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Compressor Stations

The compressor station, also called a pumping station, is the "engine" that powers an interstate natural gas pipeline. As the name implies, the compressor station compresses the natural gas (pumping up its pressure) thereby providing energy to move the gas through the pipeline.

Pipeline companies install compressor stations along a pipeline route, typically every 40 to 100 miles. The size of the station and the number of compressors (pumps) varies, based on the diameter of the pipe and the volume of gas to be moved. Nevertheless, the basic components of a station are similar.

Liquid Separators



As the pipeline enters the compressor station the natural gas passes through scrubbers, strainers or filter separators. These are vessels designed to remove any free liquids or dirt particles from the gas before it enters the compressors. Though the pipeline is carrying "dry gas," some water and hydrocarbon liquids may condense out of the gas stream as the gas cools and moves through the pipeline.

Any liquids that may be produced are collected and stored for sale or disposal. A piping system directs the gas from the separators to the gas compressors.

Prime Movers

There are three commonly used types of engines that drive the compressors and are known as "prime movers":

- #### Turbine/Centrifugal Compressor

This type of compression unit uses a natural gas-fired turbine to turn a centrifugal compressor. The centrifugal compressor is similar to a large fan inside a case, which pumps the gas as the fan turns. A small portion of natural gas from the pipeline is burned to power the turbine.



- *Electric Motor/Centrifugal Compressor*

In this package, the centrifugal compressor is driven by a high voltage, electric motor. One advantage of electric motors is they need no air emission permit since no hydrocarbons are burned as fuel. However, a highly reliable source of electric power must be available and near the station, for such units to be considered for an application.



- *Reciprocating Engine/Reciprocating Compressor*

These large piston engines resemble automobile engines, only many times larger. Commonly known as “recips,” these engines are fueled by natural gas from the pipeline. Reciprocating pistons, located in cylinder cases on the side of the unit, compress the natural gas. The compressor pistons and the power pistons are connected to a common crankshaft. The advantage of reciprocating compressors is that the volume of gas pushed through the pipeline can be adjusted incrementally to meet small changes in customer demand.



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