# 2022 Accomplishments
in Methane Mitigation, Recovery, and Use through U.S.-Supported International Efforts

The Global Methane Initiative (GMI) is an international public-private partnership focused on reducing barriers to the recovery and use of methane as a valuable energy source. GMI's 47 Partner Countries and nearly 1,000 Project Network members exchange information and technical resources to advance methane mitigation across key sectors: Oil & Gas, Coal Mines, and Biogas (which includes agriculture, municipal solid waste, and municipal wastewater). The United States currently hosts the Secretariat of the GMI, serves as the Chair of the Steering Committee, and provides technical support and leadership across the key sectors.

Figure 1. GMI Structure and Organization to Address Methane in Three Key Sectors
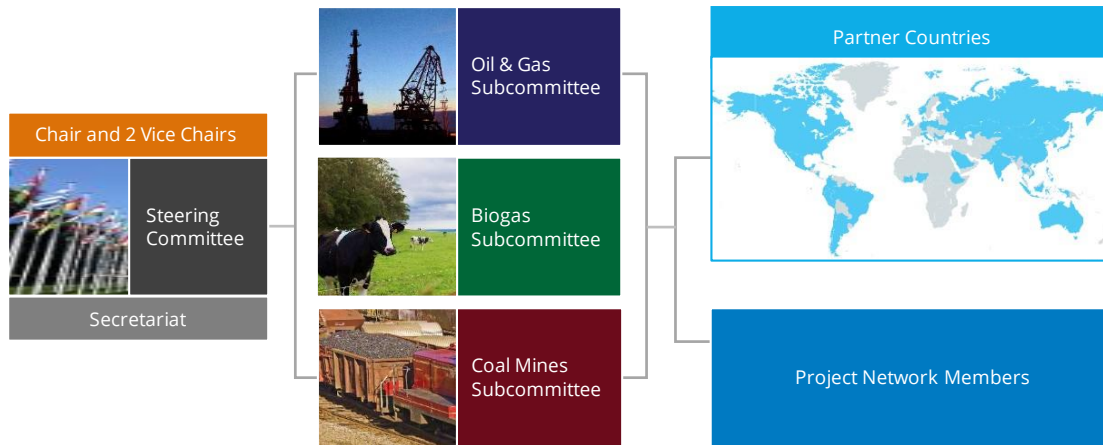
Reducing methane to tackle the climate crisis is a priority for the Biden-Harris Administration which helped launch the Global Methane Pledge to reduce global methane emissions. GMI directly supports implementation of the Global Methane Pledge by collaborating with government and private sector stakeholders, developing tools and resources focused on methane mitigation, and providing technical support and capacity building to advance methane mitigation in specific sectors and countries around the world. This report outlines accomplishments of U.S.-funded GMI activities in 2022.

Methane Emission Reductions

The United States continued to actively engage with Partner Countries and provide key leadership on international methane emission reduction efforts in 2022. Between 2004 and 2022, the U.S.-supported implementation of more than 1,230 GMI methane mitigation projects. These projects have cumulatively reduced methane emissions by a total of approximately 643 million metric tonnes of carbon dioxide

equivalent (MMTCO$_2$e), including 40 MMTCO$_2$e in 2022, as shown in Figure 2. U.S. efforts under the auspices of GMI have also identified additional possible mitigation projects with an estimated cumulative potential to reduce at least 871 MMTCO$_2$e.

Figure 2. Methane Emission Reductions from U.S.-Supported International Efforts

Methane Emission Reductions Achieved, 2004-2022
(Total = 643 MMTCO$_2$e)

| 2004-2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | **2022** |

0 50 100 150 200 250 300 350 400 450 500 550 600 650
MMTCO$_2$e

40 MMTCO$_2$e reductions achieved in 2022

Potential Methane Emission Reductions Identified, 2004-2022
(Total = 871 MMTCO$_2$e)

| 2004-2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | **2022** |

0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900
MMTCO$_2$e

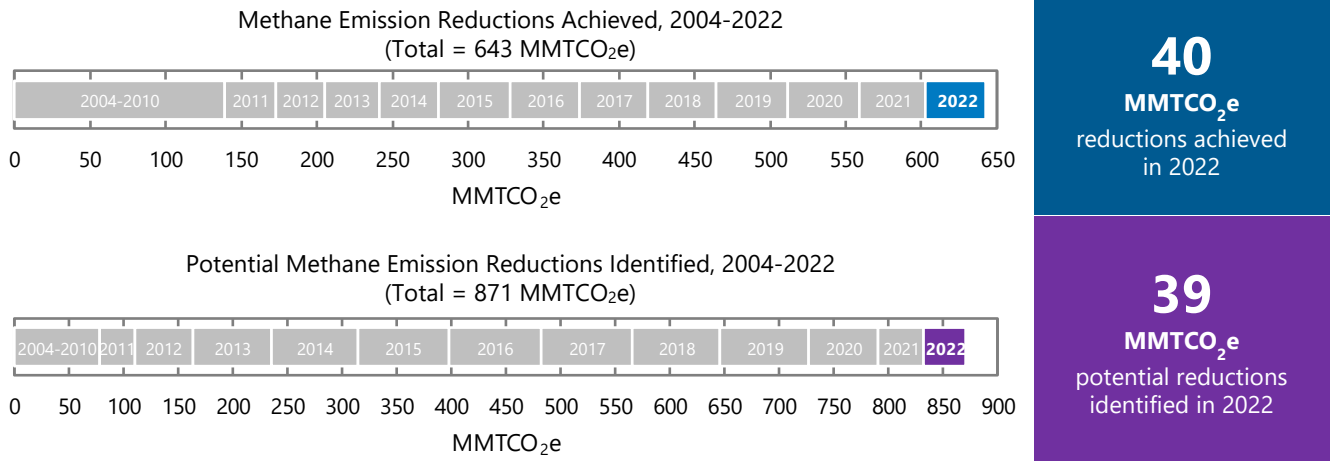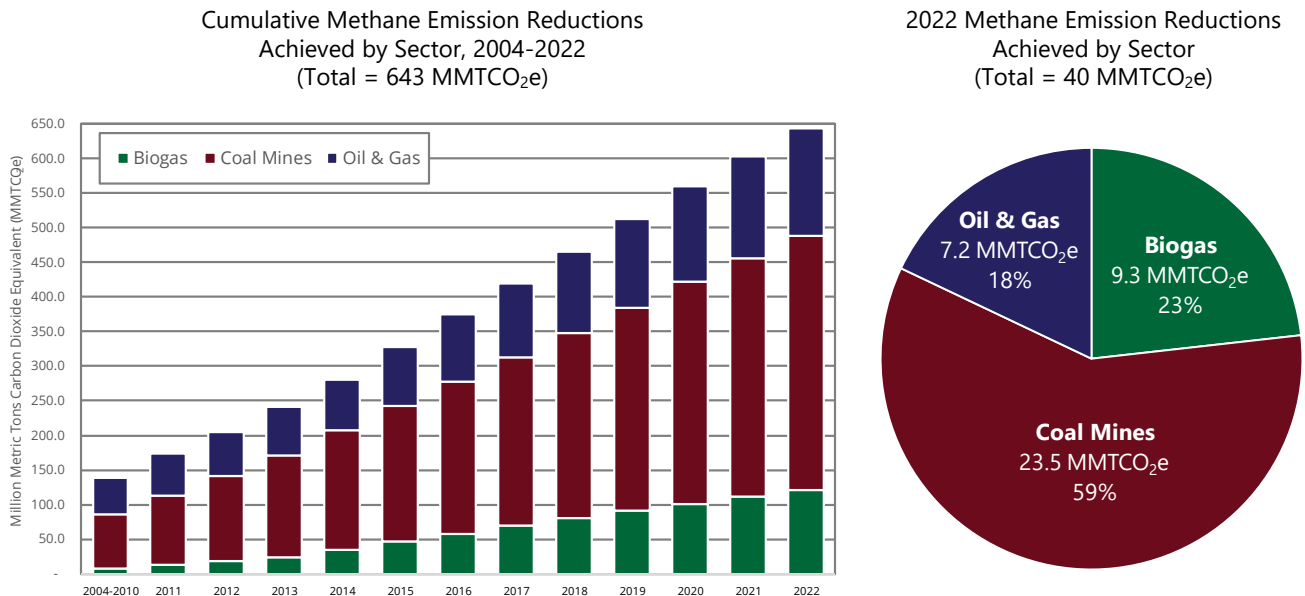**39** MMTCO$_2$e potential reductions identified in 2022

Figure 3 shows the methane emission reductions by GMI's key sectors, which are significant sources of global methane emissions from human activities. These emission reduction activities benefit the United States because they reduce methane emissions in the atmosphere, improve air quality and human health, create opportunities for U.S. businesses and investors, and support U.S. diplomatic efforts.

Figure 3. Methane Emission Reductions by Sector from U.S.-Supported International Efforts

Cumulative Methane Emission Reductions Achieved by Sector, 2004-2022
(Total = 643 MMTCO$_2$e)

2022 Methane Emission Reductions Achieved by Sector
(Total = 40 MMTCO$_2$e)

Oil & Gas 7.2 MMTCO$_2$e 18%
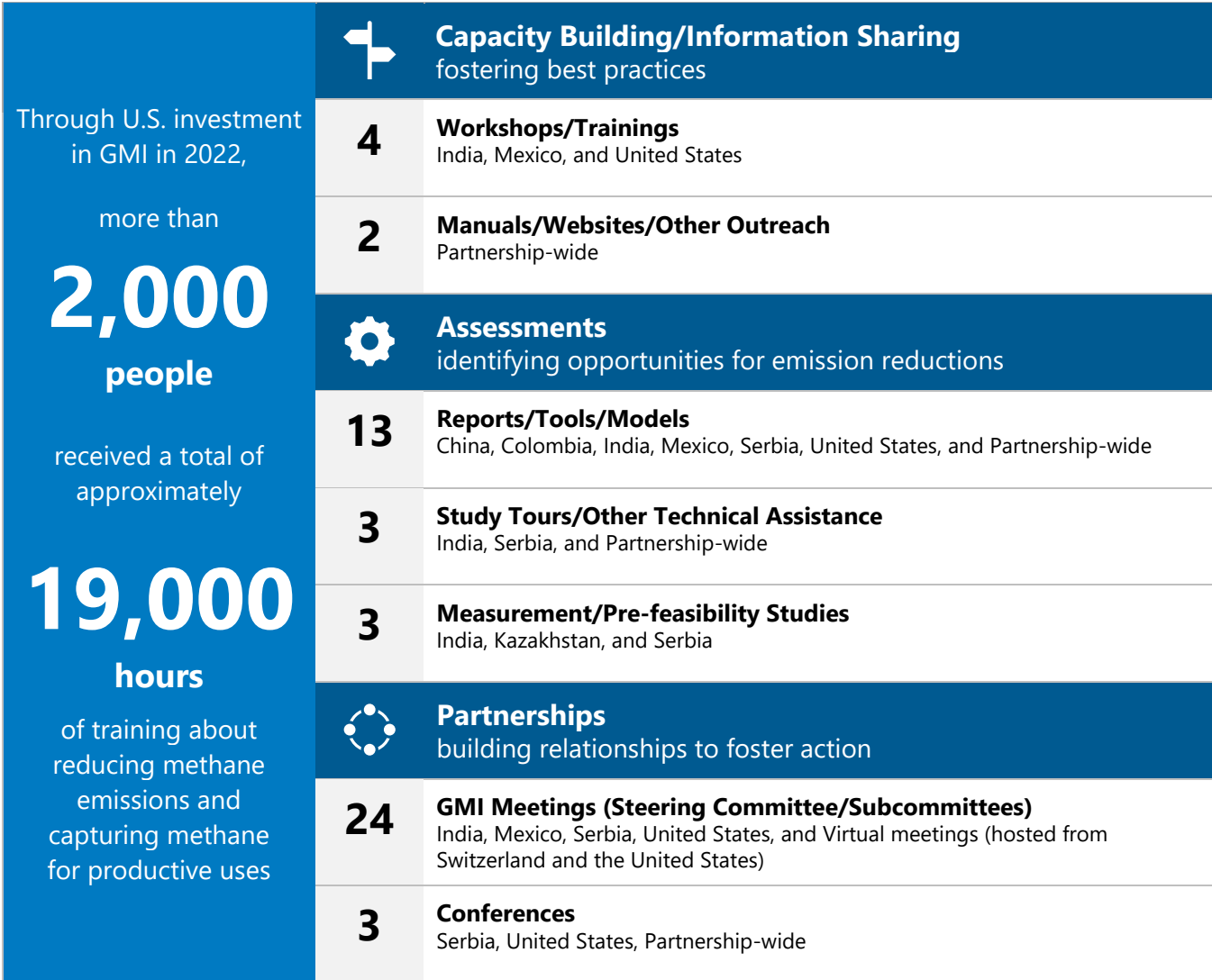Biogas 9.3 MMTCO$_2$e 23%
Coal Mines 23.5 MMTCO$_2$e 59%

Note: Methane emissions data come from the GMI database of project activities maintained by the U.S. Environmental Protection Agency. Data represent the best available yet conservative estimates of emission reductions, including actual emission reductions from projects supported by the U.S. Government and potential emission reductions from other projects identified through U.S. Government efforts. Carbon dioxide equivalents (CO$_2$e) are based on methane having a global warming potential 28 times greater than carbon dioxide over a 100-year period.

Methane Mitigation Activities

Since 2004, U.S. Government funding from the Department of State and the U.S. Environmental Protection Agency (EPA) has sponsored and advanced methane mitigation activities including technical assessments, information sharing, capacity building, and GMI partnership-related activities. In 2022 alone, U.S. Government funding supported country-specific activities related to methane mitigation in six nations (China, Colombia, India, Kazakhstan, Mexico, and Serbia) and partnership-wide activities that served all GMI Partner Countries. These efforts provided approximately 19,000 hours of training that benefited more than 2,000 people around the world. Every $1 invested by the United States in GMI leverages approximately $6 in investments from other stakeholders, which are used to develop projects that reduce methane emissions directly and to fund assessments that identify additional opportunities to achieve emission reductions (see Figure 2). Figure 4 summarizes the technical and outreach support provided by the United States through GMI in 2022 under a variety of methane mitigation activities.

Figure 4. International Methane Mitigation Activities and Impacts Supported by the U.S. Government in 2022

Through U.S. investment in GMI in 2022, more than **2,000 people** received a total of approximately **19,000 hours** of training about reducing methane emissions and capturing methane for productive uses

	Capacity Building/Information Sharing fostering best practices
4	**Workshops/Trainings** India, Mexico, and United States
2	**Manuals/Websites/Other Outreach** Partnership-wide

	Assessments identifying opportunities for emission reductions
13	**Reports/Tools/Models** China, Colombia, India, Mexico, Serbia, United States, and Partnership-wide
3	**Study Tours/Other Technical Assistance** India, Serbia, and Partnership-wide
3	**Measurement/Pre-feasibility Studies** India, Kazakhstan, and Serbia

	Partnerships building relationships to foster action
24	**GMI Meetings (Steering Committee/Subcommittees)** India, Mexico, Serbia, United States, and Virtual meetings (hosted from Switzerland and the United States)
3	**Conferences** Serbia, United States, Partnership-wide

Global Methane, Climate and Clean Air Forum
a joint event sponsored by GMI and CCAC
26-30 September 2022, Washington, D.C.

The U.S. Government was the driver behind the *Global Methane, Climate and Clean Air Forum,* the premier methane event of 2022. In its role hosting the GMI Secretariat, the EPA collaborated with the Climate and Clean Air Coalition (CCAC) to co-organize this successful event that garnered a total of 850 participants (virtual and in-person) from 66 countries. High-level U.S. speakers, including Special Presidential Envoy for Climate John Kerry, EPA Deputy Administrator Janet McCabe, and White House National Climate Advisor Ali Zaidi, spoke at the event, which provided a platform for dialogue, exchange, and action on protecting the climate and improving air quality through methane mitigation. Global thought leaders representing governments, multilateral development banks, nongovernmental organizations, finance institutions, philanthropies, environmental groups, and the private sector joined together to build momentum for taking action on methane. Activities included 5 high-level plenary sessions, 36 technical sessions, 3 site visits, 3 formal meetings, and several informal meetings organized onsite to convene in-person participants with shared interests.

As a result of U.S. leadership, the Forum produced several positive outcomes:

Connected Stakeholders
- Re-engaged with global methane stakeholders after the lack of in-person meetings due to COVID. 32 GMI delegates from 15 GMI Partner Countries actively participated.
- Expanded participation with livestreaming. This was the first Methane Forum to integrate livestreaming technology that allowed stakeholders from around the world to engage virtually.

Highlighted Technical Solutions and Opportunities to Take Action
- Framed high-level themes about taking fast action with a diverse slate of plenary speakers who represented a range of organizations and perspectives.
- Shared technical solutions and showcased practical examples for sector-specific challenges, highlighting innovative and creative solutions and approaches to scale up through policies, finance, and cooperation.
- Addressed challenges and opportunities for project financing.

Advanced Global Momentum to Address Methane and SLCPs Now
- Moved the conversation forward regarding methane and short-lived climate pollutant (SLCP) mitigation.
- Added momentum for addressing methane through international efforts. Speakers from across the globe highlighted areas in which positive action can be taken, especially as improvements in technology and understanding increase the capacity to achieve results on varying scales.
- Concluded with a high-level joint statement urging all countries to consider several key measures to take ambitious steps to reduce methane emissions and other SLCPs.

2022 Project Highlights

Biogas

Biogas Measurement, Reporting, and Verification Capacity Building

In 2022, U.S. Government efforts supported multiple measurement, reporting, and verification (MRV) capacity-building efforts to help Partner Countries improve national-level greenhouse gas (GHG) inventories for methane. including tools, training, and direct capacity-building assistance. For example, the EPA developed a new handbook on MRV for biogas projects that details how such systems can be leveraged to improve national GHG inventories. For more information, see *Policy Maker's Handbook for Monitoring, Reporting and Verification in the Biogas Sector*. More accurately accounting for methane emissions will help GMI Partners identify effectiveness of specific mitigation measures and track progress towards methane mitigation goals.

Coal

Chinese Translation of the CMM Prefeasibility Training Modules

The EPA has a long history of collaboration with its partners under the auspices of GMI in the coal sector. A previous collaboration between the EPA and the United Nations Economic Commission for Europe, produced a training course on *Conducting Pre-Feasibility Studies for Coal Mine Methane Projects Training*. Building on that previous EPA work, in 2022, our partner, the China Coal Information Institute (CCII), leveraged this training and translated a number of the modules into Chinese. The translated training will help reach more CMM project developers, third parties, mining company personnel, and government officials to deliver technical assistance on CMM mitigation.

Oil & Gas

Prefeasibility Study on Stranded Associated Gas in Kazakhstan

In 2022, the EPA partnered with the Methane Center in Kazakhstan, ranked among the top fossil fuel producing countries in the world, to identify and promote cost-effective technologies and practices to reduce methane emissions from oil & gas production. This collaboration produced a study that assessed how to monetize the stranded associated gas in the Mangystau oilfield. Modular, small-scale processing technologies can produce marketable liquid hydrocarbon commodities such as methanol, syn-diesel, oil, or others. EPA's report *A Technical, Economic and Environmental Analysis of Beneficial Use of Stranded Associated Gas in Kazakhstan*, found that a Gas-to-Liquids project at the Mangystau oilfield has a potential to avoid emissions for up to 450,000 metric tons of CO_2e with a payback period of 3.5 years. The Methane Center is seeking to connect with technology providers and to secure national funds available for innovative energy projects.

Biogas

Technical Assistance on Organic Waste Management in Novi Sad, Serbia

To advance global efforts to reduce methane emissions from the municipal solid waste sector by addressing the underlying waste management challenges, the EPA led collaboration with the City of Novi Sad and the Center of Excellence for Climate Change and Circular Economy (CECC). The EPA organized a conference in Novi Sad on "Diverting Biowaste from Landfills, Small- and Large-Scale Treatment Facilities"; led a site visit to the regional waste management facility in Sremska Mitrovica; and met with the Serbian Ministry of Environmental Protection staff to discuss the status of biowaste management and the Ministry's priorities. The events fostered peer exchange, established resources for Serbian cities looking to improve biowaste management, and laid the foundation for future work in the region on biowaste issues.

Biogas	Coal
Wastewater Sector Capacity Building in Mexico	**Spanish Edition of the CMM Basics Training**
In March 2022, the EPA conducted a virtual capacity-building workshop "Technical Considerations to Implement Methane Capture Projects in the Wastewater Sector in Mexico." More than 95 participants, including technical experts in the interdisciplinary wastewater biogas sector, attended presentations and discussions from the EPA, Mexican National Biogas Council (CNB), Mexico City Environmental Ministry, German Agency for International Development (GIZ) and Global Green Growth Institute (GGGI) speakers. The workshop increased awareness and shared technical knowledge on methane mitigation strategies and technologies available for the capture and use of methane from municipal wastewater treatment plants (WWTPs) in Mexico, including financing wastewater methane projects.	The EPA expanded the capacity of technical materials to reach global partners in the coal mining sector. The Agency translated a key technical resource, the *Basics of Coal Mine Methane Training*, into Spanish. This tool provides effective web-based, interactive, and self-guided training that provides basic information about methane emissions from coal mining activities. In plain, easy-to-understand language, this resource explains why reducing methane emissions is important for addressing climate change, improving air quality, and increasing mine safety. The training covers coal characteristics, mining methods, methane emissions, and technologies and practices for methane capture and utilization from coal mines. The Spanish translation of this tool will expand the accessibility of technical assistance on coal mine methane mitigation in Spanish-speaking regions, including Colombia and Mexico.

Learn More

Learn more about GMI by visiting **globalmethane.org**.

- Find tools and resources on methane mitigation best practices

- Learn more about GMI Partner Countries and international collaboration

- Explore events and methane emissions data

- Engage with the GMI Sectors: Oil & Gas, Coal Mines, and Biogas