

Feb 19, 2013, WTE Column. Editor's Headline: "Why the rush on gas field?"

My previous column suggested that BP's Continental Divide-Creston (CD-D) project is a disaster in the making on the scale of the tar fields in Canada. Here I examine the question: Why the rush into gargantuan gas extraction? A glut exists to the point that millions of cubic feet of gas are flared from wells at Bakken, where BP is an ominous presence.

Northwestern North Dakota is one of the least-densely populated parts of the United States, yet recent satellite imagery shows the area ablaze with lights from the Bakken shale formation, where gas and oil production continues full tilt. Most of the bright specks are lights associated with drilling; some are evidence of gas flaring. Photos of the area six years earlier showed only dark spaces. The gas is flared (burned off) because no pipelines exist to carry it to storage.

Natural gas is reputed to be an environmentally cleaner fuel than coal because it does not produce detrimental byproducts such as sulfur, mercury, and ash. Further, natural gas provides twice the energy per unit of weight during combustion.

In their paper in *Climatic Change Letters*, however, Robert Howarth et al. (2011) challenge this consensus, contending that shale gas has a larger GHG footprint than coal. This larger footprint "undercuts the logic of its use as a bridging fuel over the coming decades."

Natural gas is composed largely of methane. In shale-gas production, over the lifetime of a well some 3.6 to 7.9 percent of the methane may escape into the atmosphere via venting and leaks. Such methane emissions are at least 30 percent more than (and perhaps twice as great as) those from conventional gas. "The higher emissions from shale gas occur when the wells are hydraulically fractured—as methane escapes from flow-back return fluids—and during drill-out following the fracturing."

The researchers' paper, "Methane and the greenhouse-gas footprint of natural gas from shale formations," notes that methane is a powerful greenhouse gas, with global-warming potential that is "far greater than that of carbon dioxide, particularly over the time horizon of the first few decades following emission. Methane contributes substantially to the greenhouse gas footprint of shale gas on shorter time scales, dominating it on a 20-year time horizon. The footprint for shale gas is greater than that for conventional gas or oil when viewed on any time horizon, but particularly so over 20 years. Compared to coal, the footprint of shale gas is at least 20% greater and perhaps more than twice as great on the 20-year horizon, and is comparable when compared over 100 years."

Naturally, the industry lost no time attacking the findings. It is significant, however, that the researchers speak of relative leaks only. Their calculations do not consider the methane that escapes following a well blowout. Even small methane emissions do far greater damage than what the industry wishes to acknowledge.

Moreover, Robert Howarth et al write in terms of domestic consumption, as a “bridging” of the gap to renewable energy. The current rush, however, seems motivated toward exporting the resource.

On November 1, 2012, Reuters reported U.S. Senator Ron Wyden’s statement: “The government should rethink a decades-old law that automatically allows companies to send U.S. natural gas to the country’s free trade partners. It could harm the nation’s ability to achieve energy independence, combat pollution and preserve the environment, and improve the economic competitiveness of American manufacturers.”

Contrarily, “Barrasso backs LNG export bill,” reports the Casper Star Tribune on February 4, 2013. Not only does Wyoming’s U.S. Senator favor the bill, he wants the approval process fast-tracked so that the gas can be shipped asap to nations of the North Atlantic Treaty Organization and to Japan. “The bill would skip the public comment step,” the Casper paper’s energy reporter observes drily, and “Barrasso joins Gov. Matt Mead in his support” of LNG exports. Wall Street, of course, loves this latest speculation opportunity.

Liquefied natural gas (LNG) is predominantly methane that has been converted to liquid form for purposes of storage and transport.

The process of liquefying involves condensation at close to atmospheric pressure, by cooling it to approximately $-162\text{ }^{\circ}\text{C}$ ($-260\text{ }^{\circ}\text{F}$). At that point, its energy density is 60% of that of diesel fuel, which makes it possible to transport LNG over long distances when pipelines don’t exist. Hazards of exposure include flammability, freezing, and asphyxia.

At its destination, LNG is regasified and distributed as pipeline natural gas. The high cost of production, however, and the need to store and ship LNG in expensive cryogenic tanks, ought to give us pause. And the public may not provide input? In March 2010, following extensive public comments submitted by mobilized citizens and groups, the California State Lands Commission terminated NorthernStar’s Clearwater Port offshore LNG application.

Americans emit more carbon dioxide than anyone else. Constructing gargantuan gas fields and requisite transportation infrastructure for export only add insult to injury.

We should be going the other direction. As Dustin Bleizeffer points out in a recent commentary on the push for coal exports: Climate change matters. Even in red-state Wyoming.

Earth Policy Institute recently emailed the following, based on its Eco-Economy Indicators:

In recent years weather events have whiplashed between the extremes of heat and cold, flooding and drought. Carbon dioxide and other greenhouse gases—largely from the burning of coal, oil, and natural gas—have loaded up in the atmosphere, heating the

planet and pushing humanity onto a climatic seesaw of weather irregularities. High-temperature records in many places are already being broken with startling frequency, and hotter temperatures are in store. Without a dramatic reduction in fossil fuel use, we will veer even further away from the “normal” temperatures and weather patterns that civilization is adapted to.

The two headline-dominating weather events of 2012 both occurred in the United States: the intense summertime drought and heat that baked the country’s midsection and Superstorm Sandy on the east coast. Overall, 2012 was the hottest year in U.S. history, topping the twentieth-century average by more than 3 degrees Fahrenheit.

Once again, I urge everyone to comment on PB’s proposed gas field by emailing before March 6:

Continental_Divide_Creston_WYMail@blm.gov

faxing to 307-328-4224

or writing the Bureau of Land Management, Rawlins Field Office, P.O. Box 2407, Rawlins, WY 82301.