

# An Introduction to Natural Gas from Coal

## WHAT IS IT?

Natural gas from coal is made up mostly of methane (90 to 100 per cent). Miners and geologists have known of its existence for many years, but only recently has its potential as an energy source been recognized as one of the cleanest burning fossil fuels.

Natural gas from coal, or coalbed methane, is often called an “unconventional” resource. Most of the gas is stored within the molecular structure of the coal and is prevented from being released either by overlying rock or pressure from water which is also present

in the coal. To extract the natural gas, the water in the coal must be pumped out to reduce pressure. With less pressure, the gas separates

from the coal and can be extracted using new drilling techniques such as horizontal drilling.

## HOW DID IT FORM?

Natural gas is created as a by-product when organic materials are transformed into coal over time by pressure and heat. This process is known as coalification.

Coalification began millions of years ago, when Nova Scotia was a lush tropical lowland located much closer to the equator. Flooding was common and over time the

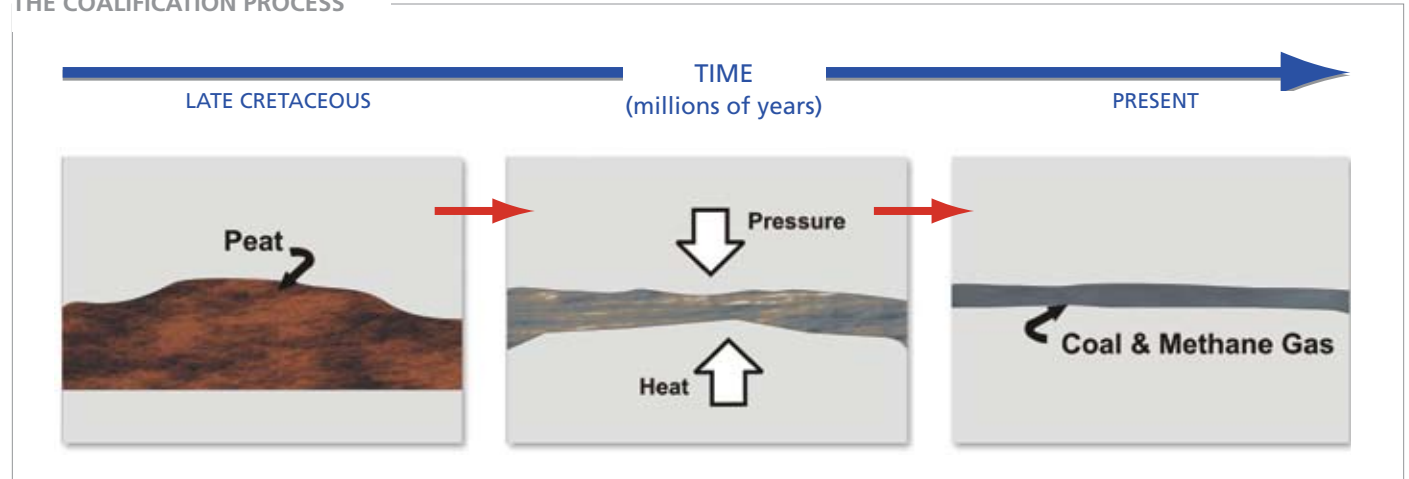
remains of dead plants and animals collected in swampy waters.

As the centuries passed, this material was buried beneath deposits of sand and clay, forming peat. Gradually, pressure and time allowed bacterial and chemical changes to transform the peat into coal. As a result, large quantities of methane-rich gas were produced and trapped within the coal.

## ONSHORE GAS EXPLORATION & DEVELOPMENT



## THE COALIFICATION PROCESS



## BASINS IN NOVA SCOTIA

Nova Scotia has three significant coal basins: the Cumberland Basin, the Pictou Basin and the Sydney Basin. Combined, the three basins contain more than one hundred coal seams ranging in thickness from less than one metre to more than 15 metres.

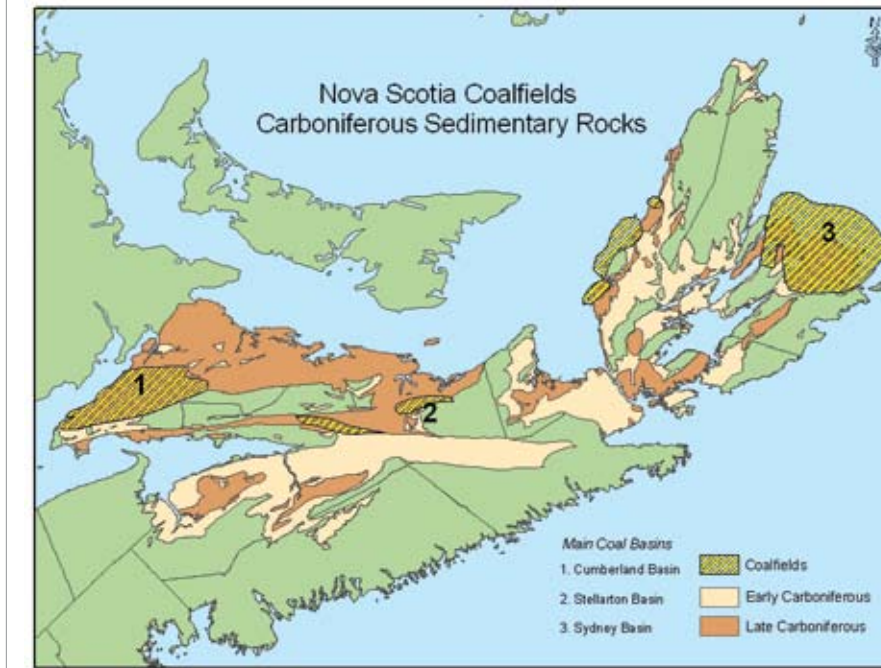
## HOW WILL NOVA SCOTIANS BENEFIT?

There is a growing need around the world to find new and alternative energy sources. North Americans are seeking and developing renewable and non-renewable energy opportunities on land, in the air and in the oceans.

In Nova Scotia, coal gas has the potential to help our province secure a new, untapped energy source. The Nova Scotia government is committed to pursuing this opportunity because of the potential for economic development and energy diversity.

Compared to coal or oil, natural gas from coal has fewer emissions of sulfur, carbon and nitrogen.

## NOVA SCOTIA COALFIELDS



And because it is such a clean energy source, the demand for natural gas from coal is expected to increase significantly. Using natural gas from coal would contribute to the reduction of green-house gas emissions.

Economically, coal gas drilling pumps dollars into local economies through the purchase of goods and supplies and through the employment of local workers.

Workers and companies as diverse as welders, truckers, surveyors, engineers and restaurants benefit from the expenditures of exploration and production companies.

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