Public Disclosure Authorized

Public Disclosure Authorized
Public Disclosure copy

Project Information Document/ Identification/Concept Stage (PID)

Concept Stage | Date Prepared/Updated: 16-Jan-2026 | Report No: PIDDC01463

Public Disclosure copy

BASIC INFORMATION

A. Basic Project Data

Operation Name	Operation Short Name
Turkmenistan Monitoring, Reporting, and Verification System for Methane Emissions in the Oil and Gas Sector	TM Methane MRV
Operation ID	Financing Instrument
P513679	Investment Project Financing (IPF)
Beneficiary country/countries	Region
Turkmenistan	Turkmenistan
Environmental and Social Risk Classification	
Substantial	
Date PID Prepared	Estimated Date of Approval
11-Sep-2025	31-Mar-2026
Borrower(s)	Implementing Agency
Ministry of Finance and Economy	Ministry of Finance and Economy

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Operation Cost	**5.00**
Total Financing	**5.00**
Financing Gap	**0.00**

DETAILS

Non-World Bank Group Financing

Trust Funds	5.00
Trust Funds	5.00

B. Introduction & Context

Country Context

Turkmenistan is largely a desert country with huge gas and oil resources, and intensive agriculture in irrigated areas. The GDP per capita is estimated at US$9,200 (2024, nominal). Turkmenistan holds the fourth largest natural gas reserves

in the world, estimated between 13 and 50 trillion cubic meters, reflecting both a strategic advantage and a considerable responsibility. The country's economy relies heavily on the production and export of natural gas, oil, petrochemicals, and, to a lesser extent, cotton, wheat, and textiles. China is the largest consumer of Turkmen gas, receiving over 30 billion cubic meters annually through three existing export pipelines; once a fourth Central Asia-China Line "D" is completed, this volume is expected to increase to 65 billion cubic meters per year. In addition to China, Turkmenistan exports gas to Uzbekistan and also makes swap deliveries to other countries. Turkmenistan's two largest agricultural crops are cotton, most of which is produced for export and internal production of goods, and wheat, most of which is consumed domestically. Turkmenistan's industrial sector is dominated by the oil and gas, chemical, construction materials, and cotton processing industries. According to 2024 data, the country's main export partners are China (62.1%), Italy (12.6%), and Uzbekistan (5.3%).

Sectoral and Institutional Context

Turkmenistan's oil and gas sector is governed and largely operated by the State. The two main operators are State Concern Turkmengas and State Concern Turkmennebit (TN). The Ministry of Environmental Protection (MEP) develops and implements environmental policies and promotes sustainable development practices, including in the oil and gas sector. The Law on Hydrocarbons (2008) outlines general principles for the petroleum sector but lacks detailed fiscal terms. Foreign companies operate under PSCs, in which the State typically takes a carried stake. Turkmenistan's oil and gas sector is heavily export oriented, primarily to China and neighboring countries.

Gas losses (methane emissions) from the oil and gas sector of Turkmenistan are estimated at 5.5 million tonnes per year (IEA Global Methane Tracker 2025). Using a global warming potential (GWP) of 28, this is equivalent to 154 million tonnes of CO2e per year. These numbers put the country in sixth place in a global ranking ahead of major oil and gas producers such as Nigeria, Algeria, and Iraq. Methane is vented from unlit flares at production locations and escapes from numerous leaks in aging Soviet-era gas infrastructure and through inefficient combustion of gas. Methane emissions represent not only an environmental challenge but also a direct economic loss in the form of wasted gas that could otherwise be sold. Conversely, reducing methane emissions offers clear economic benefits by increasing the amount of gas available for sale, boosting export volumes and enhancing energy security, directly supporting Turkmenistan's revenue base. More indirectly, tangible progress on managing methane emissions would make the sector more attractive to investors and partners by lowering emissions intensity and improving transparency.

At COP28 in Dubai, Turkmenistan joined the Global Methane Pledge, committing to reduce methane emissions by at least 30% by 2030, compared to 2020 levels. Furthermore, Turkmenistan's NDC under the Paris agreement is an unconditional commitment to reduce its greenhouse gas emissions by 20% by 2030, compared to 2010 levels. The country's NDC specifically highlights the importance of reducing methane emissions in the oil and gas sector, including preventing leaks during production, consumption, and transportation. In June 2023, the GoT adopted the 2023-2024 Methane Roadmap and established the Intersectoral Commission (ISC) for Methane Emissions Reduction by Presidential Resolution No. 585. The ISC includes representatives from key sectors associated with greenhouse gas emissions, such as energy, oil and gas, and environmental authorities, and is tasked with coordinating national efforts and facilitating the implementation of international methane reduction commitments. In November 2024, the GoT approved the 2025-2026 Methane Reduction Roadmap, which reinforces its commitment to international collaboration and methane mitigation. The roadmap prioritizes modernizing energy infrastructure, improving emissions monitoring, and expanding collaboration with development partners, including the World Bank.

Public Disclosure copy

Public Disclosure copy

Relationship to CPF

The proposed grant-funded operation is aligned with the Country Engagement Note with Turkmenistan for FY2026-2027 that was adopted by the Board of WB Executive Directors on April 1, 2025. Specifically, it will contribute to the Pillar 1 Addressing Global and Regional Challenges of the CEN and will aim to support the Government's efforts in reducing methane emissions pursuant to its Global Methane Pledge, through establishment of a national methane MRV system and piloting a leak detection program.

On December 2, 2024, the World Bank received a request letter from MEP seeking technical and financial support for methane emissions reduction. The request includes: (i) capacity building through training specialists in monitoring, detection, calculation, verification, and validation of emissions; (ii) assistance in developing draft laws for Turkmenistan, specifically "On Reducing Greenhouse Gas Emissions into the Atmosphere" and "On Climate Change," along with the development of regulatory legal acts arising from these laws; (iii) development of targets for reducing greenhouse gas emissions; (iv) support in assessing greenhouse gas emissions and developing a methodology for determining these emissions; (v) establishment of a training center equipped with advanced devices, innovations, and tools for detecting, quantifying, and capturing methane leaks in various sectors of the economy, such as the oil and gas industry, agriculture, and waste management; and (vi) provision of tools for monitoring concentrations of pollutants in the atmospheric air. In addition, the World Bank received a request letter from Turkmengas on November 29, 2024, on technical and financial support for development of institutional capacity to measure, monitor and report methane emissions, and to address methane emissions from operations.

By establishing a national MRV backbone and initiating operator remediation and reporting, the operation supports Turkmenistan's climate commitments under the CEN's global challenges pillar. Further operationalizing the MRV will also enable operators to implement measurement-based leak detection and repair (LDAR) and reduce methane intensity in their operations.

C. Development Objective

Development Objective

The objective of the Project is to provide the Government of Turkmenistan and state-owned operators with a monitoring, reporting, and verification (MRV) framework and the tools to manage and reduce methane emissions from the country's oil and gas sector.

Key Results

The key outputs and outcomes of this Project are

1. A nation-wide data repository to monitor, report and verify (MRV) methane emissions from the country's oil and gas sector, reported by oil and gas operators on a regular basis.
2. A regulatory framework, including agreed methodologies for oil and gas operators to report methane emission data on a regular basis, in line with international best practice and oil and gas industry standards.
3. An initial baseline of methane emissions data from selected pilot oil and gas facilities in Turkmenistan.
4. An initial State gas loss reduction action plan, addressing the most efficient opportunities to reduce methane emissions from selected pilot oil and gas facilities.

Public Disclosure copy

D. Preliminary Description

Activities/Components

The Project aims to provide the Government of Turkmenistan (GoT) and state-owned operators with a monitoring, reporting, and verification (MRV) framework and the tools to manage and reduce methane emissions from the (predominantly state-owned) oil and gas sector in the country. In 2023 Turkmenistan joined the Global Methane Pledge (GMP) to reduce methane emissions by 30 percent from 2020 levels by 2030. The Ministry of Environmental Protection (MEP) has been given the mandate to develop the necessary legislation and regulations and an action plan to reduce methane emissions, primarily from the oil and gas sector, which is responsible for an estimated 90 percent of total man-made methane emissions in the country.

The Project is centered around the design and implementation of a monitoring, reporting, and verification (MRV) system for methane emissions, essentially a database that will serve as the basis for the Government to collect methane emission data from oil and gas operators at the "source level", that is, at the level of individual emission sources, to develop a baseline and set targets for methane emission reduction, to develop a mitigation action plan, and to prescribe mandatory actions to be taken by state-owned operators Turkmengas and Turkmennebit to reduce methane emissions from their assets in accordance with government policy.

Furthermore, the Project aims to support the development of a detailed regulatory framework, as well as institutional capacity building for MEP to carry out its mandate to reduce methane emissions.

Finally, recognizing that collecting emission data is typically the responsibility of the operator, the Project comprises pilot gas leak and methane emission detection surveys at selected assets of State Concern Turkmengas and State Concern Turkmennebit, to start using the new system and to populate the system with actual and actionable emission data, to train operators and ministerial staff, and to create an initial State gas loss reduction action plan, addressing some of the most efficient opportunities first, that is, opportunities with the lowest, and even negative costs per tonne of methane reduced.

The Project comprises the following five components:

1. **National MRV system for methane emissions** - design and implementation of a national monitoring, reporting, and verification (MRV) system for methane emissions from the country's oil and gas sector under the Ministry of Environmental Protection, including a functional design specification, a technical design specification, a server and an internet-based portal for storing emissions data, an operations manual, and a training program for ministerial and operator staff. This component also includes a regulatory framework, including agreed methodologies for oil and gas operators to report methane emission data on a regular basis, in line with international best practice and oil and gas industry standards.
2. **Capacity building** - Capacity building in monitoring, reporting, and verification (MRV) of methane emissions, including the procurement of methane leak detection and quantification equipment, supporting the establishment of a training program
3. **Pilot gas leak detection surveys** - gas leak detection surveys at the “source level”, that is, at the level of individual emission sources in selected oil and gas facilities operated by State Concern Turkmengas (TG) and State Concern Turkmennebit (TN)
4. **State gas loss reduction action plan** - development of an initial State gas loss reduction action plan for the country's oil and gas sector, comprising mandatory gas loss reduction actions in line with Government policy

5. **Project implementation support** - procurement of consultancy services to support the work of the project implementation unit (PIU)

Environmental and Social Standards Relevance

E. Relevant Standards

ESS Standards	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10: Stakeholder Engagement and Information Disclosure	Relevant
ESS 2: Labor and Working Conditions	Relevant
ESS 3: Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4: Community Health and Safety	TBD
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Not Currently Relevant
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Not Currently Relevant
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
ESS 8: Cultural Heritage	Not Currently Relevant
ESS 9: Financial Intermediaries	Not Currently Relevant

Legal Operational Policies

Safeguard Policies	Triggered?	Explanation (Optional)
Projects on International Waterways OP 7.50	No	
Projects in Disputed Area OP 7.60	No	

Summary of Screening of Environmental and Social Risks and Impacts

The Environmental and Social Risk Classification (ESRC) for the Project is Substantial. This rating reflects the intersection of high-hazard industrial activities (specifically the pilot gas leak detection surveys in the oil and gas sector), the Borrower's limited capacity to manage Environmental and Social (E&S) risks in accordance with the World Bank's Environmental and Social Framework (ESF), and the challenging contextual environment for stakeholder engagement and transparency. While the Project aims to deliver significant positive environmental outcomes by reducing methane emissions - a potent greenhouse gas - the implementation process carries inherent risks that must be rigorously managed. The environmental risk is rated Substantial, primarily from potential occupational health and safety (OHS) and pollution hazards during non-invasive pilot gas leak detection surveys at existing oil and gas facilities

Public Disclosure copy

Public Disclosure copy

operated by Turkmengas and Turkmennebit (e.g., exposure to methane leaks, hydrogen sulfide (H2S), volatile organic compounds, or unsafe conditions from aging infrastructure, such as pipelines and compressors, which could result in incidents like gas releases or slips/falls). These risks are site-specific, predictable, and of significant magnitude with medium probability if unmitigated, but reversible with standard measures. Positive environmental impacts align with ESS3, including enhanced resource efficiency in the oil and gas sector (e.g., reducing gas losses) and pollution prevention through MRV system development and methane abatement, potentially lowering annual emissions equivalent to 154 million tonnes of CO2e (per IEA 2024 estimates), supporting Turkmenistan's Global Methane Pledge (30% reduction by 2030) and NDC (20% GHG reduction by 2030). Additionally, Component 1—the MRV system—may have downstream risks, as future actions based on MRV outputs could have significant impacts depending on how ESF are embedded at the policy level. No significant cumulative, transboundary, or irreversible environmental effects are anticipated, and no triggers for ESS6 (biodiversity) or ESS8 (cultural heritage). Social risk is rated Substantial. The project does not require land acquisition, physical displacement, or affect Indigenous Peoples. However, risks include: (i) limited ESF experience among implementing agencies, raising concerns about consistent application of social standards; (ii) significant OHS risks for a largely male workforce in remote industrial sites, requiring strong labor protections; (iii) challenges in meaningful stakeholder engagement due to restricted civil society space and sensitivity around data transparency; and (iv) potential inequities in distributing capacity building benefits under Component 2. No triggers for ESS5 (land acquisition/resettlement), ESS7 (Indigenous Peoples), or ESS9 (financial intermediaries). Positive social aspects include capacity building under Component 2, fostering institutional skills for sustainable sector management. Overall, the Environmental and Social Risk Classification (ESRC) is Substantial, reflecting the interplay of project-specific risks (industrial hazards during surveys) with the Borrower's limited institutional capacity and commitment - evidenced by no recent WB IPF projects, minimal experience with IFIs' E&S policies, gaps in national laws - which could exacerbate mismanagement. The SEA/SH risk is considered Moderate. While there are no major civil works, labour influx, or large-scale community involvement, some factors raise the risk: (i) frequent visits by external technical staff to mainly male oil and gas facilities, which increases interactions between workers and local communities; (ii) limited borrower capacity and experience in implementing ESF SEA/SH measures like Codes of Conduct, confidential reporting, and referral mechanisms; and (iii) a lack of clear SEA/SH commitments, such as an action plan and mapped service providers, which can result in underreporting and slower response times. Given these site characteristics and capacity challenges, assigning a Moderate risk rating aligns with ESF Good Practice Notes for non–civil works projects. No High-risk elements are present (e.g., irreversible/large-scale impacts). Risks are manageable through adaptive mitigation, including an ESCP for commitments/monitoring, SEP for inclusive consultations/GM, ESMF for full E&S framework, LMP for worker protections/OHS, and site-specific screenings/ESMP elements. Capacity building in Component 2, led by the PIU under the Ministry of Finance and Economy with support from sectoral focal points from the Ministry of Environmental Protection, Turkmengas, and Turkmennebit will integrate E&S trainings. Potential reclassification of E&S risk rate to Moderate during implementation if mitigations prove effective.

Contact Point

World Bank

Robert Van Der Geest

Senior Gas Specialist

Sandu Ghidirim
Sandu Ghidirim

Borrower/Recipient :

Ministry of Finance and Economy

Implementing Agency :

Ministry of Finance and Economy

For more information, contact:

The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 473-1000
Web: http://www.worldbank.org/projects

Public Disclosure copy