CLEAN AIR TASK FORCE

CLIMATE & CLEAN AIR COALITION TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

a UNEP convened initiative

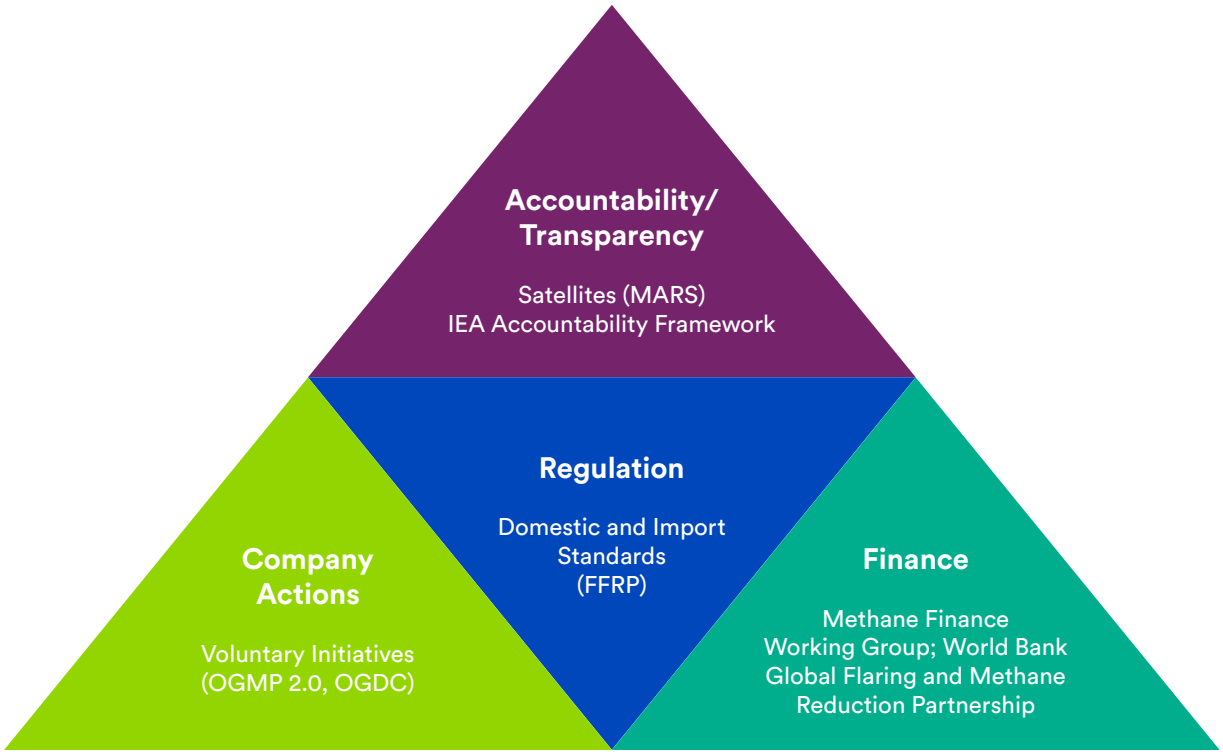
Blueprint for a Comprehensive Oil and Gas Methane Regulation

Overview

Regulations play a key role in reducing methane emissions from the fossil fuel sector, as they provide an instrument to drive desired behaviors and actions to achieve common levels of performance across operators. Regulations that can achieve deep cuts in methane emissions from oil and gas systems must be built on a foundation of strong and transparent compliance and emissions reporting and prescriptive mitigation requirements based on available information and international best practices. The United Nations Environment Programme's (UNEP) convened Climate and Clean Air Coalition (CCAC) and Clean Air Task Force (CATF), with contributions from UNEP's International Methane Emissions Observatory (IMEO), are preparing a series of supportive guidance documents on how regulations can be introduced to manage methane emissions from the oil and gas sector. In addition to reducing emissions, appropriately designed regulations reduce risks associated with access to and cost of capital and increasingly play a role in derisking access to markets. Support for regulatory development can be accessed through the Fossil Fuel Regulatory Program (FFRP), implemented by the CCAC and CATF.

The purpose of this blueprint is to introduce initial considerations for developing comprehensive national or subnational methane emissions regulations. A comprehensive methane emissions regulation should include two key components to drive emission reductions: mitigation requirements (including prescriptive standards and/or performance standards), and measurement, reporting, and verification (MRV) rules. The document highlights how elements of the emission reporting program of the Oil and Gas Methane Partnership 2.0 (OGMP 2.0) can be leveraged within the process, and it discusses the additional elements required to reduce methane emissions and credibly and transparently demonstrate these reductions. The document also highlights critical elements for effective implementation. This includes interdepartmental alignment, stakeholder engagement, and partnerships (both regulator-to-regulator and public-private). In addition, regulation must be understood in the context of broader methane abatement efforts, including company actions, reporting and transparency efforts, and finance.

Figure 1: The Global Effort to Reduce Methane Emissions and Interconnectivity with Regulations



The document also supports implementation of the International Energy Agency (IEA) Regulatory Roadmap and Toolkit. The Roadmap details ten key steps in developing a new regulation and provides a step-by-step guide to aid regulators in gathering the information they need to design, draft, and implement an effective regulatory scheme. Additional details on the IEA Methane Roadmap and Toolkit can be found here.

The second document in this series, "A blueprint for MRV: How countries can build OGMP 2.0-aligned reporting into MRV methane regulations", prepared by IMEO, details how the OGMP 2.0 framework can be leveraged in developing the MRV component within national or subnational methane regulations.

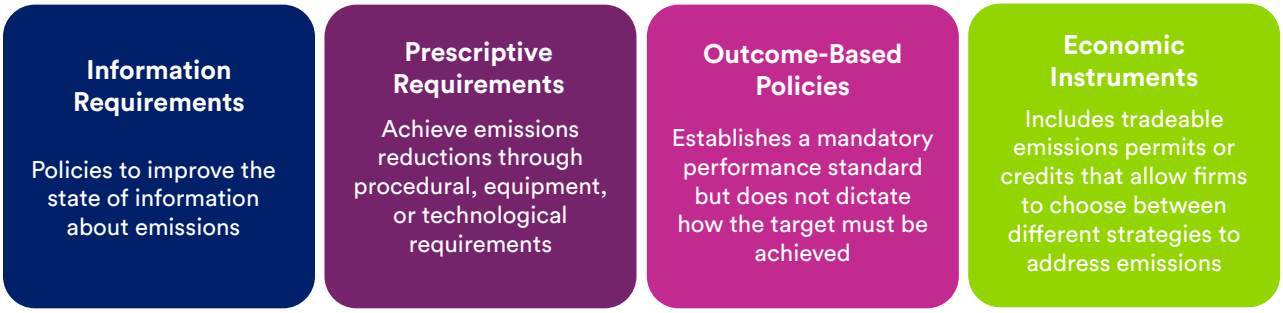
Future documents in this series will be developed by CCAC and CATF, with contributions from IMEO and other partners. The series may cover the following topics with details and case studies to illustrate the content:

- Requirements and considerations for equipment and work practice standards
- Incorporating satellite and other advanced technologies into regulatory frameworks
- Layering equipment and performance standards
- Compliance reporting
- Effective implementation, enforcement and legal recourse
- Integration with other obligations, including IPCC consistency
- Intensity-based goals
- Targeting mitigation efforts
- Reviewing, revising, and updating a regulation

Building a Comprehensive Methane Regulation

The IEA Regulatory Roadmap highlights four categories of regulation that can be considered including those that are prescriptive, performance, economic, or information based (see Figure 2).

Figure 2: Types of Regulations



Source: IEA Regulatory Roadmap

While it is useful to understand each regulation type, as we discuss below, a layered approach that incorporates elements from each type will be most effective in meeting short-, medium-, and long-term methane mitigation goals (see Figure 3):

- Short-term goal: Achieve immediate reductions through equipment and work practice standards
- Medium-term goal: Report and demonstrate compliance and emissions
- Long-term goal: Continuously improve to drive deeper reductions

We do not put specific timeframes on these goals, because the timeframes will vary from jurisdiction to jurisdiction, and it is not a strictly linear process. Nevertheless, it is useful to frame the challenge in this way to ensure that methane mitigation is as quick and effective as possible.

Figure 3: Layered Approach to Achieve the Goal of Methane Mitigation in the Oil and Gas Sector

GOAL 1 Achieve immediate reductions through equipment and work practice standards

Given the urgency for action on methane as well as to realize the benefits associated with methane capture and monetization, it is essential overseeing Ministries, Ministry-affiliated agencies, and operators move forward with mitigation as quickly as possible. This can be done utilizing information currently available and international best practices to develop prescriptive regulations that achieve immediate reductions.

Mitigation requirements include mandates for operators to implement effective emissions reduction measures, including equipment standards and work practice standards. Priorities for mitigation requirements should be based on a granular inventory, in line with OGMP 2.0 Level 3 reporting or higher. The granular inventory is essential for a basic understanding of current emission sources, identifying abatement potential, and understanding where cost effective opportunities lie. In addition, prior to the development of specific mitigation requirements, it is important to conduct regulatory, policy, and legal reviews to understand the existing regulatory landscape, what new regulations are required, and how they interface with existing legislative structures.

- **Equipment Standards:** These impose mass limits on the amount of methane that can be emitted by specific types of equipment or require the use of low- or zero-emissions technologies. Examples include:
  - Replace natural gas-driven pneumatic controllers and pumps with zero-emitting alternatives.
  - Capture or otherwise control vented gas from compressors and glycol dehydrators.
  - Install vapor recovery units at storage tanks.
  - Ensure flares and other combustion devices meet high combustion efficiency standards.

- **Work Practice Standards:** These require operators to undertake specific actions to reduce methane emissions, including:
  - Leak detection and repair programs to minimize fugitive emissions.
  - Reduced emission completions during well completions and workovers.
  - Flare monitoring to minimize periods of unlit flares.
  - Capture or minimize vented emissions during blowdowns and wellbore liquids unloading events.
  - Require remediation of large emission sources that are detected by satellites or other remote measurement technologies.

A variety of resources exist for jurisdictions interested in adopting strong equipment and work practice standards. More detail on best practices for each of these equipment and work practice standards can be found in CATF's "Leading Methane Abatement Policies for Oil and Gas Operations." A group of oil and gas companies, government entities, and non-governmental organizations, convened by the U.S. Department of Commerce, developed a "Methane Abatement for Oil and Gas Handbook for Policymakers."

Methane emissions standards requiring some or all of these measures have been adopted by numerous national (Canada, United States, Mexico, Colombia, Nigeria) and subnational (California, Colorado, New Mexico, Alberta, British Columbia) governments around the world.

GOAL 2 Report and demonstrate compliance

There are two types of reporting that are different but complementary in nature. They are 1) compliance reporting that demonstrates if and how an operator or reporting entity meets regulatory requirements, and 2) emission reporting that identifies the quantity of emission over a reporting period and associated descriptions of methodology and how data has been verified. While there can be overlap between these two types of reports—i.e., accurate, verifiable emissions reporting can be part of compliance reporting—it is important to understand how these types of reporting are distinct.

A regulatory program must promulgate and implement rules comprised of a standard methodology and comparable requirements for methane emissions that are consistent across all companies in the jurisdiction. Furthermore, a common approach for independent verification of what companies measure and report is also critical for regulatory application.

Compliance Reporting: Operators should be required to submit to regulators regular, verified reports including evidence of compliance with equipment and work practice actions. Such reporting should use standardized reporting templates to reduce administrative burdens and allow regulators to quickly determine whether operators are following regulatory requirements. Effective compliance reporting is essential to enforce methane regulations and incentivize emissions abatement. Information provided can include qualitative information to show that required actions have been implemented as well as quantitative information linked to emissions and measurements.

Lawmakers should ensure that regulators are empowered to verify that operators are complying with requirements. This may include corrective action plans with actions and timescales agreed by both the operator and regulator, and, where these are not adhered to, appropriate enforcement and potential penalties. Implementing measures for non-compliance may include on-site inspections, corrective actions, monetary penalties, taxes, fees, and—in extreme cases—the suspension or revocation of permits. For example, the Colorado Department of Public Health and Environment (CDPHE) issues penalties and publishes information on non-compliance with oil and gas emission standards.

Emissions Reporting: In parallel with compliance reporting, regulators should require MRV requirements. Reporting requirements should be based upon rigorous measurements, aligned with the internationally-recognized standard of OGMP 2.0 Level 5 (discussed further in "A blueprint for MRV: How countries can build OGMP 2.0-aligned reporting into MRV methane regulations"). Measurement-based MRV reporting is needed to credibly demonstrate emissions reductions for the purposes of meeting domestic requirements and/or meeting the requirements of import standards. These requirements should require third-party verification, in line with international standards. Measurement-based emissions reporting is a key element of an information-based regulatory approach, and here we describe how this approach can be layered with a broader regulatory strategy to achieve reductions.

For reporting to be effective, regulators must understand monitoring and measurement techniques and develop reporting and verification structures. This can be accomplished through technology demonstrations and capacity building workshops.

MRV data should be reported following best data management practices in a standardized and transparent manner:

- **Data Management and Harmonization:** Requiring detailed disclosure of activity and emissions data to enhance accountability and inform decision-making. Lawmakers should use standardized reporting templates (for instance, the OGMP 2.0 reporting template) to reduce administrative burdens and maximize data interoperability and comparability across domestic and international supply chains.
- **Transparency:** To the maximum extent possible, without sharing commercially sensitive data, regulators should publish emissions performance reports in an accessible database. For example, from 2026 the European Commission will publish a Transparency Database that will include reported data and methane performance profiles for domestic and imported fossil fuels.

GOAL 3 Continuously improve to drive deeper reductions

Achieving commitments set within the Global Methane Pledge and other national and regional targets will require deep cuts in oil and gas methane emissions. Regulators and companies will go through a learning curve to reduce emissions from oil and gas, so it is likely that regulations will need to be reviewed, revised, and updated as new information about emissions is obtained and new mitigation and measurement technologies become available. Additionally, as regulations are updated, it may prove possible to include more flexibility, driven by increased accuracy in inventories (for example, regulations that allow operators to use advanced technology for alternate compliance approaches to LDAR requirements). However, flexibility can only be created through carefully designed derogations or alternate requirements for certain circumstances or approved new technologies. It is imperative that these do not weaken overall regulatory ambition or create loopholes that operators could exploit. Regulators may want to consider setting clear boundaries for any added flexibility, ensuring it complements rather than undermines the stringency of methane reduction standards.

Furthermore, as it becomes feasible for operators to rigorously report at OGMP 2.0 Level 5, performance based and/or economics-based regulatory approaches – which potentially allow deeper emissions reductions than equipment and work-practice standards – can be layered on top of existing prescriptive and information-based regulatory approaches. Operators would continue to comply with equipment and work practice emission standards, but they would have full flexibility to decide how best to reach the deeper performance target. An example of this is Colorado, which developed an intensity standard (the GHG Intensity Verification Rule) on top of existing equipment and work practice standards to help it meet state-mandated emission reduction targets.

Methane Import Standards

Countries that import oil or gas may consider developing import standards to incentivize foreign suppliers to undertake actions to minimize methane emissions equivalent to domestic requirements. A methane import standard is a tool that sets standards for an oil and gas supply chain's methane emissions intensity.

The European Union introduced the first import standard in 2024 with the adoption of the EU Methane Regulation. The EU will require importers to report on the origin, transportation pathway, emissions abatement efforts undertaken by producers, and the methane intensity of the production of oil and gas sold on EU markets. Import standards are designed to set the same requirements for domestic producers and foreign producers. Requirements placed on imported products could include reporting standards and intensity thresholds (as was done in the EU) or work practice and equipment standards. Thus, import standards put domestic and foreign producers on a level playing field, while also driving down emissions across a country's entire methane footprint from the oil and gas industry.

Critical Elements to Ensure Effective Implementation

In this section, we discuss additional elements that are critical throughout the process to ensure that the regulation moves forward swiftly and without unforeseen roadblocks. A regulator must work to build institutional, operator, and supply chain capacity to understand and implement emission management, reporting, and compliance requirements. The enforcement plan is something that should be considered in the earliest stages of regulation design.

Intergovernmental Department Alignment: A key step in developing a comprehensive regulatory framework is ensuring involved Ministries and Ministry-affiliated agencies have clearly defined mandates or roles in the design, implementation, and enforcement of any regulation. This may require additional legislation or refinement of existing arrangements using legislation already in place. The mandates and goals can be linked to national climate ambitions and objectives, including those defined within country level Nationally Determined Contributions under the Paris Agreement and Methane/SLCP Management Plans. The Zero Flaring by 2030 Initiative and the Global Methane Pledge are examples of commitments that help set national priorities across departments and spur further action.

Stakeholder Engagement: Consultation throughout a regulation design process is recommended in order to align regulatory objectives and ensure understanding of stakeholder roles. This covers state entities including ministries, departments/agencies, and ministry-affiliated companies as well as private sector partners, including operators. It may also involve partners who can provide required information and analytics. For example, such consultation can be achieved through the development of a National Task Team during the design and implementation process.

Building partnerships: Regulators can progressively scale up ambition and levels of action based on lessons learned from pilots and implementation. This can include refinements of regulations, governmental-operator forums, and financing options to implement abatement and MRV measures.