' areas that may impact wildlife, vegetation, and land use; counties within the proposed Projects' construction areas and where non-local workers are expected to reside during construction and operations personnel are expected to reside permanently and an additional 10 to 15 miles into the adjacent counties for portions of the proposed projects near a county border; geological resources within the proposed Projects' footprint; construction related air emissions within 1.2 miles of the proposed Projects' workspace; and projects occurring 0.5 mile or less from facilities creating operational noise associated with the proposed projects. We have identified three types of projects that could potentially cause a cumulative impact when considered with the proposed projects. These include: (1) infrastructure; (2) FERC jurisdictional and non-jurisdictional linear pipeline projects; and (3) major residential, commercial, and industrial development projects within counties affected by the Projects. These include ten identified natural gas related projects, one transportation interchange project, and one residential subdivision project.

Impacts associated with the proposed projects in combination with other projects, such as residential developments, utility lines, and transportation projects, would be relatively minor overall. We have included recommendations in the draft EIS to further reduce the environmental impacts associated with Columbia Gas's and Columbia Gulf's projects, as summarized in section 5.2. Additionally, Columbia Gas selected a route that collocates with existing rights-of-way where feasible. Therefore, we conclude that the cumulative impacts associated with the proposed projects, when combined with other known or reasonably foreseeable projects, would be effectively limited.

### **ALTERNATIVES CONSIDERED**

The no-action alternative was considered for the proposed Projects. While the no-action alternative would eliminate the short- and long-term environmental impacts identified in this EIS, the stated objectives of Columbia Gas' and Columbia Gulf's proposals would not be met.

Our analysis of system alternatives included an evaluation of whether existing or proposed natural gas pipeline systems could meet the Projects' objectives while offering an environmental advantage. The Projects could also reduce the reliance on alternative energy sources such as coal, oil, nuclear energy, or a combination of these. There is no available and suitably located capacity for existing pipeline systems to transport the required volumes of natural gas, nor are they connected to the Columbia Gas's gas supply area in the Marcellus and Utica Shale regions of West Virginia, Pennsylvania, and Ohio. No existing pipeline system with the capacity to transport the contracted load connects the Marcellus and

Utica Shale regions to serve the identified Project markets. Therefore, we do not consider the use of existing pipeline systems as feasible alternatives for the proposed Projects.

We evaluated major route alternatives for each of the Columbia Gas LX Project components. None of the major route alternatives offered significant environmental advantages over the proposed pipeline routes. Columbia Gas assessed numerous minor route variations of the course of Project development.

Based on consultations with landowners, resource agencies, municipal governments, field review, and impact assessment, Columbia Gas is evaluating 12 landowner requested variations, 2 agency requested variations, and 1 minor route alternative into the proposed LX Project to avoid site-specific features such as topography, landowner concerns, sensitive habitat, or structures. Since the landowner requested variations are still in development, we are recommending that Columbia Gas further assess the minor route evaluations for the tracts identified in table 3.3.3-1 of the draft EIS in coordination with the landowners and either incorporate a route that avoids the resources of concern, or otherwise explain how potential impacts on resources have been effectively avoided, minimized, or mitigated. We also evaluated one additional minor route alternative through areas in which two foreign FERC-regulated pipeline projects (the Rover Pipeline Project and the Appalachian Lease Project) have proposed routes similar to that of the LX Project. However, implementation of this route alternative was not recommended due to additional environmental impacts.

We also evaluated the locations of the proposed Projects' aboveground facilities to determine whether environmental impacts would be reduced or mitigated by the use of alternative facility sites. At least one alternative site was evaluated for each proposed aboveground facility, excluding odorization stations. We did not identify any alternative sites that would offer a significant environmental advantage to the proposed sites for these facilities. These alternative sites were excluded from consideration due to landowner preference, increased environmental impacts, accessibility, location constraints, additional construction needs, increased impacts on forested land or sensitive resources, and proximity to residential areas.

## **MAJOR CONCLUSIONS**

We determined that construction and operation of the Projects would result in limited adverse environmental impacts, with the exception of impacts on forested land. This determination is based on a review of the information provided by Columbia Gas and Columbia Gulf and further developed from environmental information requests; field reconnaissance; scoping; literature research; alternatives analyses; and contacts with federal, state, and local agencies, and other stakeholders.

We conclude that approval of the LX Project would result in a significant environmental impact to forests. Forested impacts from the construction of the LX Project would be significant; however, due to the prevalence of forested habitats within the project area and eventual regrowth of prior forested areas outside of the permanent right-of-way, in addition to Columbia Gas' mitigation and routing, we conclude that the permanent conversion of forested lands would be reduced to less than significant levels. Although many factors were considered in this determination, the principal reasons are:

- LX and RXE Projects would minimize impacts on natural and cultural resources during construction and operation of its Project by implementing Columbia Gas and Columbia Gulf's ECS, which incorporates FERC's Plan and Procedures and includes a Spill Plan for Oil and Hazardous Materials and a Winter Construction Plan; HDD Contingency Plan; Unanticipated Discoveries and Emergency Procedures; Procedure Guiding the Discovery of Unanticipated Cultural Resources and Human Remains; Blasting Plan; Karst Mitigation Plan;

Traffic Control Plan; Longwall Mining Plan; Fugitive Dust Control Plan; Polychlorinated Biphenols Risk Management Plan; and Polychlorinated Biphenols Soil Management Plan.

- We would complete Endangered Species Act consultations with the FWS prior to allowing any construction to begin.
- We would complete the process of complying with Section 106 of the National Historic Preservation Act and implementing the regulations at 36 CFR 800 prior to allowing any construction to begin.
- Columbia Gas and Columbia Gulf would be required to obtain applicable permits and provide mitigation for unavoidable impacts on waterbodies and wetlands through coordination with the COE and applicable state agencies.
- We are recommending that Columbia Gas and Columbia Gulf finalize with the FWS a Migratory Bird Conservation Plan that includes documentation of its consultation with the FWS regarding avoidance, and minimization, as appropriate.
- We would provide oversight of an environmental inspection and mitigation monitoring program that would ensure compliance with all mitigation measures that become conditions of FERC authorizations and other approvals.

In addition, we developed site-specific mitigation measures that Columbia Gas and Columbia Gulf should implement to further reduce the environmental impacts that would otherwise result from construction of its Projects. We determined that these measures are necessary to reduce the significant and adverse impacts associated with the Projects, and in part, are basing our conclusions on implementation of these measures. Therefore, we are recommending that these mitigation measures be attached as conditions to any authorization issued by the Commission. These recommended mitigation measures are presented in section 5.2 of the draft EIS.