

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

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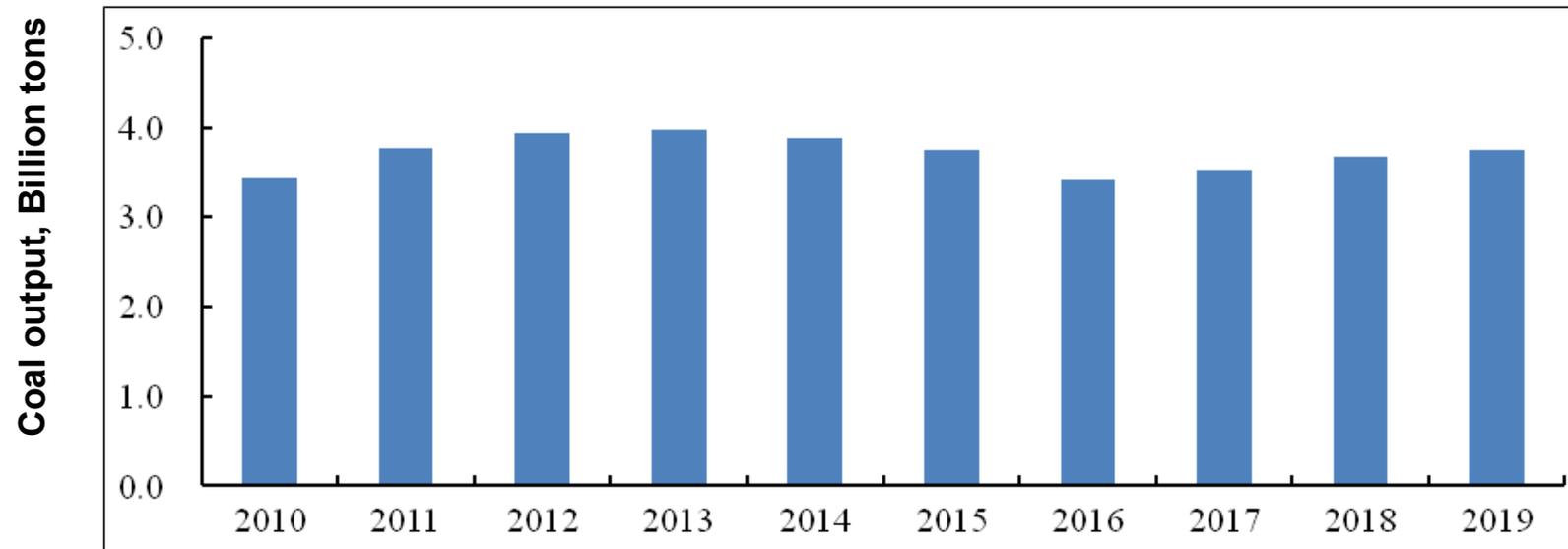
CNCG's experience with the coal industry and CMM projects development

- **China National Coal Group Corporation (China Coal)** was established in July, 1982, and listed at Hongkong Stock Exchanges in Dec. 2006.
- ChinaCoal is the second largest coal producer with annual coal output over 210 million tons in China in 2019.
- ChinaCoal has 70 coal mines in operation or under construction with annual capacity of 300 million tons, which are located in the provinces of Shanxi, Shaanxi, Anhui, Jiangsu and Inner-mongolia.
- ChinaCoal has a number of CMM projects at its coal mines.
- My presentation will be focused on Covid-19 pandemic's impact to the coal industry in China and to the operations of ChinaCoal as well as new opportunities for CMM projects.



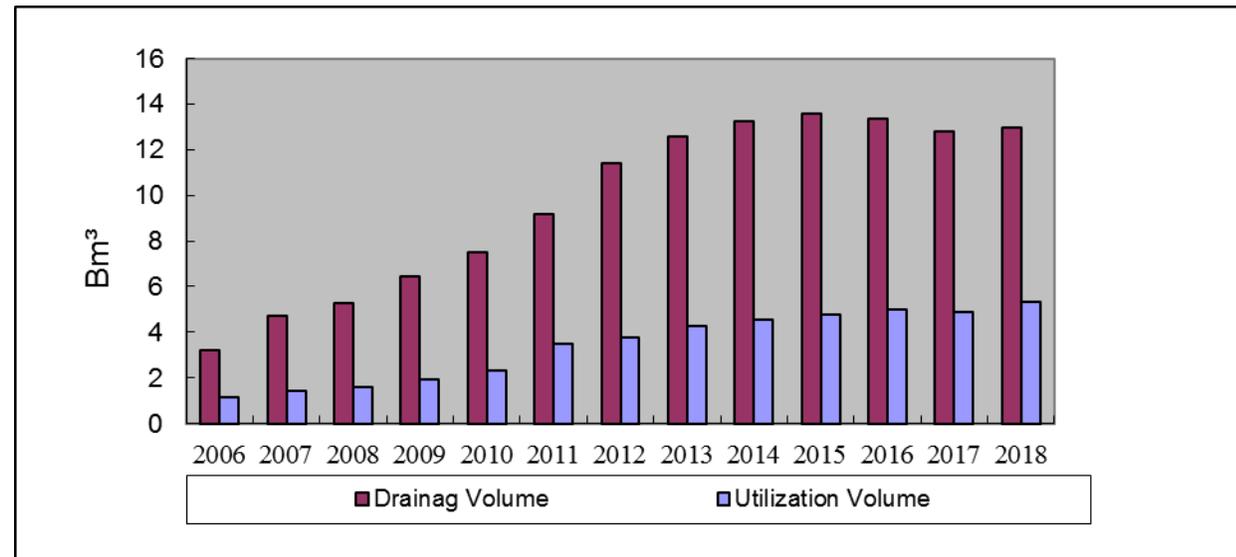
Covid-19 pandemic's impact to the coal industry in China

- China is largest coal producing country with annual coal output of 3.75 billion tons in 2019.
- China has 5400 active coal mines in 2019. More than 20,000 coal mines has been closed with implementation of the policies of coal mine safety and cutting overcapacity since 2005.



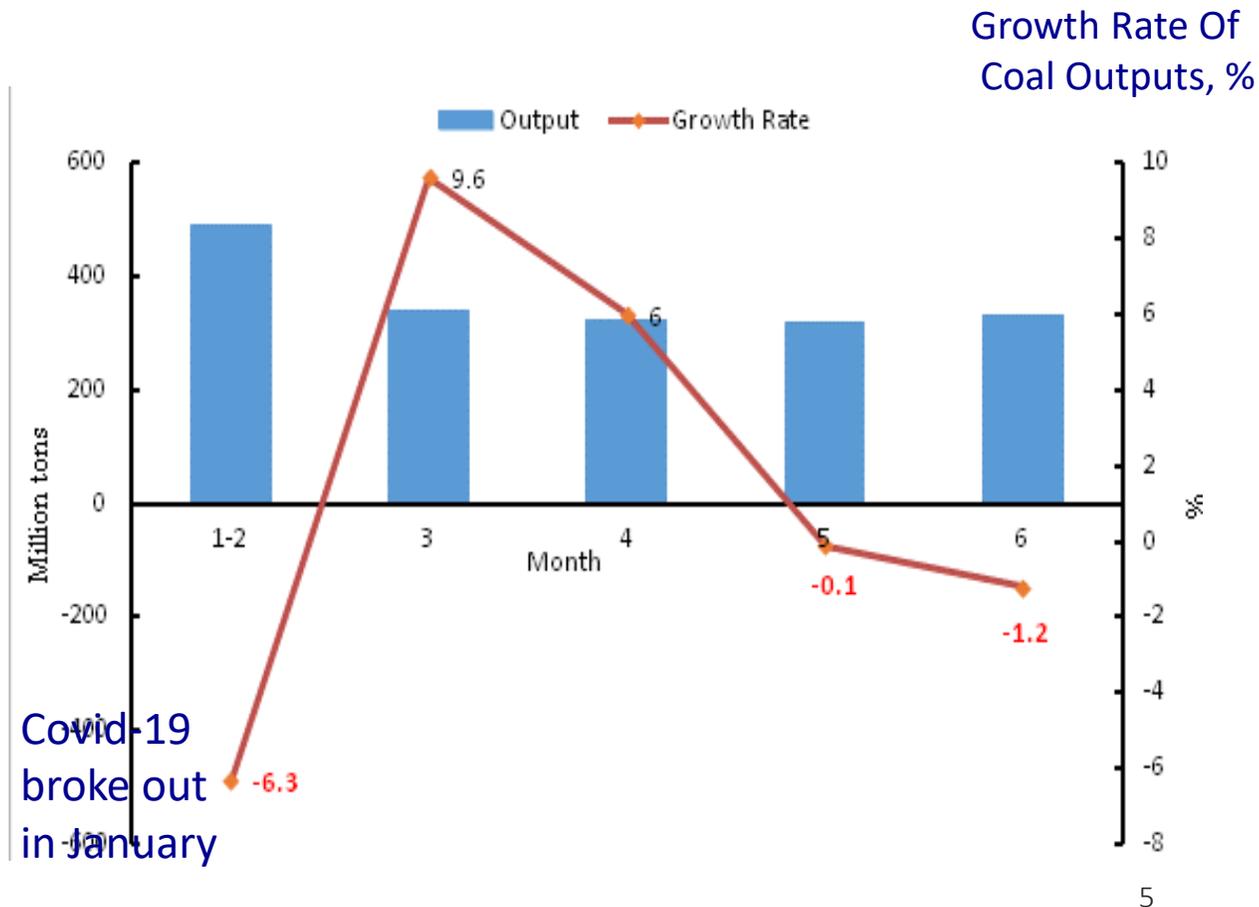
Covid-19 pandemic's impact to the coal industry

- Chinese government encourage coal mining companies and developers to recover and use methane from active coal mines and abandoned coal mines with referential policies in order to prevent from gas explosions and reduce methane emissions.
- China recovered 12.98 billion m³ of CMM and the used 5.31 billion m³ of the recovered CMM in 2018.
- Shanxi Province is a largest province of CMM recovery, accounting for 49.7% of the national total.

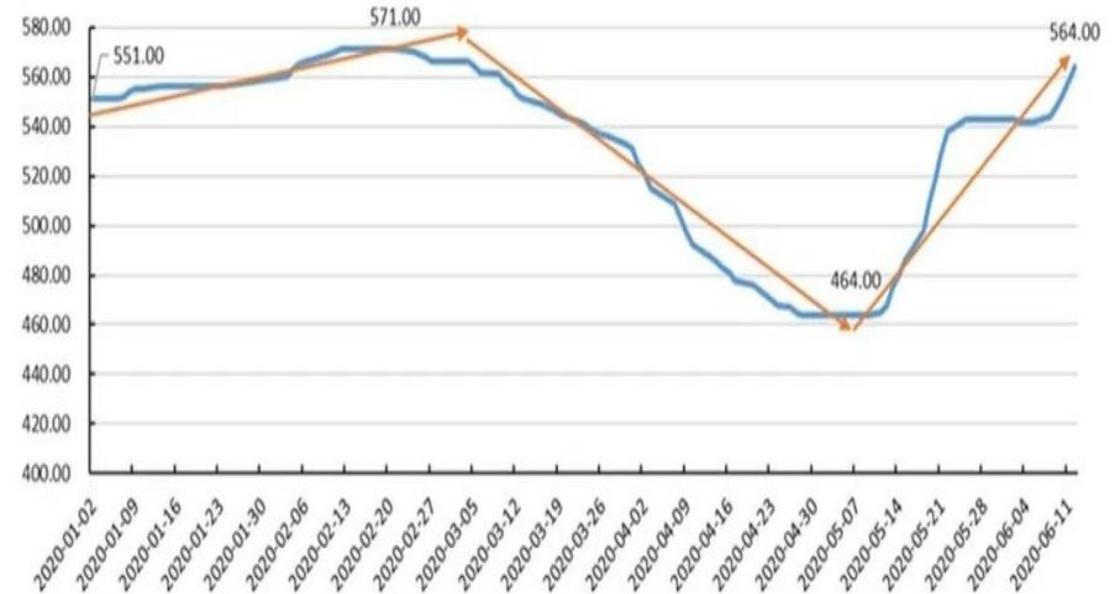


Covid-19 pandemic's impact to the coal industry

Coal Output from Jan. to June in 2020 and Growth Rate of coal outputs compared with the same period of 2019



Prices of Coal from January to June, 2020



Covid-19's impacts to coal operations

- Impact on regional coal operations. The rate of return to work started to increase in April, and reached 92.1% nationwide in July.

- Sichuan Coal Industry Group (SCIG) may go bankrupt or be reorganized, big negative impacts on CMM/AMM projects. SCIG produced 22.7 million tons of coal in 2019. SCIG received the Civil Ruling Paper from the Intermediate Court of Chengdu City, asking SCIG to be bankrupted or reorganized due to the big debts.

- Yankuang Group merged with Shandong Energy Group

Mr. Ling Wen, Vice Governor of Shandong Province announced the plan for combination of Yankuang Group with Shandong Energy Group on the meeting of state-owned companies in Jianan City on 13 July

- Will be second coal producer with coal production capacity of 291 million tons per year in China.
- Total assets amount to 637.9 billion RMB, and annual sales revenue: 637.1 billion RMB.
- Coal production area: Shandong, Shanxi, Shaanxi, Guizhou, Inner-mongolia and Australia.
- Impacts on CMM/AMM projects in all coal mining areas of the new corporation.



Yanzhou Coal Mining Co. Ltd of Yankuang Group operates 11 active coal mines in Australia and holds 36 % of Australian harbor PWCS's equity.

Covid-19's impacts to CMM emissions and projects

- Impact on national or regional CMM and AMM emissions
 - Methane emissions decreased along with decreased coal production or suspended production from February to May in many provinces.
- Impact on CMM projects
 - Impacts of temporary mine closures or production stoppages in many provinces
 - Impacts of staffing restrictions on projects (be postponed)

New Opportunities for CMM projects

■ New CMM projects of ChinaCoal

- Two CMM power plants in operation with total capacity of **30 MW** at Huangyanhui Coal Mine and Baiyangling Coal Mine in Xiyang County, Shanxi Province.
- A new CMM power plant under Construction with capacity of **21 MW** at Xiaohuigou Coal Mine in Taiyuan, Shanxi Province.
- A big CMM power plant to be built with capacity of **66 MW** at Libi Coal Mine in Jincheng, Shanxi Province.



A new CMM power plant under Construction at Xiaohuigou Coal Mine in Taiyuan, Shanxi Province.



Two CMM power plants installed with Caterpillar gas engines at Huangyanhui Coal Mine and Baiyangling Coal Mine in Xiyang County, Shanxi Province.

New Opportunities for CMM projects

New CMM power project Jenbacher gas engines at Yitang Coal Mine of Jiexiu City, Shanxi Province



New CMM power project with total capacity of 30MW, using GE Jenbacher gas engines at Shihao Coal Mine of Chongqing City.

Conclusions

At the press conference last Friday, 17th July, the State Energy Administration highlighted:

- More effective measures should be taken to promote return to work at all coal mines and to help construction of new coal mines go ahead in order to increase coal supplies in the second half of the year.
- Good future for coal sector, and good opportunities for new CMM and AMM projects with encouraging policies in China

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Thank you