

BEYOND ENERGY TRANSITION



***Patent holders of the field-proven GEM production tool
World's 1st downhole passive gas-water separator
Renewable Natural Gas & H2 Generation***

<https://eoc-energy.com/>

✦ ***Imagine generating carbon-neutral, renewable biogenic natural gas (RNG) and renewable bio-hydrogen (H2) from coalbed underground aquifers, providing the clean fuels of the future.*** This is exactly what Emerald Operating Company (EOC) is achieving by merging biotechnology with existing infrastructure to create downhole “farms” that produce RNG/H2.

✦ Underground, largely dormant microscopic organisms known as archaea inhabit coal surfaces and fractures; when fed the correct amendments, the archaea will produce biogenic RNG and hydrogen. Coalbed aquifers offer an ideal environment for these organisms to exist, providing a continuous supply of nutrient-laden groundwater. Additionally, coalbeds absorb and sequester carbon dioxide (CO2), a by-product of RNG and H2 production. This CO2 is adsorbed in the coalbed, locking it away permanently & preventing it from reaching the atmosphere. Moreover, EOC's patented GEM Tool™ ensures that methane does not escape into the atmosphere. This integrated process not only promotes the generation of carbon-neutral RNG and hydrogen but also facilitates carbon capture and reduces greenhouse gases.

✦ Natural gas is an ideal solution for the anticipated energy requirements of both large data processing and AI centers.

20 to 23
Million Years
ago

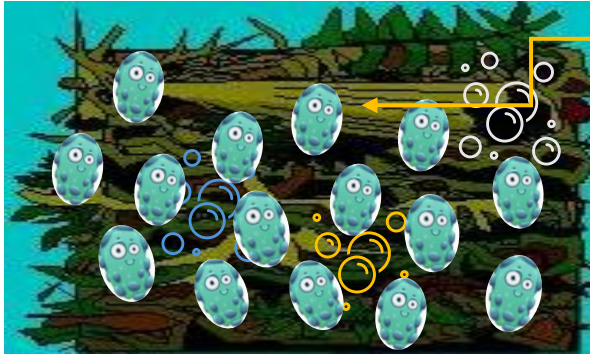
GEOLOGICAL FORMATION OF COAL FOR GENERATING RENEWABLE NATURAL GAS & Bio-HYDROGEN (Powder River Basin, WY)

Present
Day

Time

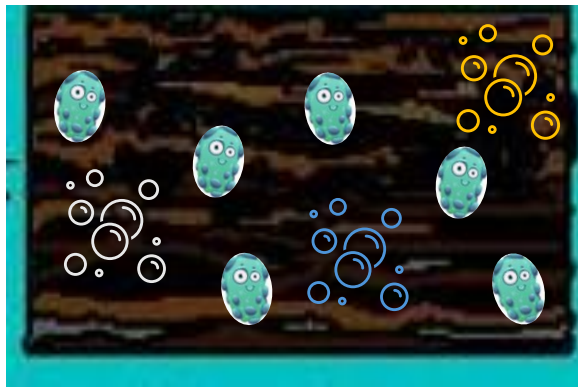
Surface
to Near
Surface

Peat Phase



★ Methanogens consume decaying vegetation, population thrives producing vast amounts of methane (CH_4), CO_2 , Hydrogen (H_2)

Lignite Phase

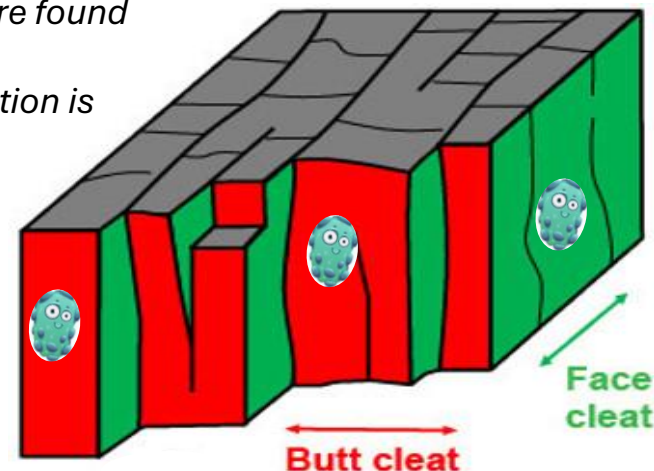


★ Less nutrients for methanogens to thrive & generate CH_4 , CO_2 , & H_2 as the nutrients have been consumed & are beginning to harden into rock. CH_4 & CO_2 become adsorbed into the lignite molecular matrix; H_2 escapes to the atmosphere.

Coal Phase

★ The only nutrients available to the methanogens are found in the slightly fresh water of the coals; the coals become methanogenic nutrient-poor. The methanogenic population is dormant and diminished.

★ Field tests in buried coals by Luca (2009) & Emerald(2019, 2022) demonstrate that when adding certain nutrients to the coals, the methanogenic Population thrives, and new CH_4 , CO_2 , & H_2 are generated with CO_2 being adsorbed & sequestered in subsurface coals.



Burial Depth

100's to
1,000's of
feet
below
surface



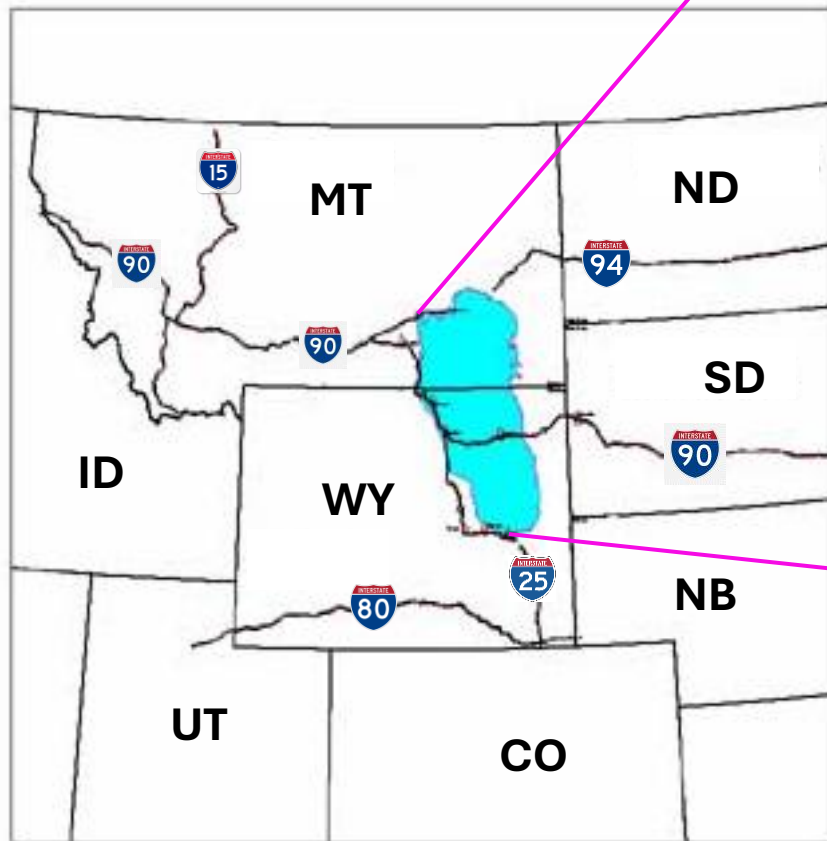


**Details provided upon
NDA execution**

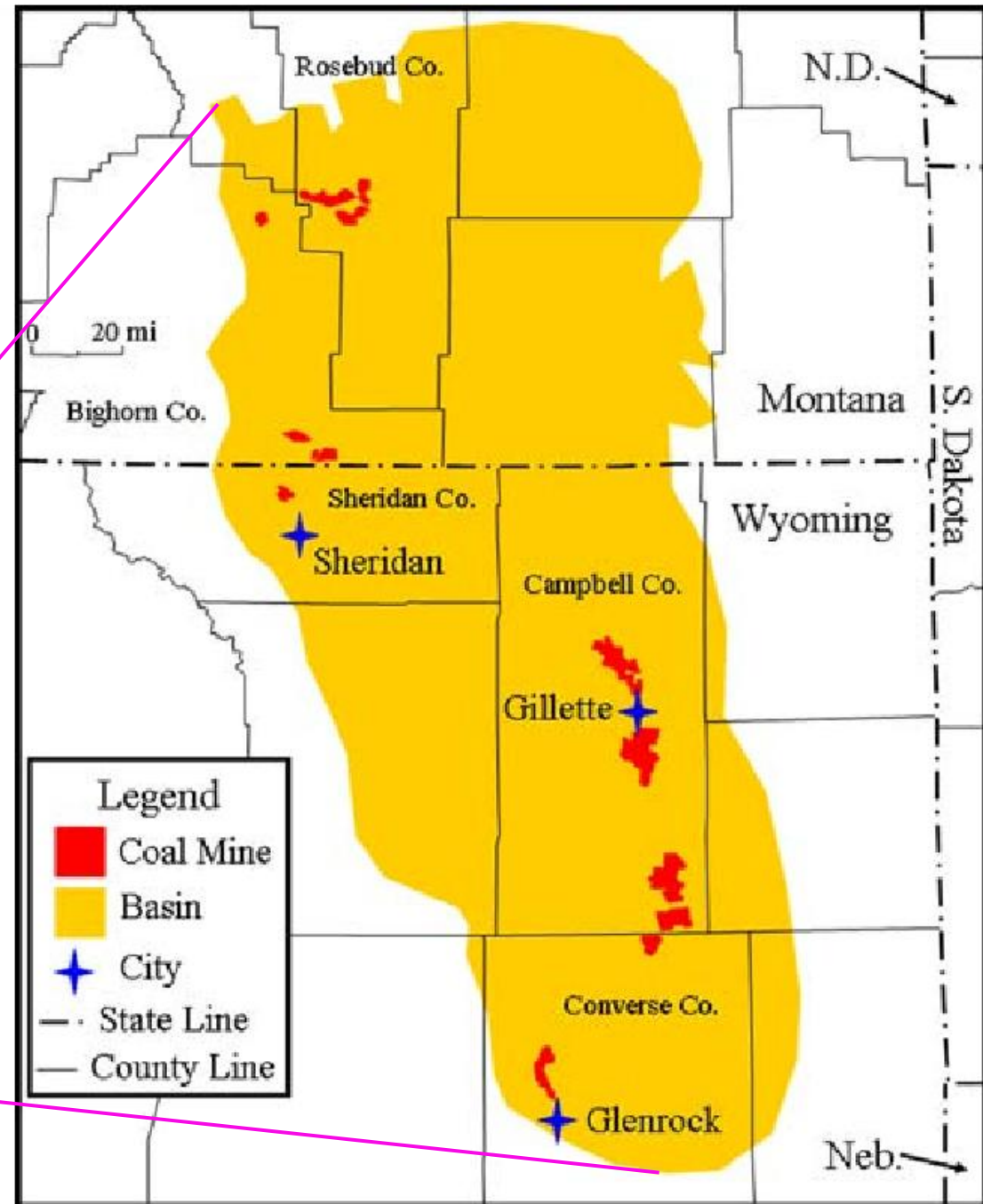


The Powder River Basin (PRB) is in northeastern Wyoming & southeastern Montana, covering approximately 20,000 square miles. Coal mines in this basin supply over 40% of our nation's coal, primarily utilized for electrical generation.

Subsurface PRB coalbed aquifers can easily satisfy our country's need for clean energy. These coal aquifers are sufficient to provide RNG and hydrogen continuously in huge to unlimited quantities.



Powder River Basin



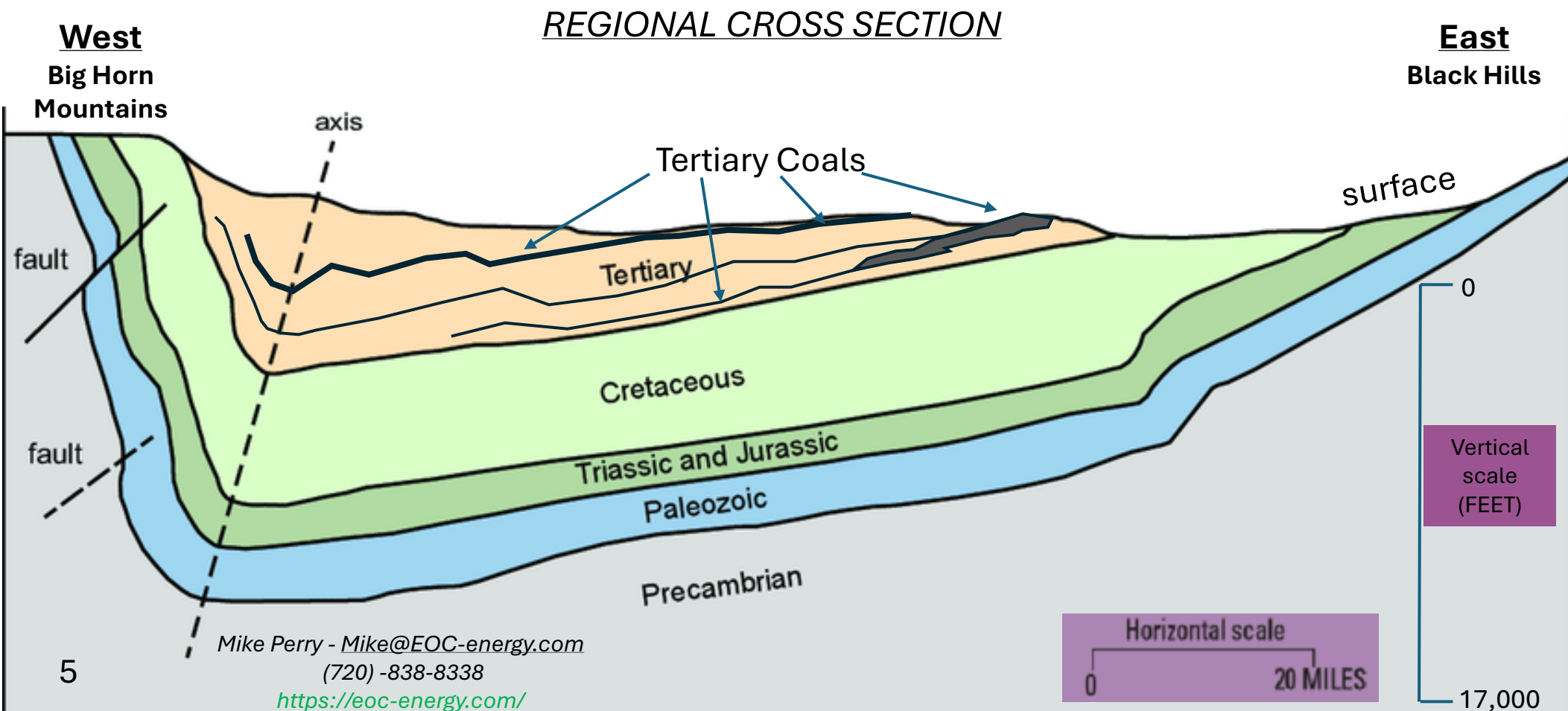
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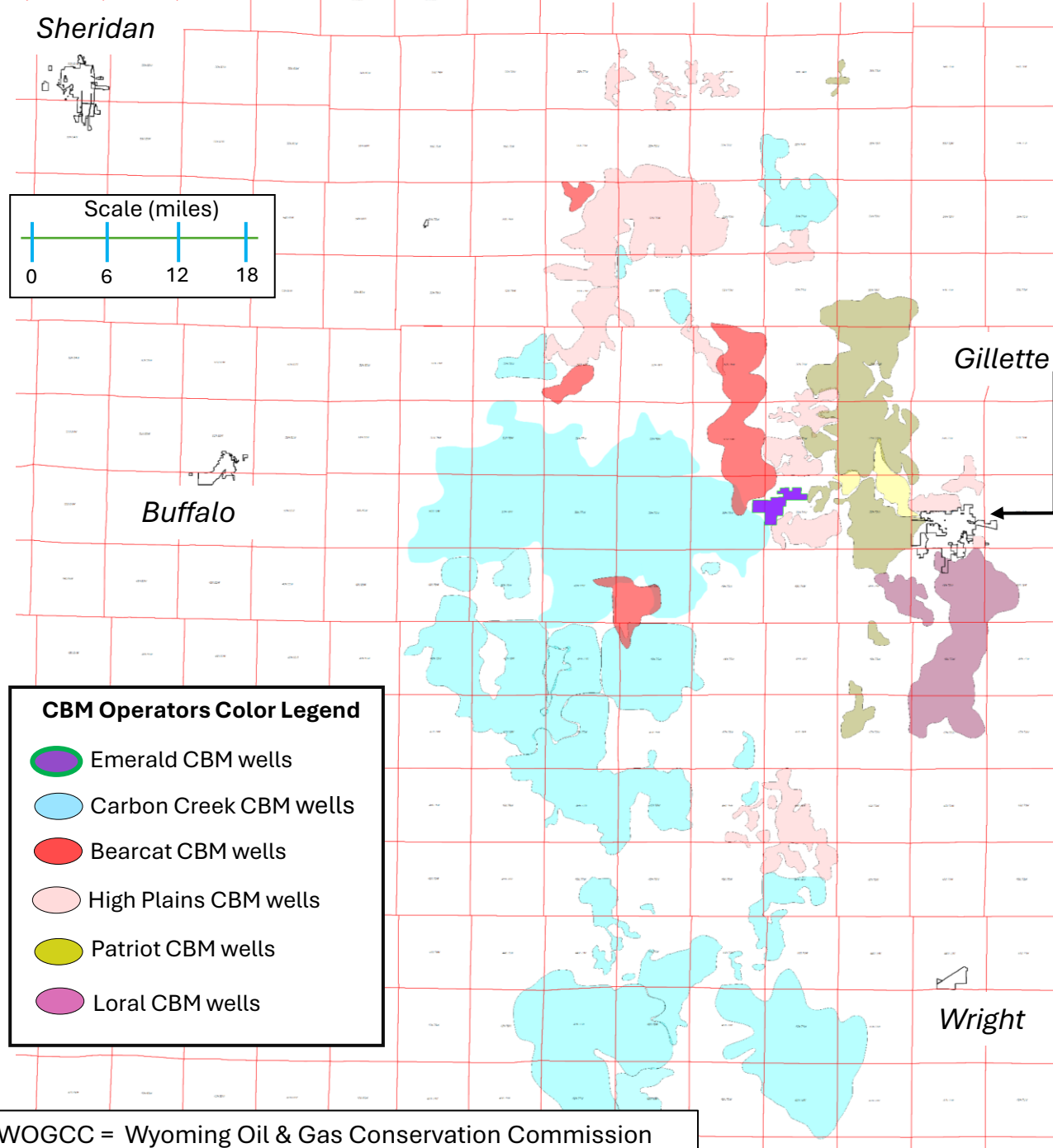


Powder River Basin Coals

Subsurface rock formations in the Powder River Basin dip from east to west at about 115' per mile, exhibiting an asymmetrical basin axis to the west. Targeted coals are Tertiary in age, approximately 20 to 23 million years old. Coals at a depth of 500 to 2,000 feet are targets for EOC's RNG/H₂ farming process. Perspective coals for RNG/H₂ generation exist over an extensive area of 5,500+ square miles of the northern PRB.



Size of the Opportunity



As of summer 2026, approximately 1,500 idle/orphaned coalbed methane wells exist throughout the northern PRB region. Most operators filed for bankruptcy and, therefore, abandoned their wells to the State of Wyoming. The WOGCC* oversees these abandoned wells, available for acquisition. Other operators listed below have ~200 additional wells that likely will become available.

These wellbores are associated with extensive gas gathering systems & production facilities, all available for acquisition at a fraction of the D&C cost of construction.

These assets can be evaluated and hand-picked to fit the EOC approach to farming RNG and bio-Hydrogen.

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*WOGCC = Wyoming Oil & Gas Conservation Commission



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