



# Emerging Financial and Regulatory Incentives for CMM Emission Reduction Project Development



Coal mine methane (CMM) is a major source of anthropogenic greenhouse gas (GHG) emissions, accounting for an estimated 8% of global methane emissions by 2015.<sup>1</sup> Considerable progress has been made in the United States in reducing CMM emissions, which have dropped below 1990 levels.<sup>2</sup> Major U.S. coal mines are now capturing and using, selling, or destroying the gas. Emerging state and federal financial and regulatory incentives enable coal mines to develop and operate CMM emission reduction projects for both economic and environmental reward. Mines benefit financially from avoided energy costs and/or from revenues generated from CMM recovery and use or destruction, while reducing GHG emissions.

## Potential Markets for CMM

The largest and most prevalent CMM emission reduction projects in the United States involve capture and sale of produced gas directly to natural gas pipelines. Using CMM to fuel electrical generation via gas turbines or internal combustion engines is another potentially profitable way to generate revenue by selling energy into the electricity grid. Alternatively, mines can reduce costs by using power generated onsite to run ventilation fans and other equipment.

Other uses for CMM include producing heat for coal drying or heating mine ventilation air during the winter months, feedstock fuel for manufacturing and processing end uses, and vehicular fuel (e.g., liquefied or compressed natural gas). Methane emission reduction credits or offsets associated with CMM emission reduction projects may be sold into emerging carbon markets (see next page). Carbon credit revenues can be generated for emission reductions from both active and abandoned coal mines.

- In 2004, **Colorado** became the first state to create a Renewable Portfolio Standard (RPS) by ballot initiative requiring utilities to generate or purchase enough renewable energy to supply 10-30% of their electric sales by 2020.<sup>3</sup> Legislation enacted in 2013 expanded the list of “eligible energy resources” to include CMM.
- Established in 2012, **Indiana’s** Voluntary Clean Energy Portfolio Standard Program provides utilities with incentives to voluntarily increase the amount of clean energy resources—which include coal bed methane—in their electricity portfolios, with a goal of 10% by 2025.<sup>4</sup>
- **Ohio’s** Alternative Energy Resource Standard (AERS), created in May 2008, was amended in 2014 (S.B. 310), extending the requirement for utilities to provide 12.5% of their retail electricity supply from “renewable energy resources” from 2025 to the end of 2026.<sup>5</sup> Amendments passed in 2009 expanded the “advanced energy resource” definition to include methane gas emitted from operating or abandoned coal mines, and also amended the “advanced energy project” definition to encompass CMM pipeline sales projects.<sup>6</sup>

## State Alternative Energy and Renewable Portfolio Standards

Several major coal-producing states have enacted alternative energy and renewable energy programs that include coal-related methane as a targeted renewable or clean energy resource.

State Programs that Include CMM/CBM
Colorado
Indiana
Ohio
Pennsylvania
Utah
West Virginia

Information on other states can be found in CMOP’s [Financial and Regulatory Incentives for U.S. Coal Mine Methane Recovery Projects](#) report.

<sup>1</sup> U.S. EPA. 2012. *Global Anthropogenic Non-CO2 Greenhouse Gases Emissions: 1990–2030*. EPA 430-R-12-006. [www.epa.gov/climatechange/EPAactivities/economics/nonco2projections.html](http://www.epa.gov/climatechange/EPAactivities/economics/nonco2projections.html).

<sup>2</sup> U.S. EPA. 2014. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2012*. EPA 430-R-14-003. [www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2014-Main-Text.pdf](http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2014-Main-Text.pdf).

<sup>3</sup> [www.dsireusa.org/incentives/incentive.cfm?Incentive\\_Code=CO24R](http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=CO24R).

<sup>4</sup> [www.in.gov/oed/2649.htm](http://www.in.gov/oed/2649.htm).

<sup>5</sup> [www.dsireusa.org/incentives/incentive.cfm?Incentive\\_Code=OH14R&re=1&ee=0](http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=OH14R&re=1&ee=0).

<sup>6</sup> [www.legislature.state.oh.us/analysis.cfm?ID=128\\_HB\\_1&ACT=As%20Enrolled&hf=analyses128/09-hb1-128.htm#\\_Toc238543778](http://www.legislature.state.oh.us/analysis.cfm?ID=128_HB_1&ACT=As%20Enrolled&hf=analyses128/09-hb1-128.htm#_Toc238543778).

## Regulatory Incentives

In recent years, federal and state land management agencies have provided regulatory incentives in the form of royalty relief and/or other rights granted in coal or oil and gas leases or amendments allowing coal mine operators to utilize or destroy CMM. Recent efforts include:

- The **U.S. Dept. of Interior's Bureau of Land Management (BLM) Colorado State Office** amended several federal coal leases to allow the West Elk Mine operator to use recovered gas royalty free for the benefit of onsite coal extraction. Normally, royalties of 12.5% would be due on any CMM captured and used, or sold offsite.<sup>7</sup>
- **Utah's Trust Lands Administration** has been asked to consider coal or oil and gas lease amendments and royalty waivers or reductions for CMM captured and destroyed on School Trust Lands.<sup>8</sup>
- **Wyoming's Office of State Lands and Investments** has adopted a Natural Gas Flaring Policy that enables owners/operators to request oil and gas royalty relief for approved flaring operations that do not constitute waste. CMM emission reduction projects that gather and produce low quality methane from shut in CBM wells surrounding surface coal mines could be excellent candidates for royalty relief.<sup>9</sup>

## Carbon Financing for CMM Project Development

In general, CMM recovery, sale, and/or use projects can offer financial returns that are economically feasible. These CMM projects capture methane that would otherwise have been vented into the atmosphere, and either use or destroy the methane; thus, reducing GHG emissions. If properly verified, these emission reductions might qualify as GHG offsets that can be sold as "carbon credits" in a voluntary or compliance market. In most cases, carbon credits alone do not provide sufficient funding for CMM recovery projects requiring significant capital investments such as for electricity generation and transmission.

Carbon credits, however, might be particularly useful for improving the cash flow of projects that are otherwise economically marginal.

The emerging carbon credits market consists of two main types:

- **Regulated Carbon Markets:** Cap-and-trade systems under regulatory regimes, such as California's Air Resources Board (ARB) Emissions Trading Program and the Northeast's Regional Greenhouse Gas Initiative (RGGI).<sup>10</sup>
- **Voluntary Carbon Exchanges:** Voluntary—yet legally binding—membership-based cap-and-trade systems (e.g., Climate Action Reserve, American Carbon Registry, Verified Carbon Standard).

In California, the ARB Emissions Trading Program helps the state achieve its goal of reducing GHG emissions to 1990 levels by the year 2020. In April 2014, the ARB approved amendments to the state's GHG cap-and-trade program, including a new protocol to generate carbon offsets for mine methane capture projects at active and abandoned underground coal mines and surface coal mines. The rule became effective July 1, 2014.<sup>11</sup>

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<sup>7</sup> BLM, Addendum to Coal Leases C-1362, COC-56447, COC-67011, C-0117192, D-044569, COC-54558, COC-67232 (January 14, 2009).

<sup>8</sup> Based on discussions with representatives of Utah's Trust Lands Administration and Wyoming's Office of State Lands.

<sup>9</sup> Wyoming Office of State Lands and Investments: Natural Gas Flaring Policy – State of Wyoming Lease Production (effective 2/02/12) at <http://lands.state.wy.us/index.php/royalty-compliance/operational-policy-directives/2012-02-17-17-45-39>.

<sup>10</sup> Ten East Coast states participate in RGGI: Connecticut, Delaware, Maryland, Massachusetts, Maine, New Hampshire, New Jersey, New York, Rhode Island, and Vermont. RGGI does not currently address CMM emission reductions.

<sup>11</sup> ARB's Compliance Offset Protocol Mine Methane Capture (MMC) Projects page at [www.arb.ca.gov/cc/capandtrade/protocols/mmcprotocol.htm](http://www.arb.ca.gov/cc/capandtrade/protocols/mmcprotocol.htm).