



COMPRESSION

Understanding Compression

A key component of efficiently delivering natural gas.



Compressing the natural gas that will flow in the PennEast Pipeline is required to help maintain pressure, overcome friction and “push” the flow of gas. This occurs in a “compressor station,” units strategically located along a pipeline route.

Compressor stations are similar to highway rest stops. Natural gas is diverted from the main transmission line (the highway) and enters yard piping (the off ramp). Excess solids and/or liquids are removed. Then, just like drivers resting and refueling, the gas is directed to large engines that increase pressure before it returns to the main transmission line.

The PennEast Pipeline Project has been designed to minimize impact and disturbance by requiring only one compressor station to serve the entire line.

PennEast has identified a proposed station site in Kidder Township, Carbon County, Pennsylvania. This is an approximately 74-acre undeveloped site near Interstate 80 that is zoned light industrial.

The PennEast Pipeline’s compressor station will include three state-of-the-art natural gas turbine-driven units. Other equipment includes a natural gas-fired emergency generator, a fuel gas heater and a storage tank to collect any pipeline liquids.

LOCATION



The PennEast Pipeline will use only one compressor station, located at approximate milepost 26.6 in Kidder Township, Carbon County, Pennsylvania.

STATION EQUIPMENT



Three natural gas turbine-driven Solar Mars 100 units rated at 15,900 hp each.



One natural gas-fired Caterpillar auxiliary power unit.



One 1,950 gallon storage tank (for pipeline liquids collected in the gas filter).



Various small storage vessels (for waste liquids, lubricating oil, etc.).



One fuel gas heater rated at approximately 3.22 MMBTU/hr heat input.

AIR AND NOISE QUALITY

Safety, environmental protection, and neighbor satisfaction are three of PennEast's highest priorities, and this includes minimizing all emissions and reducing noise disturbance to the greatest extent possible.

Most concerns about compressor stations are related to air emissions and noise disturbance; however, the Federal Energy Regulatory Commission (FERC), as well as other federal, state and local agencies, strictly regulates air emissions and noise levels for compressor stations.

The emissions from PennEast's compressor station will be below Clean Air Act (CAA) significance levels and are not expected to have a cumulative significant air quality impact.

The station's natural gas-driven turbines will be operated with Best Available Technology to reduce emissions. In fact, the turbines PennEast will use are equipped with advanced "dry low-emission" nitrogen oxide (NOx) controls. These reduce the NOx and peak combustion temperatures, and control carbon monoxide and volatile organic compound emissions by using a lean, pre-mixed air/fuel mixture and advanced emissions controls.

PennEast will also use leak detection and monitoring technology to assure safe, reliable and efficient delivery of the clean, natural gas fuel. The pipeline will be monitored 24/7 for environmental and safety integrity. Ensuring safety means taking steps to safeguard the environment and families. Leaks also represent a loss of the Project's product. PennEast not only is committed to protecting local communities, but also its infrastructure investment by ensuring the amount of natural gas entering the pipeline equals the amount that exits the pipeline "highway rest stop," and equals the amount reaching the terminus in Mercer County, New Jersey.

Inside a compressor station, it is noisy; however, compliance with FERC's strict regulations regarding sound is a must. FERC requires that sound must not exceed 55 dBA day-night average sound level (Ldn) at any pre-existing noise-sensitive areas (e.g., residential land use, school, church, hospital or other qualifying noise-sensitive area type).

For sound level context, a library is approximately 30 dBA; a dishwasher operating in the next room or a large business office is roughly 55 dBA; and a vacuum cleaner at 10 feet is 70 dBA.

Existing outdoor noise levels at the nearest noise-sensitive area are expected to increase by only 1 dBA. This modest rise – which generally would be considered an imperceptible difference by most listeners having healthy human hearing – is due to the noise-sensitive area distances from the station, the existing background sound that is dominated by Interstate 80 roadway traffic noise, and from the use of state-of-the-art sound-proofing technology.

For an overview of federal and state air quality regulations, operational emissions, cumulative impacts, existing noise levels, project noise analysis and related issues, please see Resource Report 9 available via the "Official Filings" page at www.PennEastPipeline.com.

WHAT'S INSIDE?



PennEast member company UGI Energy Services' Manning Compressor Station in Wyoming County, Pa., features engines similar to what will be used at PennEast's Kidder Compressor Station.



WHAT IS dBA?

The method commonly used to quantify environmental sounds consists of evaluating all frequencies of a sound according to a weighting system that reflects the typical frequency dependent sensitivity of average healthy human hearing. This is called "A-weighting," and the decibel level measured is referenced as dBA.