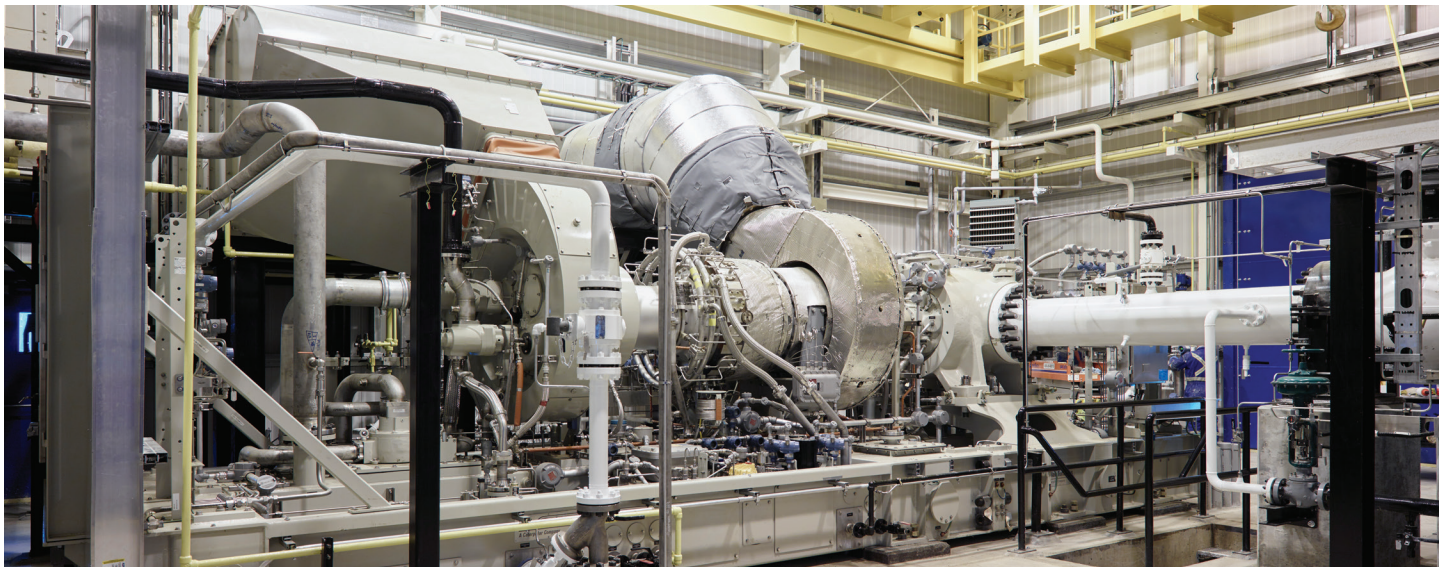


# Natural gas compressor stations

With more than 65 years' experience, TransCanada is a leader in the responsible development and reliable operation of North American energy infrastructure, including natural gas and liquids pipelines, power generation and gas storage facilities.



*Compressor stations re-pressurize natural gas so it flows continuously through the pipeline.*

Compressor stations provide energy needed to move natural gas through the pipelines to reach our homes and provide everyday comforts, such as heat and cooking.

## About compressor stations

TransCanada's natural gas pipelines transport more than 25 per cent of the continent's daily natural gas supply used to heat homes, generate power and fuel industry.

As natural gas flows along a pipeline, it slows due to friction with the pipe, resulting in a drop in pressure. To keep the gas flowing at a desired flow rate, it is re-pressurized at locations along the pipeline. This is done by mechanically compressing the gas at sites connected to the pipeline known as compressor stations.

The location and number of compressor stations needed on a pipeline system is dependent on a number of factors, including the operating pressure of the pipeline, the diameter of the pipe, elevation changes along the pipeline route and the volume of gas transported.

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*Our stations are equipped with control systems that operate, monitor and control the station.*

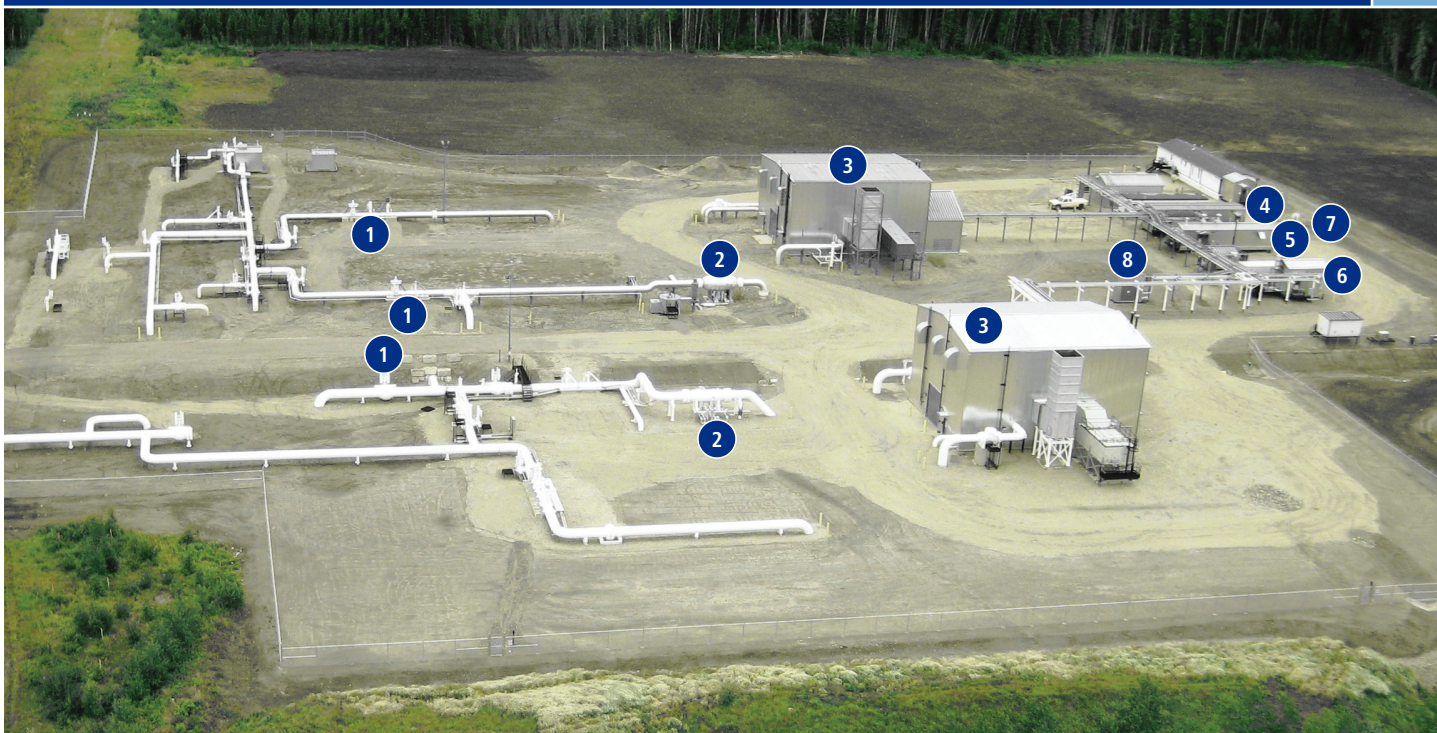
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## We take safety seriously

Safety is the first consideration in planning and constructing a compressor station. A number of safety systems are built into the stations to ensure the safety of the facility, our employees and the environment. All our pipelines are constantly monitored for any abnormalities. When a potentially hazardous condition is recognized, the system can be shut down remotely, either by controllers or, in some cases, automatically.

## Personnel

Compressor stations are designed to be remotely operated in a safe and efficient manner. There is no requirement for employees to be at the site during normal operation, although all sites are checked regularly by operations personnel who monitor, inspect and maintain the equipment. Processes are continuously monitored from centralized control centres and staff will respond quickly to the site if required.



*A typical compressor station includes all of the equipment illustrated here.*

There are many components that make up a typical compressor station, some of which are described below and seen in the illustration above:

#### **1. Yard piping and valves**

Yard piping brings natural gas from the pipeline to the compressor station and then back to the pipeline after it has been compressed.

#### **2. Station natural gas scrubber**

As natural gas enters the compressor station, it passes through a natural gas scrubber vessel which removes any liquid, dirt or other particles from the natural gas. Anything removed from the natural gas is stored on site in a holding tank for processing or disposal.

#### **3. Compression**

At the heart of any compressor station are devices that work together to provide the energy necessary to move natural gas through the pipeline. Depending on the station configuration, the power is provided by an engine – either a turbine like those found on jet airplanes or a reciprocating engine that operates much like the one in an automobile. That power is transferred to a compressor which uses an impeller (much like a fan) to push the gas down the line.

#### **4. Telecommunications**

Compressor station equipment communicates with TransCanada's Supervisory Control and Data Acquisition (SCADA) system. The SCADA system is connected to TransCanada's operations control centres located across North America, that monitor the pipeline system 24 hours a day. All

natural gas received on the pipeline is monitored to ensure it meets TransCanada gas quality specifications. These are defined in the gas transportation tariff that is filed with the regulator.

#### **5. Air system**

Pressurized air is taken from an air compressor and is used throughout the site as part of the control system for instrumentation, valves and for service air tools.

#### **6. Generators**

Electric generators powered by natural gas are located at all TransCanada compressor stations. In instances where utility power is not available, the generator is the primary power source for the compressor station.

#### **7. Uninterruptible power supply (UPS)**

A UPS is installed at all stations to provide ongoing power in the event of a power disruption. It is designed to provide sufficient time for personnel to respond to the station, while continuing to remotely operate and control the station's operations.

#### **8. Utility gas building**

Typically, the fuel that powers the turbine or reciprocating engine is natural gas taken from the pipeline. In some instances, electric motors provide the power.

**Contact us at:**

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