Silk Road: Reducing Gas Leaks in the Hududgaz Gas Distribution Networks Across Uzbekistan

Location:

Uzbekistan

Region:

Europe and Central Asia

Timeframe:

July 2023-July 2024

Project Partners:

Climate Compass, LLC; GasGreen Asia LLC; EkoCarbon Services Ltd.; Ecoeye Co., Ltd.; Hududgazta'minot Joint Service Company (JSC)

Sector(s):

Oil & Gas

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Executive Summary

Through a collaboration with the government of Uzbekistan and a privately owned gas distribution company in Uzbekistan, Climate Compass, LLC designed and conducted a leak detection program that, in only 3 months, repaired over 55,000 individual methane leaks from gas facilities across the country. This initiative is expected to save nearly 400 million cubic meters of natural gas per year, preventing almost 8 million tons of carbon dioxide equivalent from entering the atmosphere.

Introduction and Background

Uzbekistan's gas distribution system was constructed during the 1960s and 1970s but has not been well maintained. As a result, natural gas – which is comprised primarily of methane – leaks from components in the system and is released in significant quantities into the atmosphere. Methane has a high global warming potential and contributes to global climate change as well as to the formation of ozone and air pollution at the local level.

Leaks in the transmission and distribution system occur because parts get worn out over time, experience stress from heat and vibrations, and expand and contract with changes in the weather.

In 2023, Climate Compass, LCC, a greenhouse gas technical services firm based in the United States (U.S.), launched a project in collaboration with Uzbekistan's national gas distribution company, Hududgazta'minot Joint Service Company (JSC), to help the company detect and repair natural gas leaks. This ongoing project greatly reduces natural gas leaks by using an advanced Leak Detection and Repair (LDAR) procedure that meets the highest standards of the United Nations, the Integrity Council for the Voluntary Carbon Market (ICVCM), and Core Carbon Principles.

Project Objectives and Actions Taken

The objectives of the project were to:

- Eliminate methane leaks from Uzbekistan's national gas distribution networks by designing and implementing an advanced LDAR program in close partnership with the gas company, Hududgazta'minot JSC.
- Help the government of Uzbekistan advance its National Green Economy program goals and demonstrate measurable progress in reducing leaking methane emissions in line with its Global Methane Pledge commitments.
- Provide training and capacity building to local engineers and gas company personnel to ensure long-term sustainability of gas leak detection and elimination activities.

Climate Compass's Ukraine-based Lead Engineering Team began the project by recruiting and training more than 200 gas repair technicians in Tashkent, Uzbekistan.

The LDAR project started by implementing a pilot in the Tashkent region and then expanded to the rest of Uzbekistan, in line with the project parameters and government approvals. The project staff logged data on all leaks and repairs in accordance with AM0023 methodology requirements during project implementation, which lasted 1 year. Following the pilot phase, the team monitored repairs, supported by a certified third-party auditor that verified results. Climate Compass and Ecoeye Co., Ltd., based in South Korea, provided project investment, with project finance structured through issuance and sales of project-generated Voluntary/Certified Emissions Reductions.

The project has been registered with Verra, a nonprofit organization that operates environmental and social markets, and the methodology is one of only 10 approved by the ICVCM's Core Carbon Principle program.

Primary project barriers were related to raising awareness among relevant Uzbek ministry officials of carbon finance markets, mechanisms, and related requirements. Efforts to address those barriers included official meetings and roundtable discussions, awareness raising from the gas company and local project partner, investor engagement, and support from relevant business chambers. Other barriers were related to identifying, recruiting, and on-boarding enough qualified engineers to perform services that met project standards, and managing teams for quality control throughout the implementation period.

The main stakeholder for the project, Hududgazta'minot JSC, provided equipment and advanced repair materials, and gave project teams full access to their network.

Results

From June through August 2023, Climate Compass's Lead Engineers in Tashkent trained approximately 200 local staff identified for the project. Since then, qualified project teams have surveyed more than 100,000 gas facilities and repaired over 55,000 individual methane leaks across the country. Nearly 400 million cubic meters of natural gas per year are expected to be saved, preventing almost 8 million tons of carbon dioxide equivalent from entering the atmosphere. This project has also led to significant savings for the gas company, amounting to millions of dollars in previously wasted gas. Additional benefits include greater energy security, improved human health and safety, capacity building of staff, enhanced infrastructure, and increased revenues for the gas company due to leak repairs.

Climate Compass incorporated gender considerations into outreach and recruiting for its teams to ensure that women were represented on the project. The project manager, as well as other senior staff, are women.

Lessons Learned

Important considerations for project developers in the oil & gas sector include raising awareness among host government counterparts (such as gas companies, ministries, and other relevant officials) about the mutual benefits of implementing an advanced LDAR program. Another consideration is exploring ways to use carbon markets to structure effective project finance. In regions with high project potential—due either to aging infrastructure, subsidized gas supplies, lack of maintenance, or a combination of the above—awareness of carbon finance markets and familiarity with associated frameworks is often underdeveloped. (Examples of frameworks include Article 6.4 of the Paris Agreement, Verra, and Internationally Transferred Mitigation Outcomes.) Logistics challenges associated with importing advanced equipment and repair materials can also be complicated due to cost factors, customs clearance requirements, and shipping restrictions, in addition to other factors. Lastly, the project proved that establishing a partnership with a reliable local partner is a key factor for successful logistics facilitation.

Relevant Links

- Climate Compass
- Green Recovery and the Transition to Green Economy in Uzbekistan
- O‘zbekistonning SSSRdan qolgan “ilma-teshik” gaz tizimini AQSH yamayapti *(USA is repairing Uzbekistan’s aging gas system from the USSR Era)*
- Aqsh o'zbekiston gaziga “qorovullik qilmoqchi” (video; *The USA wants to 'guard' Uzbekistan's gas)*
- США поощряют поддержку частного сектора в усилиях по сокращению выбросов метана *(U.S. Encourages Private Sector Support in Efforts to Reduce Methane Emissions)*
- UZ Daily: The U.S. encourages private sector support in methane emissions reduction efforts
- Tashkent Times: United States encourages private sector support for methane reduction efforts

Tags

- Methane Emissions
- LDAR
- Greenhouse Gas Reductions
- Europe
- Central Asia