

United States Coal Sector Update to the 21st Session of the Global Methane Initiative (GMI) Coal Subcommittee

3 June 2015

Bogotá, Colombia

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United States Coal Sector Update

- Coal sector trends
 - Coal production increased from 893 MMt in 2013 to 907 MMt in 2014 (+1.5%)
 - Number of producing coal mines decreased by 71 mines in 2014 (-4.4%)
 - U.S. EPA Greenhouse Gas Reporting Program Data
 - Comprehensive GHG data reported directly to EPA from across the U.S. are easily accessible to the public
 - <http://www.epa.gov/ghgreporting/>
 - 2013: 118 active underground mines, 41 MMt CO₂e
 - Emissions are -6.8% from the first reporting year in 2011
 - Emissions are +2.5% from 2012
 - 2012: 111 active underground mines, 40 MMt CO₂e
 - 2012 & 2013 values uses new methane GWP of 25



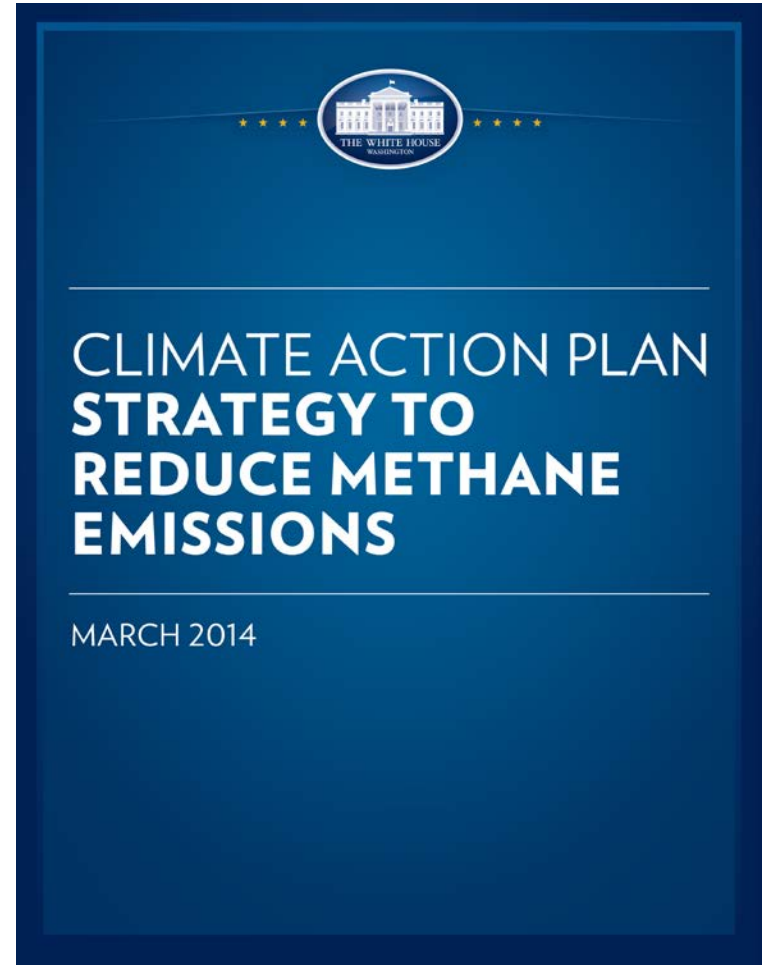
United States Coal Sector Update

- 2014 trends in the energy sector
 - Slight increase in natural gas consumption (+3%)
 - Natural gas prices continue to rebound (+17%)
 - Coal consumption decreased slightly (-1%)
 - Coal prices decreased (-7.8%)
- Regulatory update
 - U.S. Department of Interior's Bureau of Land Management (BLM) issued Advance Notice of Proposed Rulemaking for Waste Mine Methane Capture in April 2014
 - <https://federalregister.gov/a/2014-09688>
 - Public comments accepted until 30 June 2014



The U.S. Interagency Methane Strategy

- In June 2013, President Obama issued Climate Action Plan that included:
 - 1) Steps to cut greenhouse gas pollution
 - 2) Steps to prepare U.S. for impacts of climate change
 - 3) Continue U.S. leadership in international efforts to combat climate change
- Under Step 1: Interagency Methane Strategy
 - EPA, USDA, DOE, DOI, DOT were directed to develop a comprehensive methane strategy (March 28, 2014)
 - Takes into account data on where methane pollution is coming from
 - Builds upon best practices and activities under way to tackle methane waste



Methane Strategy Overview

- The plan focuses on four sectors:
 - Landfills (EPA)
 - Agriculture (EPA, USDA, DOE)
 - Coal Mines (DOI, EPA)
 - Oil & Gas (EPA, DOE, DOI)
- **Reducing Methane Emissions:** Builds on best practices and activities to reduce methane emissions
 - Combination of regulatory and voluntary domestic activities, depending on sector
 - Call for continued international data collection through GMI, nonCO2 mitigation report
- **Improving Methane Data:** Also calls for assessment of current methane emissions data
 - Identifies ways in which EPA can improve the GHG inventory and GHGRP
 - Focusses on improving global estimates



Improving Methane Data and Measurements

- Identifies key actions to improve methane emissions data for all sectors, particularly oil and gas
- **Enhancing the GHG Inventory and GHGRP**
 - US EPA will continue to update and enhance the annual GHG Inventory as new data and information emerges and make ongoing improvements to the Greenhouse Gas Reporting Program regulatory requirements
- **Improving Global Emissions Monitoring and Estimates**
 - US EPA will continue to collect emission reduction data through GMI and will continue to update and publish detailed emissions estimates through the *Global Mitigation of Non-CO₂ GHGs and Global Anthropogenic Non-CO₂ GHG Emissions*
 - Also highlights NOAA, DOE, and NASA activities
- Other Activities:
 - Building our National Methane Monitoring Network (NOAA)
 - Encouraging the Development of Cost-Effective Measurement Technologies (DOE's ARPA-E) program new methane fund to develop methane sensing



U.S. CMM Project Outlook

- Challenges to emission reduction projects in United States:
 - Lack of infrastructure (e.g., pipelines) in certain regions of the country (i.e. particularly in the west) to move CMM from mines to natural gas markets.
 - Low energy prices (gas and electricity) in some parts of the country (e.g., western US) that make CMM energy projects unattractive from an economic perspective.
- Approaches to overcoming challenges
 - Compliance carbon market in California establishes more robust price signal for offsets
 - State alternative energy and renewable energy programs
 - State capital investment, loans, and tax benefits and credits
 - Support for technology demonstration projects



U.S. CMM Project Outlook (2)

- New carbon-based incentives supporting CMM projects
 - July 2014: New project opportunities presented by California Air Resources Board (ARB) inclusion of CMM as compliance offset source (Mine Methane Capture protocol)
 - Several early action projects from CAR and VCS registries being transferred to ARB
 - \$9-\$10/tCO₂e price for offset credits (increasing year-over-year)
 - Increased activity for new ARB projects (AMM and gob gas flaring)
 - April 2015: State of California announces new emission reduction targets for 2030
 - Current cap-and-trade program only goes through 2020
 - Full ten-year crediting period needed for VAM projects



United States Coal Sector Methane Action Plan

- **Priorities:**
 - Reduce GHG emissions and promote use of clean energy source
 - Achieve profitable recovery of CMM
- **Activities to Promote Methane Mitigation and Abatement**
 - Between 1994 and 2012, U.S. CMM emissions reductions have effectively removed the equivalent of more than 326 MMtCO₂e from the atmosphere
 - U.S. identifies, evaluates and promotes CMM recovery and use opportunities; provides support for technology demonstration projects; and develops technical documents, tools and resources
 - International activities under the auspices of GMI
 - CMM/CBM Clearinghouses; pre-feasibility and feasibility studies
 - UNECE Best Practice Guidance for Effective Methane Drainage and Use in Coal Mines, technical seminars
 - Technical resources; tools; policy white papers
 - CMM Finance Guide and CMM Financial Model: updates in progress; will assist with international CMM project development

Updated online at <https://www.globalmethane.org/coal-mines/index.aspx>



Contact Information and Announcements

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U.S. CMM Conference Track

32nd Annual International Pittsburgh Coal Conference

5-8 October, 2015 Pittsburgh, PA, USA

