

Panel Discussion: Challenges and Opportunities for Capture and Use of Coal Mine Methane in the COVID-19 World

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Relevant experience with the coal industry and CMM/VAM/AMM project development

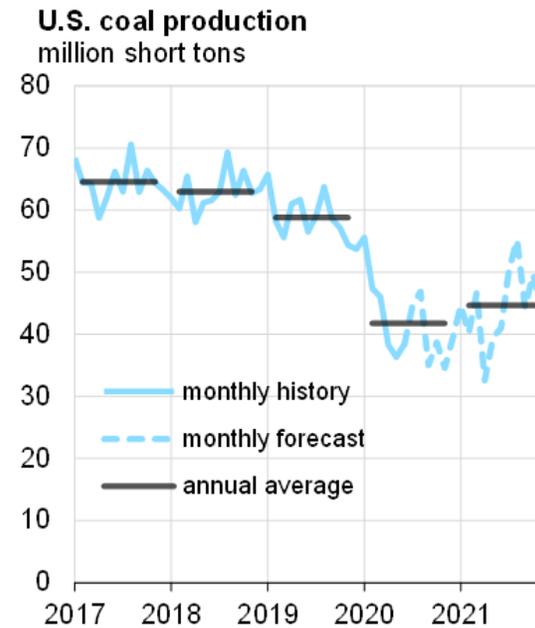
- Ruby Canyon Environmental (RCE) started in 2005 by Michael Coté and Ronald Collings.
- RCE has supported U.S. EPA CMOP efforts since its beginning - as a technical subcontractor conducting methane emissions inventories, project feasibility studies, market studies, and guidance documents.
- RCE offers both technical consulting services for CMM/VAM/AMM project developers, as well as third-party carbon offset project validation and verification services.
- RCE currently works with U.S. coal mines only but will continue to support UNECE Group of Experts efforts and activities to reduce CMM emissions worldwide.



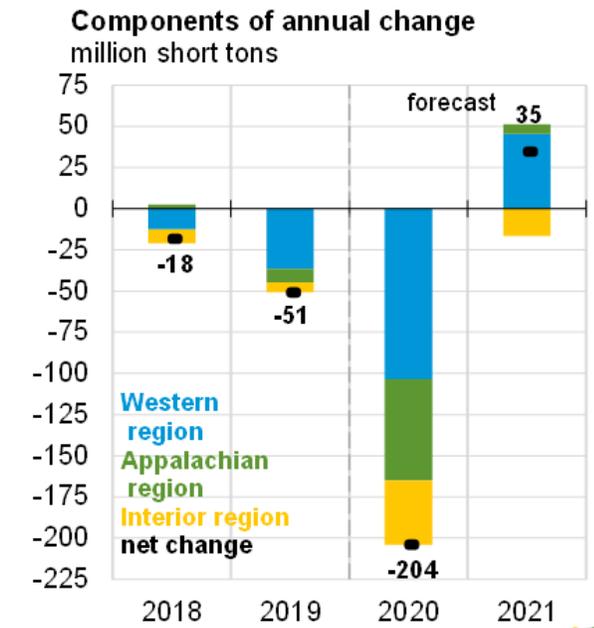
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Covid-19 pandemic's impact to the coal & gas industries

- Number of operating underground coal mines in 2018 – 236
- Historical coal production declines from 2017 - 2020
- Impact of Covid-19 on the coal mining sector
 - EIA expects coal production to decrease by 29% in 2020 (and rebound 7% in 2021)
 - Reduced demand for electricity and exports
 - 4,500 coal jobs lost from January – June 2020 (about 10%)
- Impact of Covid-19 on the gas sector
 - EIA predicts natural gas production & consumption to decline 3% in 2020 (and 6% in 2021)
 - Henry Hub spot price in June 2020 - \$1.63/mmBtu (lowest since 1989)



Source: Short-Term Energy Outlook, July 2020



eia

Covid-19's impacts to CMM/AMM emissions and projects

- Impact on U.S. national CMM and AMM emissions
 - Total U.S. GHG emissions expected to decline by 11% in 2020
 - Change in 2020 U.S. CMM emissions depends on activities at limited number of mines
 - In 2018, 90% of CMM emissions from underground mines originate from 40 mines (46% of CMM emissions from just 10 mines)
 - 2 of top 10 mines have been temporarily idled in 2020
 - Several mines imposed 2-week shutdowns due to COVID-19 in March 2020
 - AMM emissions remain unaffected by COVID-19
 - AMM emission could increase in short term as number of abandoned mines increases

Covid-19's impacts to CMM/AMM emissions and projects

- Impact on CMM and AMM projects in the U.S.
 - The future of CMM projects depends on situation at Appalachian coal mines with projects
 - 13 CMM projects currently operating
 - Just 3 projects account for >80% of methane emissions reductions in 2018
 - COVID-19 enhances the recent coal industry decline
 - Reduced electricity demand and increased renewables
 - Continued oversupply of cheap natural gas
 - AMM projects may be less impacted
 - Economics could be affected by decrease in California carbon credit prices which dropped from \$15/tCO₂e to <\$12/tCO₂e in 2020
 - Delays in supply chains and the procurement of equipment and parts
 - Delays in regulatory and permitting approvals
 - Limited access to sites for maintenance and inspections
 - Mitigating COVID-19 illness risk for operators
 - 8 new AMM projects listed in CARB since March 2020!

Contact Information

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