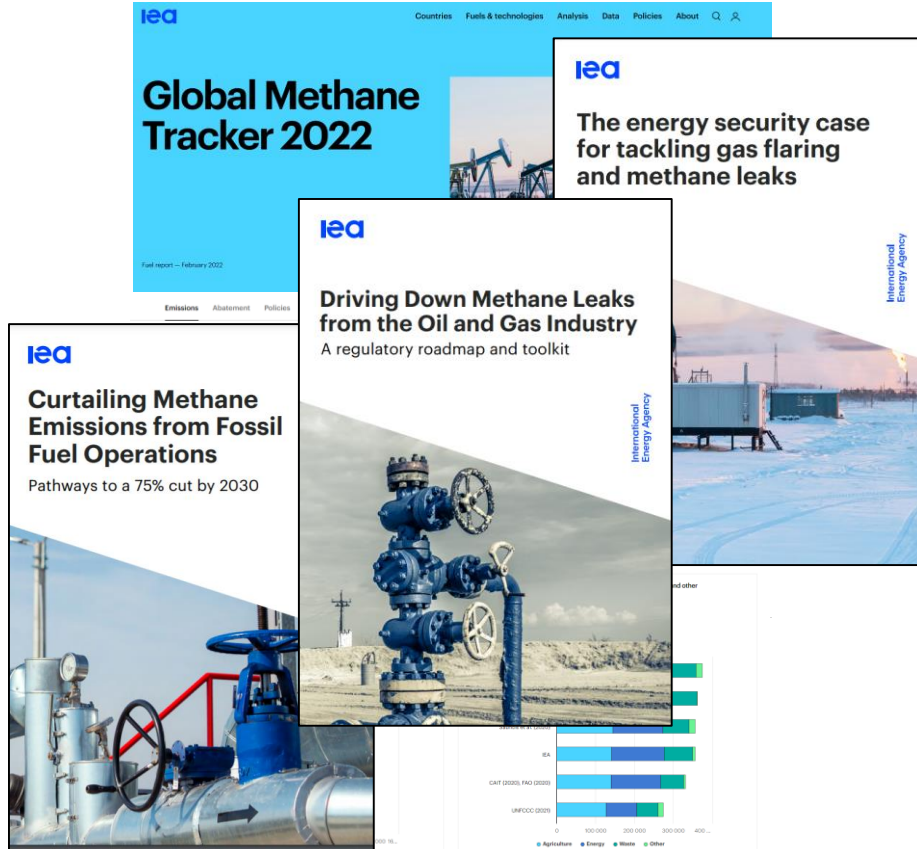




Driving Down Methane Leaks: A Regulatory Roadmap and Toolkit

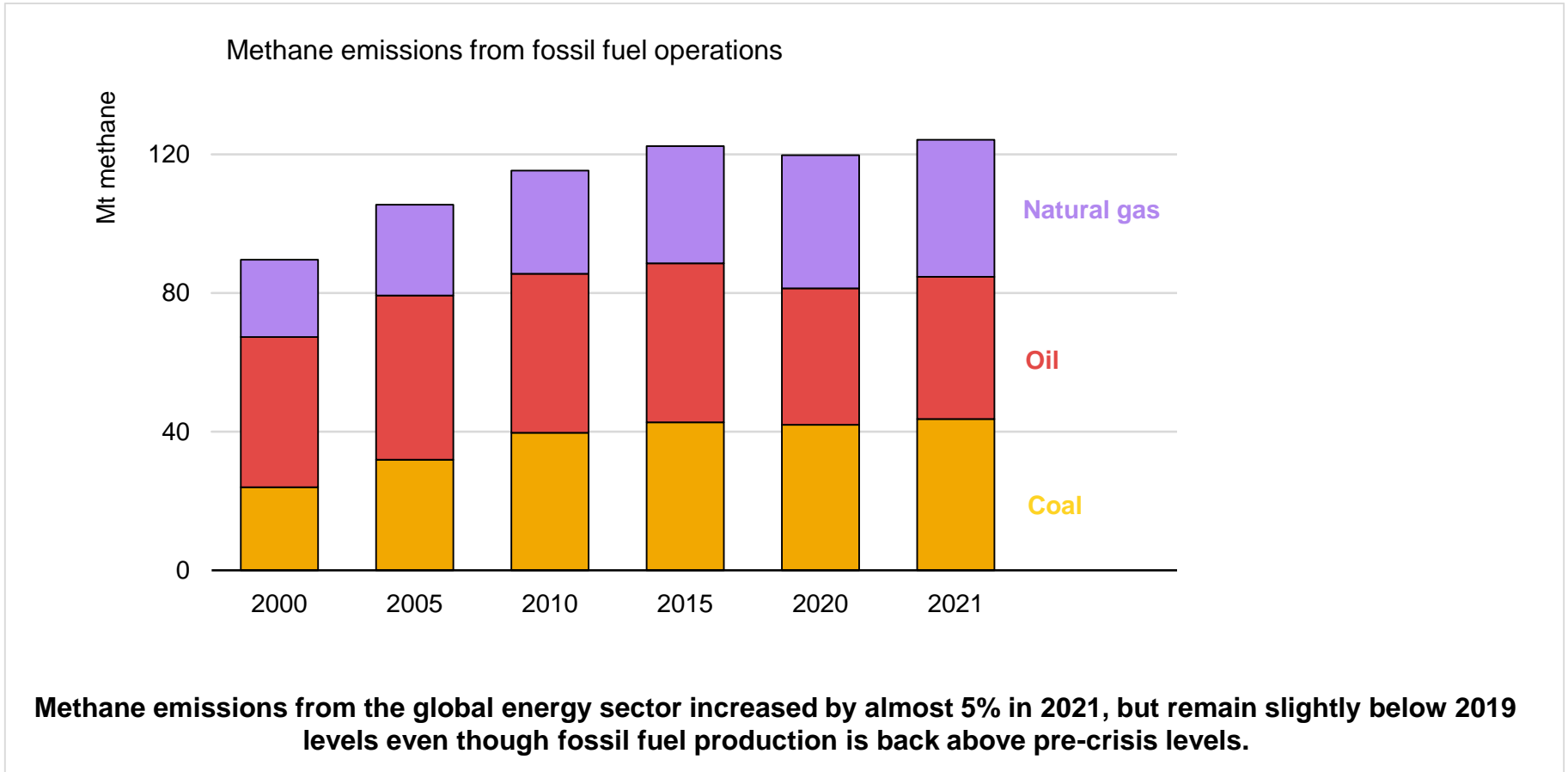
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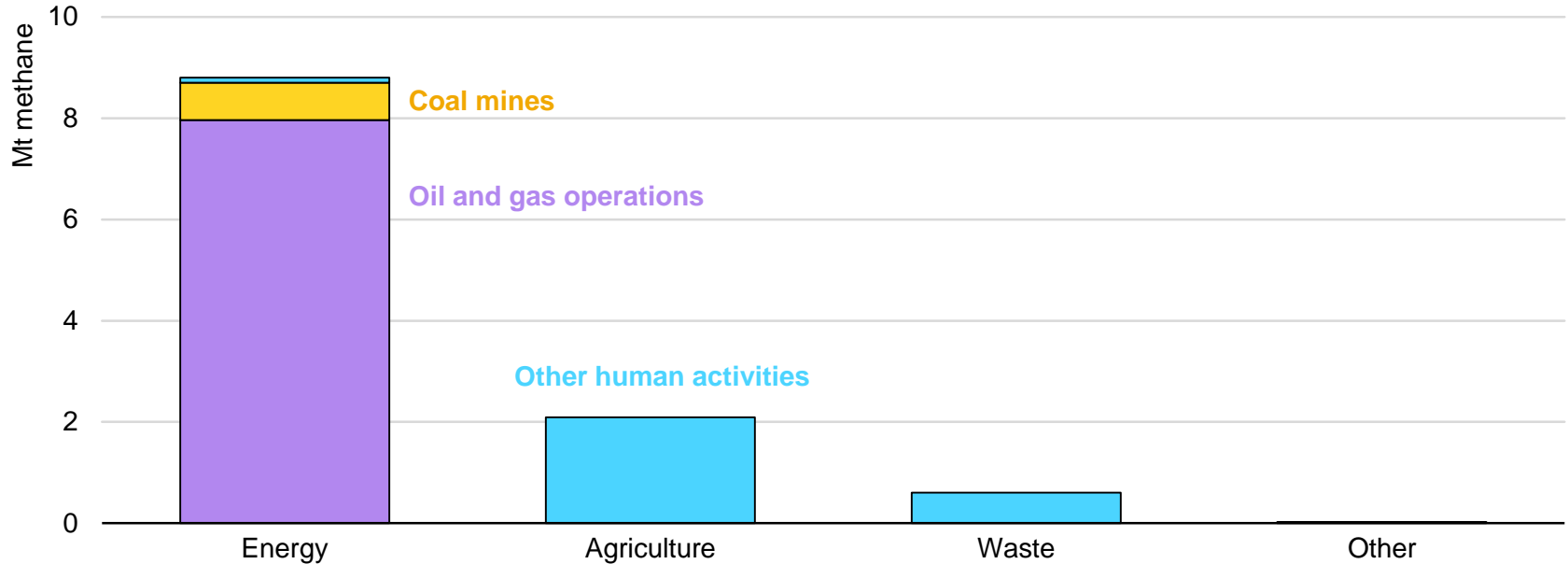
- The [Energy Security Case for Tackling Gas Flaring and Methane Leaks](#) lays out how these two measures can increase gas supply and reduce climate change
- The updated [IEA Global Methane Tracker 2022](#) provides detailed estimates for 2021 that incorporate the latest evidence from measurement efforts
- [Curtailing Methane Emissions from Fossil Fuel Operations](#) identifies the different actions & initiatives that can deliver a 75% cut in these emissions by 2030
- The [Regulatory Roadmap and Toolkit](#) is a detailed ‘how-to’ guide for policy makers and regulators seeking to cut methane emissions

Methane emissions from the energy sector rebounded in 2021



In 2021 oil and gas operations emitted 8 Mt of methane in the region

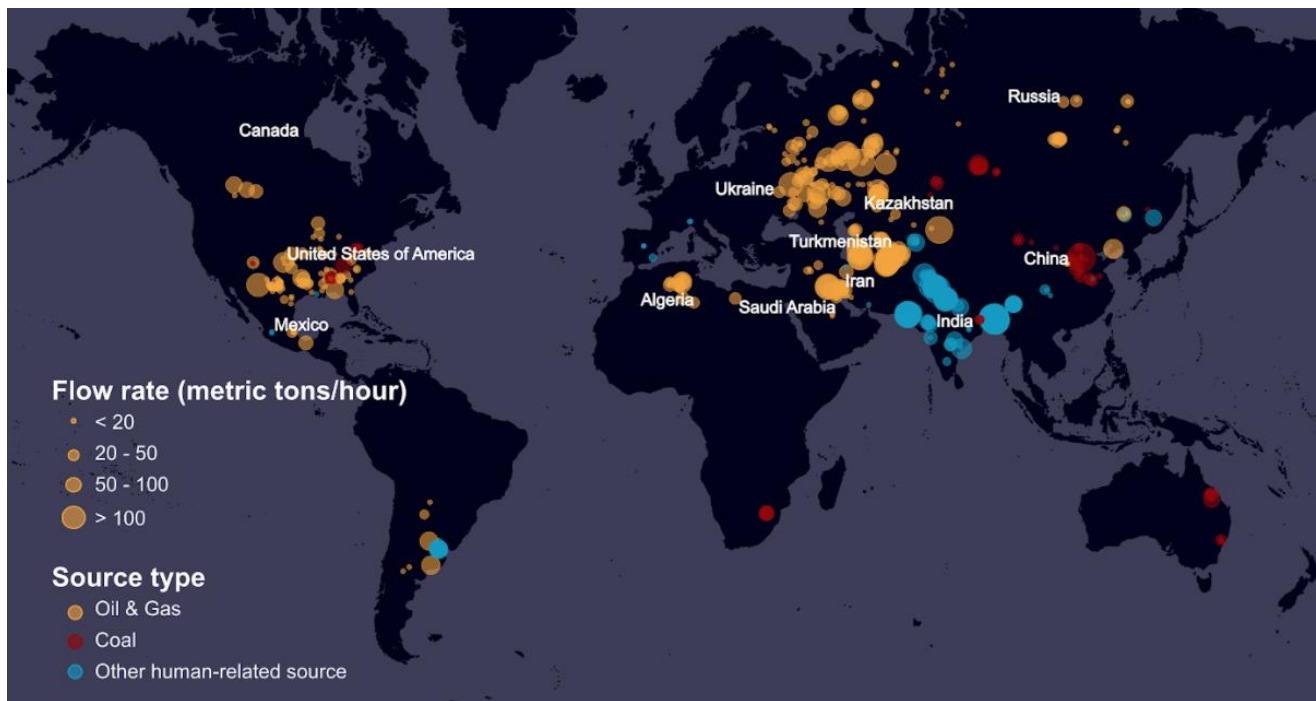
Methane emissions from all anthropogenic sources in Azerbaijan, Kazakhstan, Turkmenistan and Uzbekistan, 2021



Tackling methane emissions from the energy sector represents one of the best near-term opportunities for limiting global warming because the pathways for reducing them are well known and often cost-effective

Satellites are boosting our understanding of emissions

Satellite-detected methane leaks from human activities, 2021

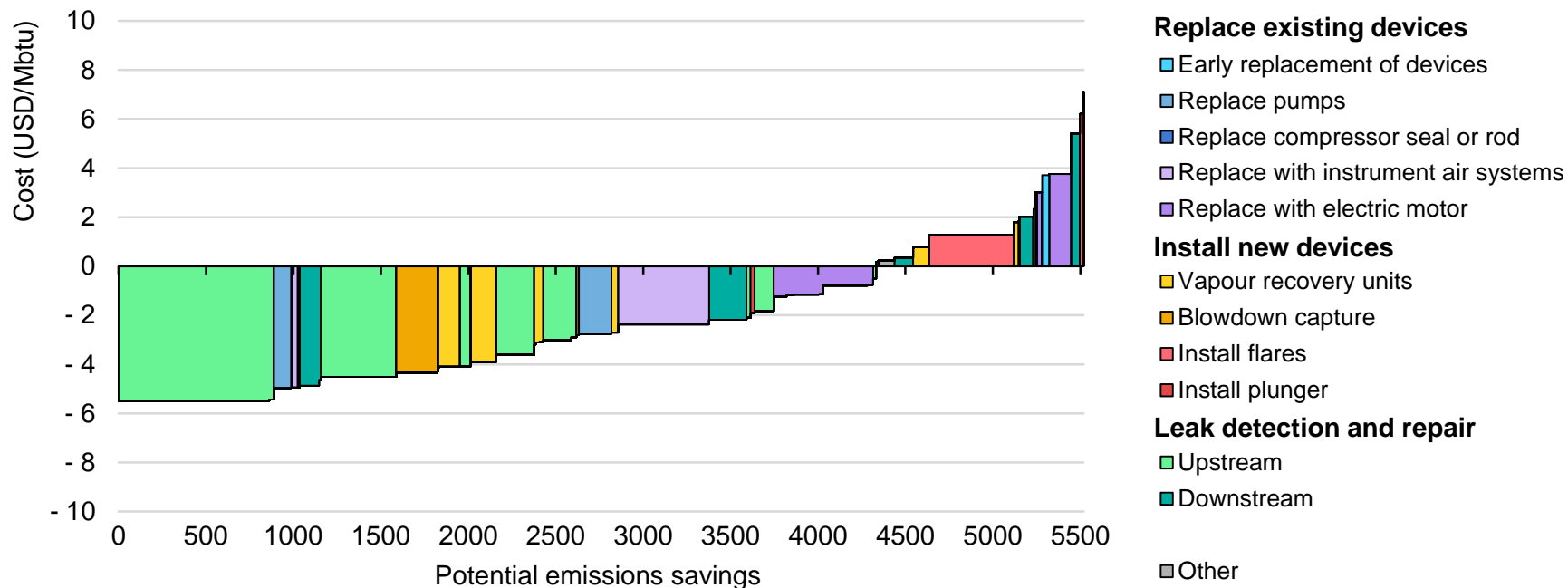


Source: [Kayrros](#), 2022

Very large leaks from oil and gas operations were detected across 15 countries in 2021. The coverage satellites provide today is still far from complete.

There is enormous scope for cost-effective reductions

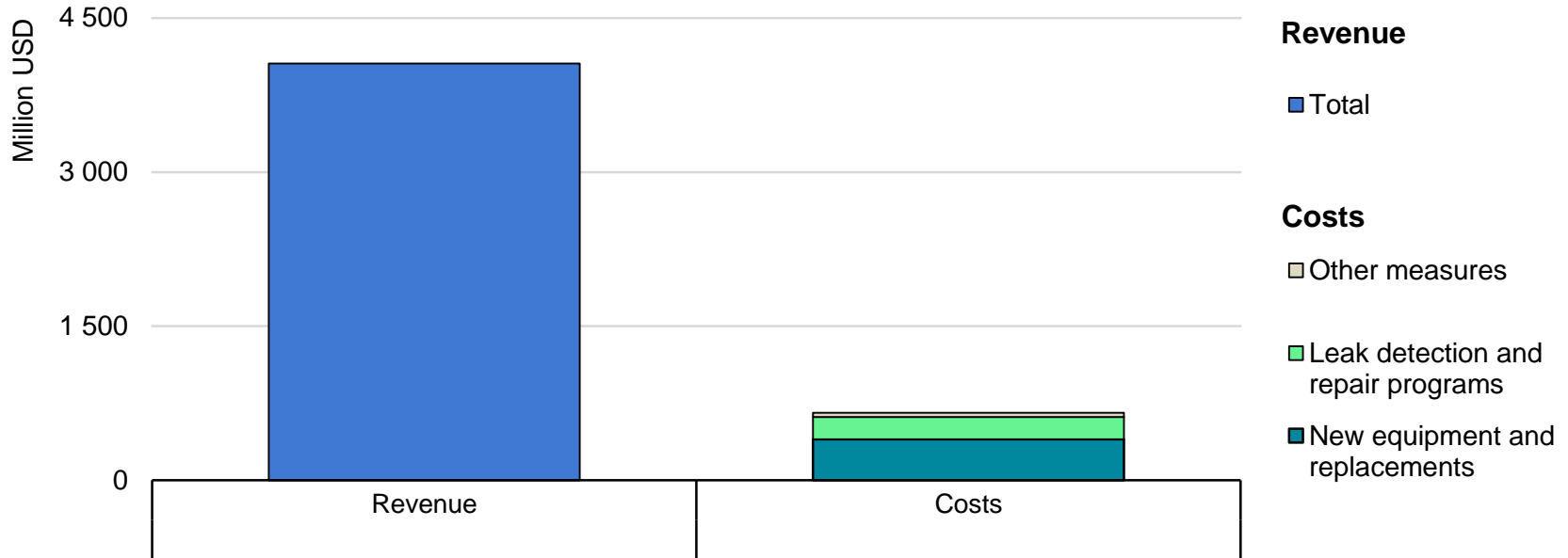
Methane marginal abatement cost curve for oil and gas emissions from Azerbaijan, Kazakhstan, Turkmenistan and Uzbekistan, 2021



Over 50% of oil and gas emissions could be reduced at no net cost using well-known existing technologies based on gas prices seen in recent years

With revenues of up to USD 4 billion

Annual costs and potential revenue from methane abatement in Turkmenistan, Kazakhstan, Azerbaijan and Uzbekistan



At today's elevated natural gas prices, almost all of the options to reduce flaring and methane emissions from oil and gas operations could be implemented at no net cost

Many countries already have some regulations on methane

Methane policies in selected producing countries categorised by regulatory approach

	Prescriptive approach				
	Permitting requirements	Leak detection and repair	Restrictions on flaring or venting	Technology standards	Enforcement and related provisions
Brazil	●		●	●	●
Canada	○	●	○	●	○
China	●		●	●	●
Iraq	●				●
Iran	●				
Mexico	●		●	●	●
Nigeria	●		●	●	●
Norway	●		●		●
Russia	●				
Saudi Arabia	●			●	●
United Arab Emirates	●				●
United States	○	●	○	●	●

Note: Full circle = national-level policy; open circle = subnational policy.

Governments and regulators seeking to take action on methane abatement can look to existing experience for inspiration and lessons learned

Understanding the setting

1. Understand the legal and political context
2. Characterise the nature of your industry
3. Develop an emissions profile

Regulatory design

4. Build regulatory capacity
5. Engage stakeholders
6. Define regulatory objectives
7. Select the appropriate policy design
8. Draft the policy

Implementation

9. Enable and enforce compliance
10. Periodically review and refine your policy

A wide variety of different policy and regulatory tools

Regulatory structure

Case-by-case regulation

- Permits
- Contracts

Generally applicable regulations

- Methane strategy
- Methane regulation

Approaches to regulation

Prescriptive

- Leak detection and repair
- Best available technology

Performance-based

- Emissions standards
- Methane intensity standards

Economic

- Methane emissions taxes
- Venting and flaring taxes

Information-based

- Impact assessment
- Information provisions

Essential programme elements

Monitoring

- Measurement campaigns
- Satellite detection

Recordkeeping and reporting

- Greenhouse gas reporting
- Reporting flaring and venting

Verification and enforcement

- Third-party verification
- Sanctions

Policy co-ordination

- Loans and grants
- Research and development

Adaptive regulation

- Goal review
- Compliance flexibility

Typology of regulatory approaches to reducing oil and gas methane

Approach	Transaction Costs	Rigidity	Preconditions
Prescriptive: Command and control specific actions or procedures	Low - Simple to administer for both regulators and firms	High - Only prescribed changes will take place	Moderate - knowledge of facilities' emissions needed
Performance-based: Establish standards and targets, but not a technical pathway	Moderate - Monitoring and follow-up are needed	Low - Encourages different solutions	High - Requires information on baseline and overall emissions
Economic: Induce action with penalties or financial incentives	High - Requires robust verification systems	Low - Enables company specific abatement strategies	Moderate - Requires knowledge of baseline emissions
Information-based: improve understanding of emissions with data reporting requirements	High - Demands collecting and analysing information	Moderate - Allows for different solutions in some cases	Low - No need of previous information

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