

Dirty and Dangerous: Stop Unnecessary Compressor Stations

As natural gas production booms, fracked gas is moved through an ever-expanding network of long-distance transmission pipelines. These pipelines rely on a backbone of over 1,400 compressor stations. Compressor stations are dangerous, loud and major sources of air pollution. As companies push to add pipeline capacity, they will also expand existing or build new compressors, locking in their dirty infrastructure.

A Growing Footprint

Compressor stations maintain or increase pressure in natural gas transmission lines and are a key part of the pipeline infrastructure network.¹ They can operate for over 30 years and require at least 4 acres of land.² The natural gas system depends on more than 1,400 of these stations.³ New and expanded pipelines will require yet more compression capacity.⁴

We must transition to 100 percent clean, renewable energy to stave off climate catastrophe.⁵ However, as of July 2019 corporations were spending \$16 billion on 2,000 miles of pipeline, which will require compressor stations, and had announced another \$82 billion for 7,000 more miles.⁶

Major Source of Air Pollution

To fuel their operations, most compressor stations burn natural gas, causing air pollution.⁷ In Pennsylvania, compressor stations are the leading cause of air pollution from oil and gas production. Compressor stations emit significant quantities of nitrogen oxide (NO_x), fine particulate matter, carbon monoxide, benzene and formaldehyde⁸ that pollute nearby communities.⁹ NO_x and particulate matter pollution contribute to respiratory health problems, such as chronic bronchitis, asthma, emphysema and existing heart disease, as well as cause labored breathing and reduce life expectancy.¹⁰

Compressor stations periodically emit high levels of the potent greenhouse gas methane,¹¹ which they vent during routine maintenance called “blowdowns.”¹² A large compressor station emits as much methane as a large landfill.¹³ These emissions can spread up to a mile before

dissipating, raising methane levels in nearby communities.¹⁴ While electric compressor stations (a small portion of facilities) lack combustion emissions, they still leak methane.¹⁵

Methane is 86 times as potent as CO₂ in the short term.¹⁶ A single megaton of methane emitted into the atmosphere can create enough ozone to cause \$132 million in damages to forestry, agriculture and public health, as well as hundreds of premature deaths annually.¹⁷ Compressor station emissions can increase ozone formation.¹⁸ Prolonged contact with ground-level ozone is linked to asthma and chronic obstructive pulmonary disease. When mixed with particulate matter, which has been linked to various cancers, smog can form. Smog is linked to premature deaths and low birthweight in babies.¹⁹

Explosive and Loud

Compressor stations are prone to rupture, leakage, fire and explosions.²⁰ The stations use high pressure, are complex²¹ and are mostly unstaffed, relying on electronics to detect accidents.²² Leaks can be caused by internal and external corrosion, stress and strain,²³ low temperatures and fatigue.²⁴ Some stations lack safety features. Activists defeated a compressor station in Franklin Township, New Jersey that would have vented gas in emergencies rather than including a fire hydrant.²⁵

Risks culminate in real accidents. A Texas compressor station accident killed one person and injured two others, closing a nearby state highway.²⁶ An explosion in Pennsylvania ripped a hole in the station roof shaking homes within a half mile.²⁷ A fireball erupted in Michigan when high-temperature station equipment ignited leaked methane, taking multiple stations offline for months.²⁸ In New Jersey, a Transco compressor ignited a flash fire injuring 13.²⁹

Compressor stations are also very loud, raising noise levels inside nearby homes even at night.³⁰ Homes within the immediate vicinity have experienced a nearly 10-decibel increase in noise exposure, exceeding the guidelines of the U.S. Environmental Protection Agency.³¹ High noise levels are a hazard, with health and quality of life impacts. While lower volumes can cause sleep deprivation, noise exposure above 70 decibels can cause hearing problems,

hypertension and ischemic heart disease.³² Compressor noise also interferes with wildlife that relies on sound for communication or avoiding predators.³³

Conclusion

Continued investments sunk into compressor stations, pipelines, oil and gas wells, fracking and fossil fuel infrastructure lock us in to a dirty energy future in defiance of

climate science. The way out is an immediate, dramatic shift to zero-emission wind and solar power, accompanied by widespread deployment of energy efficiency.

The United States must be a global leader on this ambitious path. The goal of 100 percent clean, renewable energy by 2030 is achievable with the necessary political will. Everyone must demand strong government policies and commit to aggressive action now.

Endnotes

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