



LAMBERTVILLE EAST EXPANSION PROJECT

RESOURCE REPORT 10 *Alternatives*

FERC Docket No. CP18-____-000

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|---|---|
| Filing Requirement | Location in Environmental Report |
| <input checked="" type="checkbox"/> 1. Address the “no action” alternative – 18 CFR § 380.12(1)(1) | Section 10.3 |
| <input checked="" type="checkbox"/> 2. For large projects, address the effect of energy conservation or energy alternatives to the project – 18 CFR § 380.12(1)(1) | Sections 10.4 and 10.5 |
| <input checked="" type="checkbox"/> 3. Identify system alternatives considered during the identification of the project and provide the rationale for rejecting each alternative – 18 CFR § 380.12(1)(1) | Section 10.6 |
| <input type="checkbox"/> 4. Identify major and minor route alternatives considered to avoid impact on sensitive environmental areas (e.g., wetlands, parks, or residences) and provide sufficient comparative data to justify the selection of the proposed route – 18 CFR § 380.12(1)(2)(ii) | Not Applicable |
| <input type="checkbox"/> 5. Identify alternative sites considered for the location of major new aboveground facilities and provide sufficient comparative data to justify the selection of the proposed site – 18 CFR § 380.12(1)(2)(ii) | Not Applicable |

ACRONYMS AND ABBREVIATIONS

| | |
|-------------------|--|
| Elizabethtown Gas | Pivotal Utility Holdings, Inc. d/b/a Elizabethtown Gas |
| FERC | Federal Energy Regulatory Commission |
| NJ RACT | New Jersey Reasonably Achievable Control Technology |
| Project | Lambertville East Expansion Project |
| PSEG | PSEG Power LLC |
| Texas Eastern | Texas Eastern Transmission, LP |

10.0 RESOURCE REPORT 10 – ALTERNATIVES

10.1 Introduction

Texas Eastern Transmission, LP (“Texas Eastern”) is seeking a certificate of public convenience and necessity from the Federal Energy Regulatory Commission (“FERC”) pursuant to Sections 7(b) and 7(c) of the Natural Gas Act to construct, install, own, operate, and maintain the proposed Lambertville East Expansion Project (“Project”).

The Project’s purpose is to expand the compression facilities at the Lambertville Compressor Station located in West Amwell Township, Hunterdon County, New Jersey to provide incremental pipeline transportation service to existing city-gates in New Jersey on behalf of two local utility customers, PSEG Power LLC (“PSEG”) and Pivotal Utility Holdings, Inc. d/b/a Elizabethtown Gas (“Elizabethtown Gas”), as well as to comply with new air emissions regulations under the New Jersey Reasonably Achievable Control Technology (“NJ RACT”) program. This new firm transportation capacity will enable PSEG and Elizabethtown Gas to serve their growing residential and commercial demand in their respective service territories. To accomplish this, Texas Eastern will install two new Solar Taurus 70 natural gas-fired turbine compressor units to replace two existing higher emitting Clark DC-990 natural gas-fired turbine compressor units at the station. The replacement of the two existing units will also require removal of a building, coolers and auxiliary equipment associated with the compressor units to be removed and installation of replacement buildings, coolers and auxiliary equipment for the compressor units to be installed.

In addition, Texas Eastern will perform system maintenance activities for certain facilities at Texas Eastern’s existing Lambertville Compressor Station including the removal of four retired reciprocating compressor units and associated building, coolers and auxiliary equipment, and the removal of a warehouse and one other building. Texas Eastern will also perform yard piping modifications as part of this scope.

This Resource Report 10 (Alternatives) discusses the alternatives considered during the development of the Project, including the no-action alternative, system alternatives, and site alternatives. A checklist showing the status of the FERC filing requirements for Resource Report 10 is included following the table of contents.

10.2 Purpose and Need

As noted above, the Project’s purpose is to both expand the compression facilities at Texas Eastern’s existing Lambertville Compressor Station and perform system maintenance activities. The proposed modifications will be implemented as part of Texas Eastern’s capital expansion program and maintenance capital program.

The Project will create additional firm pipeline capacity necessary to deliver up to 60,000 dekatherms per day of natural gas on a long-term basis from receipt points in Lambertville, New Jersey and Marietta, Pennsylvania to existing delivery points in Market Zone M3 in or near Union, Somerset, and Middlesex Counties in New Jersey. As part of its capital expansion program, Texas Eastern is proposing to construct the Project facilities to effectuate deliveries to two local New Jersey utilities, PSEG and Elizabethtown Gas, to help them meet their growing demand. The Project provides increased access to traditional utility markets for the Project shippers. PSEG and Elizabethtown Gas have entered into agreements with Texas Eastern for all of the capacity of the proposed Project.

The Project will also allow Texas Eastern to comply with new air emissions regulations under the NJ RACT program. The replacement of the existing Clark DC-990 natural gas-fired turbine compressor units with

Solar Taurus 70 natural gas-fired turbine compressor units will result in a more than 90 percent decrease in potential nitrous oxide emissions from the turbines at the facility.

In addition to providing access to additional natural gas supply to bolster the Project shippers' load growth, the Project will provide Texas Eastern's system and its customers with additional service enhancements such as transportation security, reliability and flexibility by increasing capacity on Texas Eastern's mainline system. The Project will also promote increased commodity price competition and reduce price volatility by introducing additional capacity in this major metropolitan market area in northern New Jersey. To that end, the Project will serve to increase price and supply competition in both the gas and electricity markets in the Northeastern United States ("U.S.").

10.3 No-Action Alternative

The Project would provide additional natural gas transportation capacity to help meet the growing high priority demand of two local New Jersey utilities, PSEG and Elizabethtown Gas, as well as reduce the potential nitrous oxide emissions from the facility by more than 85 percent. The No-Action Alternative would entail no construction of Project facilities, thereby resulting in no environmental impacts associated with construction, however, the No-Action Alternative would also prevent Texas Eastern from meeting the proposed NJ RACT regulations through the replacement of two existing Clark DC-990 natural gas-fired turbine compressor units with Solar Taurus 70 natural gas-fired turbine compressor units. Accordingly, without the system maintenance work, the No-Action Alternative would result in un-realized benefits to the environment associated with reducing emissions at the station. Furthermore, without the Project, PSEG and Elizabethtown Gas would need to secure the additional firm pipeline capacity by some other means. The No-Action Alternative would not meet the Project's purpose and need, would not result in lower emissions, and would not allow Texas Eastern to satisfy the additional natural gas capacity needs of PSEG and Elizabethtown Gas and, therefore, was not considered acceptable.

10.4 Energy Conservation Alternative

The energy conservation alternative will not meet the purpose and need for the Project in a timely manner, and therefore, this alternative is not preferable to the proposed action. Energy conservation has been successful in some areas and continues to be encouraged in the residential, commercial, and industrial sectors such as the U.S. Environmental Protection Agency's Energy Star program. However, conservation alone cannot meet the growing demand for natural gas in such a large market sector and for the Project in particular. Specifically, energy conservation will not eliminate the need for Texas Eastern to comply with the NJ RACT. Nor will it allow the Project shippers to serve their growing residential and commercial demand in their respective service territories.

Natural gas demand in the marketplace is continuing to grow despite programs designed to encourage fuel conservation. Increased supplies of natural gas, when efficiently consumed along with other types of energy as part of an energy conservation program, will continue to contribute to meeting the overall future energy needs of the marketplace. The use of the energy conservation alternative for meeting the demands of Texas Eastern's customers includes potential improvement in energy conservation in the residential, commercial, and industrial sectors, beyond the current energy conservation measures already being practiced. Fuel conservation should continue to be an ongoing alternative used in concert with the development of additional, more efficient gas transportation and distribution systems.

10.5 Energy Source Alternatives

The alternative energy sources discussed in this section would not meet the Project's purpose and need, and therefore, would not be preferable to the proposed action. Energy alternatives used together with natural gas could contribute to meeting the overall future energy needs of the marketplace.

Potential alternative energy sources include coal, oil, nuclear energy, as well as renewable sources such as solar, wind, and geothermal energy. Coal, although an available option, does not burn as cleanly as natural gas, and its use may have implications related to acid rain production unless costly air pollution controls are applied to coal-burning power plants. States in the Project area have stringent air quality regulations and thresholds for stack emissions, fugitive emissions, and particulate handling that likely preclude coal as a viable option.

Net imports of petroleum averaged 4.9 million barrels per day, the equivalent of 25 percent of total U.S. petroleum consumption in 2016 (EIA 2017). Therefore, the use of additional oil supplies to meet future energy demands could further increase the reliance on overseas crude petroleum and petroleum products. This could subsequently increase the potential economic and national security risks in the event of an emergency or a supply curtailment. Given the current instability of some oil-producing regions, particularly the Middle East, this option would not guarantee reliable, deliverable fuel supplies and thus is not a preferred option. In addition, the increased use of oil increases the potential level of environmental impact associated with processing, transporting, and burning the fuel. For example, an increase in the movement of oil tankers to transport the fuel causes a potential increased risk of oil spills and the associated significant environmental impacts that may be realized. Trace sulfur in this fuel also typically results in sulfur dioxide emissions, as well as emissions of nitrogen oxide and particulates during burning. These emissions cause air quality degradation. Moreover, if new or expanded refineries were required to process the crude oil, various additional negative environmental impacts could result (e.g., air pollution, visual intrusion, and noise).

Nuclear energy development is an environmentally viable option, especially in terms of limiting air emissions of criteria pollutants. However, this option has drawbacks related to the negative public perception concerning the potential safety risks associated with nuclear facilities. As a result, an unfriendly regulatory climate exists in which the probability of a new nuclear facility coming on line to serve the incremental energy demands in the markets served by the Project is extremely low. Moreover, the use of nuclear fuel would result in long-term environmental impacts stemming from the disposal of radioactive waste products. Therefore, nuclear energy is not the preferred option to meet the needs of increased compression capacity.

Wind, geothermal, and solar power have not yet been developed in the Project area for large-scale application partly because the energy sources associated with these forms of power are less reliable in certain parts of the country (such as solar and wind) or generally are not available (geothermal). These forms of energy, which usually are converted to electricity, could not substitute easily for natural gas in equipment and processes designed for using natural gas. In addition, once converted, the electricity must be transported to the consumer, which may require the addition of new power lines. These energy alternatives are in the developmental stages and some of these options, such as wind, are being implemented in the region. However, they will not meet the existing or future demand in a timely manner. Therefore, these alternative energy sources do not represent viable options for replacing the natural gas that will be supplied by the Project. Moreover, the Project is in response to increased residential and commercial demand in the PSEG and Elizabethtown Gas service territories and to reduce emissions, thereby meeting the proposed NJ RACT regulations. No energy alternative will satisfy the combined needs of utility demand and air emissions reduction.

10.6 System Alternatives

To meet the incremental volume requirements of PSEG and Elizabethtown Gas, Texas Eastern considered expanding its existing 42-inch diameter Line 38 pipeline system by approximately 1.5 mile, as a potential alternative to the Project's proposed horsepower increase. This approximate 1.5-mile Loop Alternative (Figure 10.6-1) would begin at Texas Eastern's existing Linden Compressor Station located in the City of Linden, Union County, New Jersey, and follow Range Road to the south for approximately 0.1 miles before crossing an area of tidal and freshwater wetlands and the Rahway River. Upon crossing the river, the pipeline would continue to the southwest entering Woodbridge Township, Middlesex County, New Jersey and an area of intense industrial/commercial development. The pipeline would then continue for approximately 0.6 miles crossing Randolph Avenue before heading south just east of Terminal Way. The pipeline would be built parallel to Texas Eastern's existing 36-inch diameter Line 20 up to this point. This proposed alignment would be located in an area that includes six other pipelines including Texas Eastern's Line 1 and Line 2, two Buckeye Partners, L.P. pipelines, one Transco pipeline, and their associated easements.

Texas Eastern evaluated the Loop Alternative to determine if this alternative would reduce overall environmental impacts associated with the Project. Table 10.6-1 provides a comparison of Loop Alternative with the proposed action.

The primary disadvantages of the Loop Alternative compared to the proposed action are that it would affect approximately 0.34 acres of wetlands, approximately 1.52 acres of potential RTE habitat, include a major waterbody crossing, and the acquisition of new permanent easement. The proposed action would require approximately 6.34 acres more temporary construction workspace; however, these impacts would be temporary, and this area would be restored upon completion of construction.

The Loop Alternative would also not reduce emissions to meet the proposed NJ RACT regulations. Considering the Loop Alternative would have significantly greater environmental impacts compared to the proposed action, this alternative was eliminated from consideration.



Sources: TRC, ESRI, ENBRIDGE, NHD and NJ DEP.

Figure 10.6-1 Loop Alternative

TABLE 10.6-1
Comparison of the Loop Alternative

| Factor (Unit) | Proposed Action | Loop Alternative |
|--|-----------------|------------------|
| Pipeline Length (miles) | NA | 1.5 |
| Temporary Construction Workspace (acres) <u>a/</u> | 29.38 | 23.04 |
| Pipeline Permanent Easement (acres) <u>b/</u> | 0 | 9.18 |
| Residences within 100 feet of Pipeline Centerline (number) | NA | 0 |
| Upland Forested Impacts (acres) <u>c/</u> | 0 | 0 |
| Forested Wetland Impacts (acres) <u>d/</u> | 0 | 0 |
| Non-forested Wetland Impacts (acres) <u>d/</u> | 0 | 0.34 |
| Waterbody Crossings (number) | 2 | 1 |
| Major Waterbody (\geq 100 feet) Crossings (number) | 0 | 1 |
| Public Open Space Crossed (miles) | 0 | 0 |
| Public Open Space (acres) | 0 | 0.02 |
| RTE Species Habitat Affected (acres) <u>e/</u> | 0 | 1.52 |
| In-Street Construction (miles) | 0 | 0 |
| Street / Rail Crossed (number) | 0 / 0 | 2 / 2 |

a/ Pipeline temporary construction workspace based on a 125-foot-wide construction ROW.

b/ Pipeline permanent easement based on a 50-foot-wide operational ROW.

c/ Forest impacts based on aerial interpretation.

d/ Wetland impacts based on NJDEP GIS 2012 wetlands layer. Pipeline workspace based on a 75-foot-wide construction ROW in wetlands and 30-foot-wide operational ROW.

e/ RTE species habitat affected based on NJDEP GIS "Landscape Project Species Based Habitat Piedmont Plains" layer.

Note: NA = Not Applicable; RTE = rare, threatened and endangered; ROW = right-of-way; CROW = construction right-of-way.

10.7 Facility Site Layout Alternatives

During the design process, several facility and workspace layouts were considered to satisfy the Project purpose and need at the Lambertville Compressor Station facility. An initial design included a new compressor building, gas coolers, filter separators, and other associated facilities to be located in the southwest corner of the compressor station site in the area of the existing microwave tower. This design would have required the relocation and replacement of the microwave tower with a free-standing tower to avoid the need for guy wire supports. Concerns regarding the lengthy regulatory approval process for the new tower and the possible need to acquire property outside of the compressor station property to place the tower on led to a reconsideration of the location of these proposed facilities at this location.

Another area considered for the proposed facilities was the open area to the east of the existing compressor buildings located near the facility entrance. This area however was eliminated from consideration due to the presence of the facility septic system at this location and direct impacts to the nearby ephemeral waterbody (SOW-B) and associated wetlands to the east.

As detailed in Resource Report 2, the proposed action will not have any direct impact on wetlands and waterbodies, and through the proper implementation of the Erosion and Sediment Control Plan and the Spill Prevention Control and Countermeasure Plan (*see* Appendix 1B, Resource Report 1), indirect effects to these resources are not anticipated. Proposed workspace within the Lambertville Compressor Station

consists of previously disturbed paved, gravel, and maintained lawn areas in an industrial setting. Temporary workspace located outside of the Lambertville Compressor Station is limited to frequently mowed upland fields. Therefore, anticipated impacts to vegetation and wildlife will be temporary and not significant as detailed in Resource Report 3. No long-term impacts to land use, recreation, or aesthetics are anticipated as a result of the Project as detailed in Resource Report 8. As detailed in Resource Report 9, the Project will result in a net reduction in potential nitrous oxides emissions from Lambertville Compressor Station and will not result in additional noise impacts to nearby noise sensitive areas. Given the Project will have a temporary and limited environmental impact as currently proposed, additional alternative facility site layouts were not considered.

10.8 References

[EIA] U.S. Energy Information Administration, 2017. Oil Crude and Petroleum Products Explained. Oil Import and Exports. Available online at https://www.eia.gov/energyexplained/index.cfm?page=oil_imports. Accessed September 2017.