# Islamic Emirate of Afghanistan

## *Ministry of Mines & Petroleum*

**TERMS OF REFERENCE**

**FOR**

*Feasibility Study for the Utilization of TAPI Natural Gas in Herat Province*
*[Open Tender]*

***Date:*** *July, 2025*

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## 1.0 BACKGROUND

*1.1 The Herat section of the TAPI natural gas pipeline project started on December 10, 2024, and is projected to be completed within three years. This section spans 153 km, running from Torghondi to the Guzara district of Herat province. Afghanistan's Ministry of Mines and Petroleum (MoMP) aims to develop a comprehensive plan for the effective utilization of this gas resource to ensure economic viability, competitiveness, and quick returns.*

*1.2 This ToR outlines the requirements for a consultancy firm to conduct a detailed study on the demand, economic feasibility, and technical requirements for building a downstream gas distribution network in Herat.*

*1.3 The project area includes the Guzara district, identified as the primary offtake point from the main TAPI pipeline. From this location, the downstream infrastructure will consist of the following components:*

- ✓ *A 21.6 km transmission pipeline from Guzara offtake point to the Herat Industrial Park, designed to supply gas directly to industrial users;*
- ✓ *A distribution pipeline network within the industrial park, for the internal distribution of gas to individual industrial firms and production units;*
- ✓ *A 17 km transmission pipeline from the industrial park towards Herat City, intended to serve urban users;*
- ✓ *A gas distribution network covering eight districts of Herat City to provide access to gas for residential, commercial, and institutional users.*

*1.4 Several relevant studies and datasets are available to support this feasibility assessment, including:*

- ✓ *Preliminary design documents and route surveys for the Herat segment of the TAPI pipeline;*
- ✓ *Demand assessments conducted by MoMP and donor partners on energy needs in Herat industrial zones and urban areas;*
- ✓ *GIS mapping and land use data for Herat province;*
- ✓ *Baseline socio-economic and energy access data compiled through recent national surveys;*
- ✓ *Industrial development master plans for Herat province, including investment priorities for the Herat Industrial Park.*

*1.5 The rationale for the feasibility study lies in the need to ensure a technically sound, economically viable, and socially responsive gas distribution system that maximizes the benefits of the TAPI pipeline for Herat province. The outcomes of this study will guide infrastructure investment decisions, policy development, and future donor or private sector engagement in the energy sector.*

## 2.0 OBJECTIVES OF THE ASSIGNMENT

*The objective of this study is to:*

*2.1 Assess the overall demand for gas energy in Herat.*

*2.2 Identify the most economically viable sectors for which the gas to be allocated or supplied.*

*2.3 Determine the technical requirements for building a downstream gas distribution network in Herat.*

*2.4 Determine the technical requirements for designing and constructing a downstream gas distribution network in Herat, including transmission and distribution systems from Guzara District to Herat Industrial Park and onward to Herat City and its eight master plan districts.*

*2.5 Provide capacity-building and technical training to relevant personnel within the Ministry of Mines and Petroleum (MoMP) and local stakeholders, focusing on the planning, operation, and maintenance of gas distribution infrastructure.*

## 3.0 SCOPE OF SERVICES

*The selected company will conduct the feasibility study encompassing the following key components:*

### *3.1 Market Analysis*

- ✓ *Conduct a detailed analysis of current and projected demand for gas energy in Herat province.*
- ✓ *Identify key potential options for gas utilization, including residential houses, industrial park, commercial areas (guilds), Auto-vehicles (CNG production), and Fertilizer production plants.*
- ✓ *Conduct a cost-benefit analysis for the use of natural gas in each sectors mentioned above.*
- ✓ *Assess the competitive landscape, comparing TAPI gas pricing with imported gas from neighboring countries.*
- ✓ *Analyze potential market barriers and opportunities.*

### *3.2 Technical Feasibility*

- ✓ *Conduct a detailed technical study for the construction of the downstream gas distribution network, starting from Offtake Point No. 1 in Guzara District. The study should cover the design and technical specifications for a transmission pipeline of approximately 21.6 km from Guzara to the Herat Industrial Park, followed by a 17.5 km transmission line from the industrial park to the central areas of Herat City. In addition, the study must address the development of a gas distribution network that will serve the eight master plan districts of Herat City.*
- ✓ *Evaluate the technical requirements for constructing and operating the gas infrastructure in the case of gasification of Herat city, including pipelines and distribution networks.*
- ✓ *Provide detailed specifications for the necessary infrastructure, including pipelines, compressor stations, and distribution stations.*
- ✓ *Outline the regulatory and safety standards that need to be adhered to.*
- ✓ *Identify potential technical challenges and propose effective solutions.*

- ✓ *Develop construction timelines with key milestones and assess the feasibility of meeting project deadlines.*

### *3.3 Financial Feasibility*

- ✓ *Conduct a comprehensive cost analysis covering engineering, construction, and operational expenses.*
- ✓ *Identify potential cost overruns and implement risk mitigation strategies.*
- ✓ *Explore potential revenue streams, including tariffs, fees, and other income sources.*
- ✓ *Assess the long-term financial sustainability of the project.*
- ✓ *Provide financial projections and investment appraisals, including ROI and other financial metrics.*

### *3.4 Pricing Strategy*

- ✓ *Taking into account each scenario, including supplying gas to industrial parks, commercial and residential areas, and converting vehicles from fuel to CNG, develop a pricing strategy that ensures TAPI gas is competitive with imported gas and electricity.*
- ✓ *Evaluate pricing models that balance affordability for consumers with financial viability for the project.*
- ✓ *Assess the impact of different pricing scenarios on market penetration and revenue.*

### *3.5 Investment Models:*

- ✓ *Propose various investment models, including public-private partnerships (PPP), build-operate-transfer (BOT) arrangements, and government financing options.*
- ✓ *Evaluate the financial feasibility and risk-sharing mechanisms associated with each investment model.*
- ✓ *Provide recommendations on the most suitable investment model(s) to attract financing for the development of the gas distribution network.*

## 4.0 ADDITIONAL RESPONSIBILITIES OF THE CONSULTANT

*The Consultant shall maintain close liaison with the **TAPI Coordination Directorate** and the designated representative from the **Ministry of Mines and Petroleum (MoMP)**, appointed by the Client for the sole purpose of this assignment. The **TAPI Coordination Directorate** shall serve as the primary point of contact. The designated liaison persons are **Mr. [Mohammad Nazim Samoon] and Mr. [M. Ashraf Rahmanoghli]** reachable via email at **[Nazim.samoon@momp.gov.af], [Nazimsamon@gmail.com]** and **[rahmanoghli.ashraf@gmail.com].***

## 5.0 OBLIGATION, DUTIES AND RESPONSIBILITIES OF THE ENTITY

*All information about the project (including various agreements) as deemed necessary for use by the consultant shall be made available to the selected consultant after award of the contract.*

## 6.0 DURATION OF THE SERVICE

*The duration of the Services is to extend from the date of effectiveness of the Contract for a period of approximately [6] months.*

## 7.0 EQUIPMENT TO BE PROVIDED BY THE CONSULTANT

*As detailed under Section 5 herein above, the Consultant should arrange all facilities required for the consultancy service to be provided by him and the cost of such provision should be detailed in the Consultant's financial proposal.*

## 8.0 DELIVERABLES AND REPORTING

*The selected company is expected to deliver the following:*

- *8.1 Inception Report outlining the approach, methodology, and work plan.*
- *8.2 Market Analysis Report detailing demand assessments and sectoral opportunities.*
- *8.3 Technical Feasibility Report detailing technical assessments and proposed solutions.*
- *8.4 Financial Feasibility Report with cost analysis, revenue projections, and investment appraisal.*
- *8.5 Pricing Strategy Report with competitive pricing models and scenarios.*
- *8.6 Comprehensive Final Feasibility Report combining all aspects of the study.*
- *8.7 Presentation to MoMP and relevant stakeholders summarizing the findings and recommendations.*

*Note: final report should be in hard and electronic copies and all reports shall be delivered in CD ROM in addition to the specified number of hard copies;*

## 9.0 STAFFING AND SKILL MIX NEEDED

*The successful team will be comprised of both local and international expert with the specific experience and background noted. It is suggested that in putting together its team, consultants consider designating individuals with the following roles, responsibilities and backgrounds:*

**The core staff to be evaluated will include:**

*a) Position K-1: Team Leader*
*b) Position K-2: Market Analyst*
*c) Position K-3: Economic and Financial Analyst*
*d) Position K-4: Environmental Social Impact Assessment Specialist*
*e) Position K-5: Senior Gas Pipeline Expert*

| S. No. | Staff Position | Number | Estimated Person Month |
|---|---|---|---|
| **Key Professional Staff** | | | |
| 1 | *Team Leader* | 1 | 6 |
| 2 | *Market Analyst* | 1 | 5 |
| 3 | *Economic and Financial Analyst* | 1 | 5 |
| 4 | *Environmental Social Impact Assessment Specialist* | 1 | 4 |
| 5 | *Senior Gas Pipeline Specialist* | 1 | 5 |
| | **Estimated Person Months for Key Staff** | | |

## 10.0 JOB DESCRIPTIONS AND MINIMUM QUALIFICATIONS

*The job descriptions and minimum qualification of the key/other professionals for the core Team of the Consultants shall be as given below:*

*[The contents in the table below are provided as example and for guidance on providing similar level of information on the job description and minimum qualifications requirements of the key professional staff.]*

| SL | Positions | Job Descriptions | Minimum Qualification |
|---|---|---|---|
| *1.* | *Team Leader* | ✓ *Ability lead team of divers professional and guide them.*<br>✓ *Previous relevant experience of supervising team of diver's specialists.*<br>✓ *Able to assure timely delivery of assignment.*<br>✓ *Perform any other task (s) deemed to be necessary to accomplish the task.* | *Education: Master's degree in Petroleum Engineering)*<br>*Minimum 7 years of extensive international professional experience in implementing and utilization of natural Gas.*<br>*Experience in handling cross border pipeline projects agreements/contracts including Taxation system in cross border pipeline project.* |
| *2.* | *Economics and Financial Analysts* | ✓ *Assessing the viability of new investment and its attractiveness to investors; conducting economic analyses of alternative approaches to energy and/or alternative approaches to energy and/or environmental policies.*<br>✓ *Evaluating the economic impacts of energy and/or* | *A master's degree in business, economics, finance, energy, or a related field bachelor degree with extensive experience will be considered lieu with master degree.*<br>*Familiarity with energy planning model for conducting least-cost analyses.*<br>*Minimum 5 years of extensive professional experience.* |

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| | | *environmental policies, especially the pricing of energy commodities (on the supply and demand side).*<br>✓ *Estimation of trends in energy demand as a result of different pricing policies.*<br>✓ *Developing policy options for implementation of renewable energy.*<br>✓ *Perform any other task (s) deemed to be necessary to achieve the assigned task.* | |
| *3.* | *Market Analyst* | ✓ *Conduct in-depth market research and analysis to assess the current and projected demand for natural gas in Herat province.*<br>✓ *Identify the key potential sectors and end-users for the utilization of TAPI natural gas, including residential, industrial, commercial, transportation, and fertilizer production.*<br>✓ *Gather and analyze data on the existing energy consumption patterns, fuel sources, and price dynamics in the identified sectors.*<br>✓ *Develop detailed demand forecasts for natural gas in the various sectors, considering factors such as population growth, economic development, and energy consumption trends.*<br>✓ *Perform a comprehensive competitor analysis to assess the pricing and availability of alternative energy sources, such as imported natural gas, electricity, and other fuels.* | *Education: Minimum Master's degree in Economics, Business, Marketing, Energy Studies, or related field; Master's preferred.*<br>*Relevant Experience: Minimum 5 years in market research, data analysis, or energy sector, preferably in natural gas.*<br>*Language Requirements: Fluency in English, both written and oral, is mandatory.* |

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| *4.* | *Environmental Social Impact Assessment Specialist* | ✓ *Conduct a comprehensive environmental and social impact assessment for the proposed TAPI natural gas distribution network in Herat province.*<br>✓ *Identify and evaluate the potential environmental and social impacts of the project, including the construction and operation of pipelines, compression stations, and other infrastructure.*<br>✓ *Assess the existing environmental and socioeconomic conditions in the project area, including land use, natural resources, biodiversity, and local community demographics and livelihoods.*<br>✓ *Ensure the project's compliance with all applicable environmental and social regulations, standards, and guidelines in Afghanistan, as well as international best practices.*<br>✓ *Engage with local communities, civil society organizations, and other relevant stakeholders to gather their inputs and concerns regarding the potential impacts of the project.*<br>✓ *Develop and recommend appropriate mitigation measures and management plans to address the identified environmental and social impacts, such as impact avoidance, minimization, restoration, and compensation* | *Education: Minimum Master's degree in Energy and Environmental Impact Assessment, Environmental Management, or a relevant discipline is preferred.*<br>*Relevant Experience: Minimum 5 years of experience in conducting comprehensive environmental and social impact assessments for large-scale infrastructure or energy projects.*<br>*Language Requirements: Fluency in English, both written and oral, is mandatory.* |

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|---|---|---|---|
| | | *strategies.* | |
| *5.* | *Gas Pipeline Specialist* | ✓ *Able to design and facilitate implementation plan for natural gas usage. Able to prepare natural gas sector planning, strategy and development.*<br>✓ *Ability to assess commercially viable gas supply options for using in different sectors.*<br>*Perform any other task (s) deemed to be necessary to achieve the assigned task* | *Education: Master's degree in Pipeline Engineering/Mechanical Engineering.*<br>*Minimum 5 years of experience in designing and implementation of similar project.* |

## 11.0 PAYMENT SCHEDULE

*Payment shall be made based on work progress. The payment will be made fin four installments. The TAPI Coordination Directorate is offering to pay 10% of the total amount after submission of inception report, 20% after submission of interim report, 20% after submission of presentation and the remaining 50% will be paid after approval of final feasibility study report.*