Opportunities and challenges for scaling mine gas emission reductions in Karaganda region

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Key factors of Kazakhstan energy economy

- Kazakhstan is one of the main coal producers in Central Asia and FSU region
- Kazakhstan is the main coal exporter to adjacent industrial regions
- Over 70% of Kazakhstan power generation rely on domestic coal
- Kazakhstan Metallurgical industry bases mainly on domestic coal (>80%)
- Social energy consumption of Central and Eastern Kazakhstan regions almost completely rely on coal based power generation
- Coal production in 1999 was 58 mln.ton and grown up to 109,2 mln.ton in 2020 with coal methane emission grown correspondingly
Karaganda coal basin (a few key issues)

- Deep coal mines in Kazakhstan are predominantly located in the area or Karaganda
- The mines are managed by a single operator (AMT)
- The mines are subject to tough environmental and social regulations/policy over the recent years (including minegas emission)
Possible opportunities for emission reductions (1)

- CMM – a 10 MW CHP bidding is expected in 2023

- VAM – the largest methane emissions in Karaganda is generated by mine ventilation
Possible opportunities for emission reductions (2)

- Gasification significantly reduce coal related hazardous emission while making it a valuable feedstock for many industries through conversion into syngas and further transformation into liquid substances.

- Basis for improving economics of coal enterprises in socially sensible regions and reducing their environmental footprint.
Main challenges faced for implementation (1)

- Surface spacing of the mines’ infrastructure compared with

- Individual mine gas flow fluctuation may significantly challenge the project economics due to interruption in operation of mine gas utilization facilities.
Main challenges faced for implementation (2)

- Greed connection complexity and low feed-in tariff

- Lack of “green” financing/emission reduction investment instruments and tax incentives
Key conclusion:

- Kazakhstan has a very attractive emission reduction potential – in coalmining sector specifically
- Increasing coal production is to stipulate coal operators to seek for economically viable solutions to deal with increasing methane emission
- There is a CMM/VAM project opportunities pipeline on the ground
- Implementation of coal gasification may help to significantly reduce coal-related emission avoiding compromise with mining sector
- Greed access for CMM-based generated power along with reasonable feed-in tariff would stimulate project developers to deal with technical issues
- Legal support/incentives would provide necessary support for attracting emission reduction investment
Thank you!

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