New analyses reveal higher Four Corners methane emissions than suggested by EPA

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Analyzing the methane levels of an almost decade-old methane hot spot in the Four Corners area, a team of Los Alamos National Laboratory, NASA and University of Michigan scientists have found concentrations that are three times higher than those expected from methane emissions by the federal Environmental Protection Agency (EPA).

The methane hot spot near the Four Corners intersection of Arizona, Colorado, New Mexico and Utah—an extensive coal-mining region—covers about 2,500 square miles, or half the size of Connecticut.

“We attribute the hot spot to fugitive leaks from coal-bed methane that actually preceded recent concerns about potential emissions from fracking,” said Manvendra

Dubey, a Los Alamos National Laboratory scientist on the project. “Our analysis demonstrates that current EPA inventories are missing huge methane sources in the region, and our results should help improve future EPA estimates.”

Coal-bed methane is a gas that lines the myriad pores and cracks within a seam of coal. In underground coal mines the trapped methane is a deadly hazard that causes sometimes-fatal explosions almost every year as it seeps out of the rock.

After the U.S. energy crisis of the 1970s techniques were invented to extract methane from coal and use it for fuel. By 2012 coal-bed methane supplied about eight percent of all natural gas in the United States.

“Our finding clearly shows that one needs to look at the fossil mining industry as a whole when it comes to fugitive leaks, and that research on verification of reported leaks is critically needed,” Dubey explained.

Methane is a less climate-damaging energy source than coal, emitting half as much carbon dioxide as coal per unit energy produced. But it is 25 times more potent a greenhouse gas than carbon dioxide, so minimizing fugitive leaks is crucial to harvest its potential as a bridge fuel.

“We were excited to share the results with our collaborators,” Dubey noted, “and we followed up with high-resolution regional atmospheric modeling of the current EPA-reported methane emissions for the region. In light of the expansion of hydraulic fracturing in the Farmington, New Mexico, region it is important that we continue extensive monitoring with the state environment department to assure we are attributing and managing the overall methane emissions responsibly.”

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