

Enabling Favorable Policy Conditions for Methane Mitigation Projects in the Context of Central Asia

Third Almaty Energy Forum

November 7, 2023

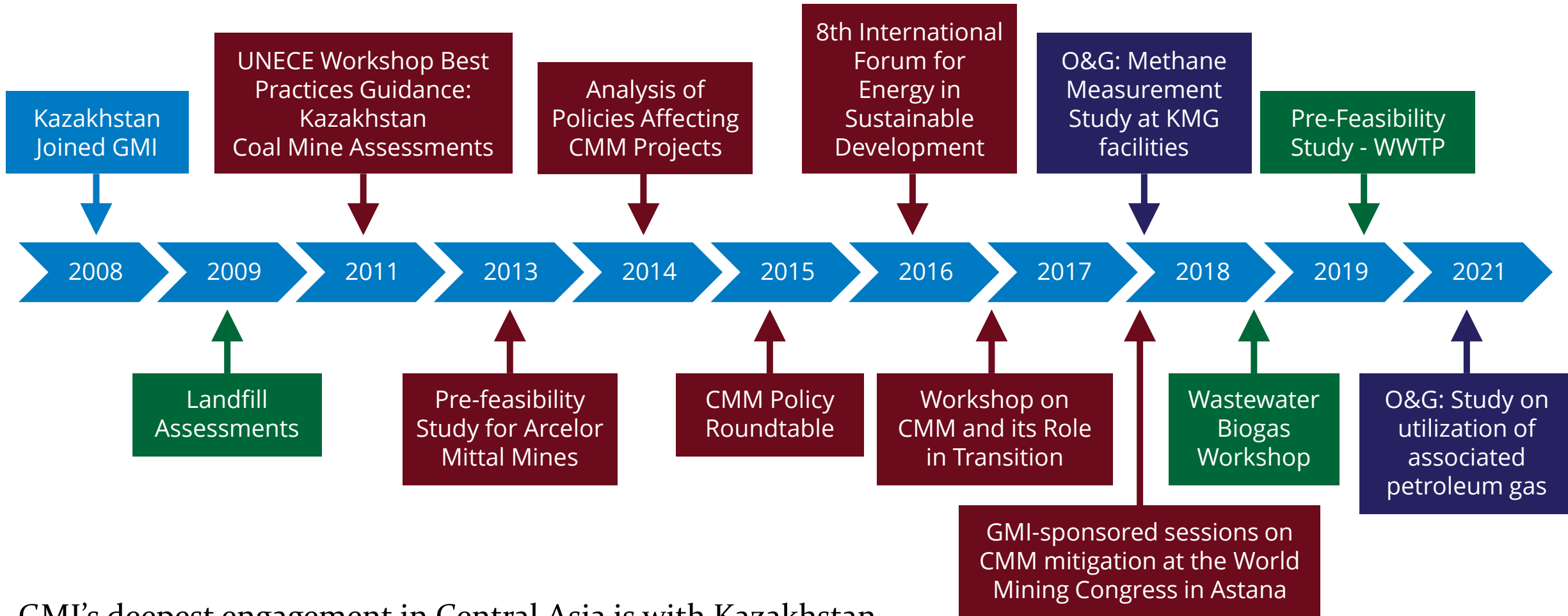
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GMI and Technical Engagement in Kazakhstan

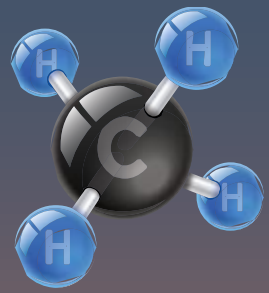


GMI's deepest engagement in Central Asia is with Kazakhstan.

Mitigating Methane

- Methane is a marketable commodity and a potent greenhouse gas
- Mitigating methane has many benefits. It is an opportunity to avoid waste while capturing and converting methane to useful energy
- Successful, commercially available mitigation technologies and practices exist across multiple sectors
- Yet, a number of barriers hinder methane abatement
- Policies can help address some of these barriers

Positive Outcomes of Capturing and Using Methane



- ✓ Better air and water quality
- ✓ Improved human health
- ✓ Increased worker safety
- ✓ Enhanced energy security
- ✓ Economic growth

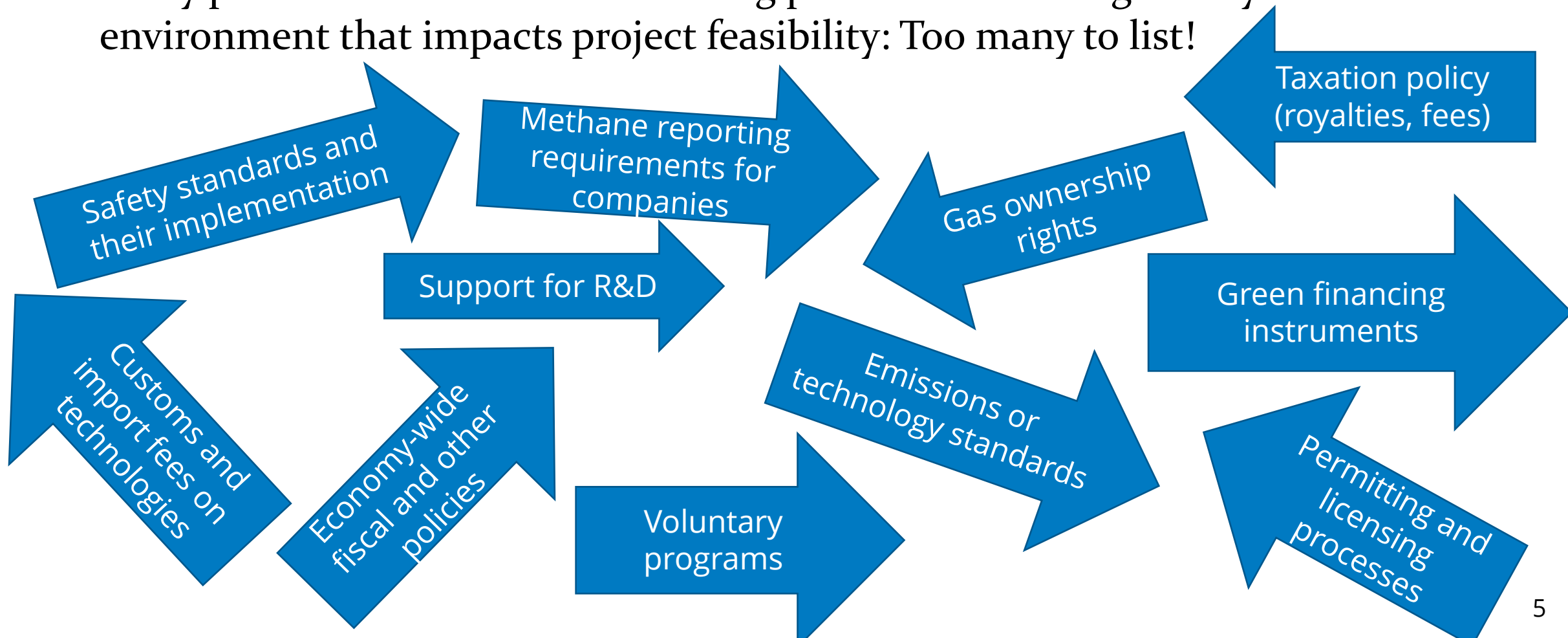
Policy Landscape and Methane Mitigation

- Policy defines the playing field, creating the tipping point for feasibility of methane mitigation projects
 - In several countries (Australia, Germany, Poland, UK, China, United States), introduction of policies supporting coal mine methane (CMM) led to more implemented projects
- Policy, legislative and regulatory environment can create incentives for companies to abate methane emissions
- Providing targeted policy support can, in some cases, facilitate feasibility of projects, even if initial geophysical or market conditions are less than optimal



Policies and Regulations Impact Feasibility of Methane Mitigation Projects

- Many policies and interactions among policies create a regulatory environment that impacts project feasibility: Too many to list!



What Major Policy Conditions Universally Impact Cost-Effectiveness of Methane Mitigation Projects?

■ **Price on local energy:** cost-reflective vs. subsidized

- Financial feasibility of mitigation projects depends on price they can get for natural gas, heat or electricity. If methane avoided through mitigation projects has to compete with low-cost/subsidized energy, such mitigation projects might not be financially feasible.

■ **Price on carbon/pollution** (tax or cap-and-trade)

- If a company can prove that its project/investment achieves emission reductions and such reductions have market value, it can boost financial feasibility of projects and help such projects compete with other investments proprieties within a company.

■ **Access to energy markets**

- Can a coal mining company physically and legally sell methane or electricity to a grid or natural gas pipeline infrastructure? Can an oil and gas company route associated petroleum gas to a market?

Options to Improve Cost-Effectiveness of Methane Mitigation Projects

A longer-term option to improve cost-effectiveness of methane mitigation projects might be through reducing/removing subsidies for fossil fuel energy (very complex!)

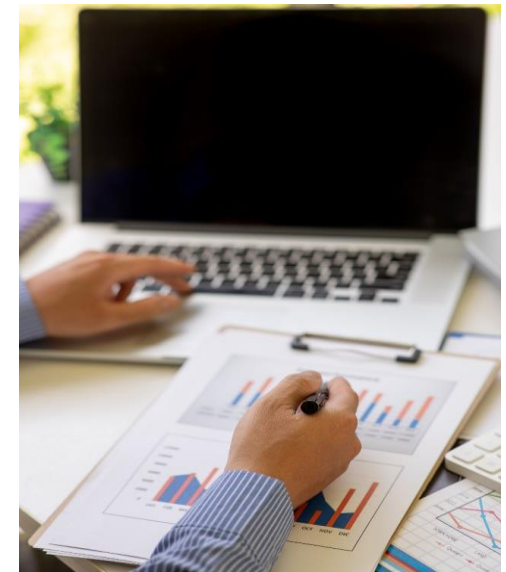
Short-term options to improve cost-effectiveness of methane mitigation projects:

- Include methane mitigation projects in feed-in tariffs and obligations
- Include methane in carbon pricing mechanisms
- Ensure access to energy markets
- Direct technology subsidies, grants, financing



Feed-in Tariffs and Obligations

- Avoiding methane waste has many benefits; such benefit could be reflected in pricing and sourcing policies for energy generated from avoided emissions
- Many countries have policies that require paying premium price on renewable energy (feed-in tariff) or, alternatively, have obligations for utilities to purchase a share of their energy from renewable sources, such United States, Egypt, EU countries, Kazakhstan
- Methane recovery and use in coal mines or oil fields (associated petroleum gas) are often not cost-effective, esp. when competing with subsidized energy prices
- Can feed-in tariffs and obligations be extended to methane mitigation projects?



Carbon Pricing Mechanisms

- In coal mines, Ventilation Air Methane (VAM) accounts for 60-80% of methane emissions but is low concentration and can only be destroyed, presenting energy value in limited cases. Such projects can derive value from carbon pricing.
 - Pollution tax or cap-and-trade exist in many countries, such as EU, United States (California), Canada (Quebec), Kazakhstan
- Mechanisms under the Kyoto protocol helped many projects emerge. New mechanisms under Article 6?
- Either carbon tax or cap-and-trade require rigorous monitoring, reporting, verification (MRV) systems to estimate baseline emissions (national-level MRV) and confirm emission reductions (project-level MRV)
 - UNFCCC and other carbon trading system methodologies exist for certifying emission reductions from flaring reduction and associated gas projects
 - National/subnational governments need to establish and recognize MRV rules/methodologies/protocols that allow companies calculate and certify project reductions

Access to Energy Markets

- Energy recovered through methane mitigation can be used on-site, such as to meet heating/electricity needs of operators at coal mine or oil and gas facilities
- Mitigation projects can generate more energy than a facility can use. Access to off-site energy markets can be key to incentivizing mitigation
- Can avoided methane be physically and legally sold to natural gas pipelines? Can avoided methane be used to generate electricity/heat, which can be sold to the grid or district heating/industrial systems? Does regulation allow third parties to sell power to the grid?
- ➔ Emerging (but expensive) technologies that do not require infrastructure: Microturbine, mini gas-to liquids (GTL), mobile Compressed Natural Gas (CNG) technologies. Might require institutional and financial support.

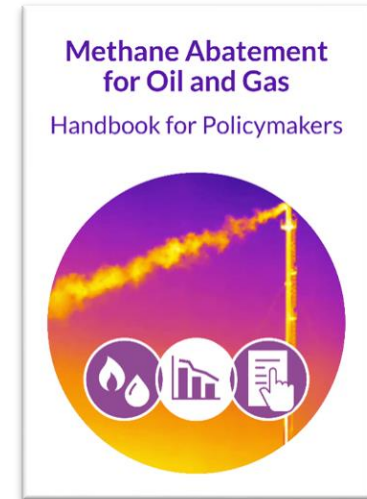
Direct Technology Subsidies, Grants, and Financing

- When achieving methane reductions through regulation is not easy, countries have turned to providing subsidies, grants, financing for companies (often in combination with regulatory approaches) to adopt greener technologies
 - The government of Canada set up a fund of \$750 million CAD to provide financial support for oil and gas companies to adopt greener technologies and to maintain jobs in the sector
 - The United States is in the process of developing a program and regulation to provide grants to oil and gas companies to improve measurements of methane emissions, while developing regulations for charging companies a fee for waste emissions
- International financing for the fossil sector projects is scant; Kazakhstan has domestic financing schemes to build upon. Gap in financing energy transition



Identifying Suitable Policies

- Policies also create enabling conditions for financing. Resources are available on methane policy in the fossil sectors
- Tools can help choose the most suitable policy instruments:
 - Cost-benefit analysis
 - Cost-effectiveness analysis: marginal abatement cost curve
 - Policy modeling studies
- Which policies does a country have that are effective? (E.g., taxation, feed-in tariff) Is there an option to lean into an effective policy?



Driving Down Methane Leaks from the Oil and Gas Industry

A Regulatory Roadmap and Toolkit

Technology report — January 2021



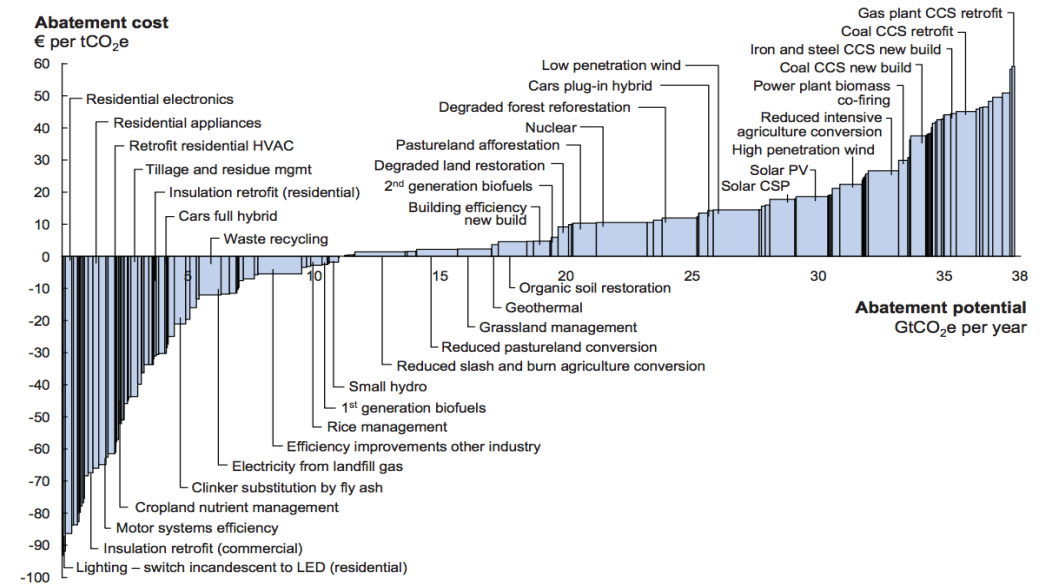
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Driving Down Coal Mine Methane Emissions

A regulatory roadmap and toolkit



Global GHG abatement cost curve beyond business-as-usual – 2030



Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €60 per tCO₂e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play. Source: Global GHG Abatement Cost Curve v2.0

Conclusions

- Many policies and their interaction affect feasibility of methane mitigation projects. Three major policies dictate cost-effectiveness of mitigation projects:
 - Price on energy; carbon pricing mechanism; access to energy markets
- To make the impact of such policies positive on mitigation projects, policymakers can:
 - Include methane mitigation projects in feed-in tariffs and obligations
 - Include methane in carbon pricing mechanisms
 - Ensure access to energy markets
- Direct technology subsidies, grants have been used to accelerate deployment of greener technologies, sometimes in combination with regulatory requirements
- Need for financing mechanisms for fossil-based mitigation projects. Enabling policy conditions can also help arrive at financing faster

Thank you!

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globalmethane.org

