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PART II

Statutory Notifications (S.R.O.)

GOVERNMENT OF PAKISTAN
MINISTRY OF ENERGY
(Petroleum Division)

NOTIFICATION

Islamabad, the 13th February, 2024

S. R. O. 191(I)/2024.— Tight Gas (Exploration and Production) Policy 2024, enclosed herewith as Annexure-I as approved by the Council of Common Interests, Government of Pakistan, is hereby published for general information.

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MOMIN AGHA,
Additional Secretary (Incharge).

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**TIGHT GAS
(EXPLORATION & PRODUCTION)
POLICY-2024**

GOVERNMENT OF PAKISTAN
Ministry of Energy (Petroleum Division)

(February, 2024)

1. Introduction

A comprehensive Policy framework to promote and incentivize exploration and production of unconventional sources of hydrocarbons is essential against the backdrop of growing population and economic expansion. Pakistan's energy requirement has surged over the years and the demand is primarily being met through conventional hydrocarbons and import of alternative fuels. Technological advancements in the oil and gas sector have however, opened new opportunities and exploitation of unconventional sources has not only become possible but also commercially viable. Pakistan has a huge potential in this sector and the upstream oil and gas industry which hitherto remained grossly unexplored.

Tight gas is amongst the major unconventional resources nevertheless Policy interventions in the past could not attract desired investment and resultantly the industry has yet to benefit from Country's Tight Gas Reservoirs. Tight Gas (Exploration & Production) Policy, 2011 was the first initiative to encourage upstream petroleum industry to invest in the exploration and production of tight gas. Lukewarm response from the industry has necessitated review of the Policy regime especially since unconventional E&P ventures are capital intensive, technically challenging and require state of the art technology during all stages of exploration and production.

The Government of Pakistan has therefore, formulated Tight Gas (Exploration & Production) Policy, 2024 with the objective of giving impetus to tight gas exploration in a technically and commercially viable manner. The Policy has been designed to incentivize local and foreign E&P companies to invest in the unconventional hydrocarbons: Government of Pakistan is cognizant of the fact that exploitation of unconventional sources involves drilling of multiple wells for obtaining optimum production as opposed to conventional wells where a single well can produce up to 50 MMSCFD gas; this involves a different economic model which is only viable once adequate returns are assured. The Policy is aimed at addressing these aspects to enable the oil & gas industry to invest in unconventional ventures, mitigate demand supply gap and provide a fair pricing regime compatible with market realities and peculiar risks and challenges associated with exploration of unconventional resources.

The Federal Government recognizes that extracting value from Tight Gas Reservoirs represents a challenge for the entire oil and gas industry; it requires the use of state-of-the-art technologies for seismic acquisition and processing, drilling, reservoir stimulation and Field Development Plan (FDP) entailing massive investments with a longer recovery cycle. Under ideal conditions, a single conventional well produces around 50 MMSCFD gas whereas same production of Tight Gas may require 10 to 50 wells giving rise to manifold increase in the production costs for the same level of production.

2. Objectives

Promulgation of the "Tight Gas (Exploration & Production) Policy 2024" is based on achievement of the following principle national objectives.

- i. Incentivize Oil and Gas industry to invest in the exploration of unconventional/Tight gas resources that are not being produced due to non-commerciality.
- ii. Provide a Policy regime for transparent, effective, and efficient processing of regulatory approvals.
- iii. Address commercial viability issues of existing Tight Gas reservoirs.
- iv. To open new frontiers for exploration of Tight Gas which would help increase the exploration activities in the country.
- v. Enhance indigenous production of hydrocarbons.

- vi. Minimize reliance on imported fuels and regenerate additional revenues for Federal Government and the Provincial Governments.
- vii. Reducing recourse to sovereign debts by saving foreign currency.
- viii. Keeping the local gas prices at affordable level to the consumers by producing cheaper local gas vis-à-vis imports.
- ix. Create employment opportunities in the country.
- x. Promote transfer of technology and collaboration between local and foreign equipment manufacturers.
- xi. Increase dependability and security of supply and its sustained availability.

3. Applicability & Effect of the Policy

The Tight Gas (Exploration & Production) Policy shall come into effect from the date of its publication in the official Gazette. The incentives of this Policy shall apply to the gas discoveries that qualify and are accepted as "Tight Gas" under the existing and future Exploration Licences (EL), Petroleum Concessions Agreements (PCA) and Development & Production Leases (D&P)/fields and Mining Leases (ML). The incentives will also apply to existing tight gas discoveries that have not been developed as at the effective date of this Policy.

For the purposes of this Policy, Tight Gas discoveries will be considered as 'not developed' where: FDP was not submitted; FDP was submitted but not approved; FDP was approved but development programme was not substantially carried out or it failed to meet its objectives. All those Tight Gas discoveries which have received Tight Gas price under the Policy 2011 and in production will not be eligible for price under this Policy. However, all other provisions, including the procedure for certification as spelled out in this Policy will apply mutatis mutandis to such Tight Gas discoveries.

In case of conflict in the general terms of an existing Petroleum Concession Agreement (PCA) or Oil Mining Lease (OML) or Development and Production Lease (D&PL) and this Policy, the provisions of this Policy shall prevail in respect of Tight Gas. However, the other rights of Operator will continue to prevail as per PCA/OML/D&PL of respective block/field.

In order to avail the incentives of this Policy a Model Supplemental Agreement (SA) shall be developed and SA to the respective Petroleum Concession Agreement (PCA) shall be executed.

4. Definition of Tight Gas

Tight Gas is defined as a natural gas that:

- i. Cannot flow naturally at commercial rates with conventional methods despite having hydrocarbon reserves; and
- ii. Requires advanced technologies for its exploitation/production such as high-performance perforation, hydraulic fracturing, horizontal wells, slanted/deviated wells, multilateral wells &/or infill drilling or combination of these technologies or any new technology acceptable to the Authority; as may be designated by the Federal Government; and

- iii. Has estimated value of effective permeability calculated using geometric mean of less than "1.0 milli Darcy (mD)."

Reservoir hosting Tight Gas in-situ is defined as "Tight Gas Reservoir" and gas reserve trapped therein is defined as "Tight Gas Reserve."

Wells having effective permeability of more than "1.0 mD" shall be classified as conventional wells.

5. Measurement of Permeability

In order to become eligible to claim incentives given in the Policy, the company encountering Tight Gas Reservoir shall be required to adopt the following procedure:

- i. All relevant data and supporting material including but not limited to logs, cores, ditch cutting, seismic, VSP will be provided to an independent third-party consultant, included in list in Section-7 as amended from time to time, and who has been selected by Operator for an accurate measurement of permeability and independent certification of both Tight Gas Reservoir and Tight Gas Reserves.
- ii. Such third party shall determine effective Permeability of the Tight Gas Reservoir based on i) core data/analysis corrected to reservoir conditions ii) well test data/analysis – DST, build up and draw down iii) Nuclear Magnetic Resonance (NMR) method, Pressure Transient Analysis (PTA) or iv) any other method or combination of the methods; All such measurement of effective permeability should be done giving due consideration to reservoir conditions before application of any advanced technologies as mentioned in Section 4(ii) of the Policy.
- iii. To facilitate an accurate estimation of effective Permeability as well as to conduct the independent certification of both Tight Gas Reservoir and Tight Gas Reserves, the operator will be required to gather and obtain as much data and supporting material as is reasonably possible and which is sufficient to generate reliable reports with high degree of accuracy.

6. Certification of Tight Gas and Tight Gas Reservoir through 3rd Party

- i. Two Step Third Party Certification; first after completion of the Tight Gas discovery well (Initial Third-Party Certification) and the second after completion of the approved appraisal program (Final Third-Party Certification) to be conducted by one of the independent third-party consultants listed in the Section-7 as amended from time to time, shall be required to confirm that a gas discovery qualifies as Tight Gas under this Policy.
- ii. As required under Section-8 below, production allocation of Tight Gas and conventional gas being produced from the same lease will be based on the recommendations of the independent third-party consultant referred to in the Sub-Section (i) above.
- iii. In the event a well can produce both Tight Gas as well as conventional gas, such well shall be completed in one interval so as not to allow commingling of Tight Gas and conventional gas from the same well unless the recommended process as set out in Section-10 hereof is strictly followed.
- iv. The cost of all such tests/certification shall be borne by the working interest owners/company concerned.

- v. The operator shall electronically transmit all relevant data/information to the Authority within two weeks of becoming available and in the event of willful submission of wrong data/information, Operator shall be liable to pay a penalty of US\$ 5 million for such onetime offence. Any subsequent repeated act of wrongful submissions will lead to termination of petroleum rights. In case of unsatisfactory report Authority may ask for re-evaluation of Tight Gas Reservoir and Tight Gas Reserves by a consultant from the approved list as per Section-7 below and all the cost will be borne by the Operator.
 - vi. The operator shall provide all necessary data to the consultant for Initial or Final Third-Party Certification, as the case may be, and must ensure that such data is sufficient to undertake such certification. In case if the data is insufficient to undertake the work, then such certification will be considered invalid and will not be accepted by the Authority.
 - vii. The draft Third Party Certification shall be shared with the Regulator/Authority for any comments/ clarifications by the operator before the final report is issued. If no comments from the Regulator/Authority are received within 30 working days of submission of draft certification, the final report would be submitted for approval.
 - viii. The Initial or Final Third-Party Certification, as the case may be, along with appraisal program or commercial discovery notice or revised commercial discovery notice for Tight Gas Reservoir as the case may be, shall be submitted for approval of the Regulator/Authority, who will make all reasonable efforts to approve the same within the next 30 working days.
- 7. List of Consultants/Laboratories for Testing of Tight Gas Reservoir and Generalized Term of Reference (TORs) for the Certification**
- i. The certification of "Tight Gas"/nature of reservoirs, gas reserves and allocation of "Tight Gas" to total production in case it is produced from conventional reservoir/field may be obtained from either of the following parties:
 - 1. DeGolyer and MacNaughton Petroleum Consultant
 - 2. Gaffney Cline and Associates Ltd.
 - 3. Ryder & Scott
 - 4. Tracs International
 - 5. RPS Energy
 - 6. Integrated Geoscience Laboratories
 - 7. IPR International Limited
 - 8. Schlumberger Seaco Inc
 - 9. Beicip Franlab
 - 10. McDaniel
 - 11. GLJ Consultants
 - 12. AGR
 - ii. Operator will be free to engage any of the above-mentioned parties for undertaking Third Party Certification based on techno-economic considerations for which the model TORs are spelt out in Annex-1.
 - iii. No company will engage the same third-party consultant for more than four (4) consecutive certifications.
 - iv. The Regulator/Authority will include in the list of approved third-party consultants, any new consultant of international repute fulfilling the qualification criteria set out in Annex-2.

- v. In the event that the company from the above list ceases to exist or is internationally black listed the Regulator/Authority will have right to remove any such consultant from the list by issuing a gazette notification.

8. Determination of Tight Gas and Declaration of Commerciality of Tight Gas Reservoir

Tight Gas determination and declaration of commercial discovery, appraisal program, Field Development Plan and grant of Tight Gas Development and Production Lease shall be done as per following mechanism:

- i. Upon discovery of reservoir sequence in a well which in the opinion of the Operator can be designated as Tight Gas Reservoir, Operator shall immediately notify the Regulator/Authority with details of such reservoir sequence. This notification shall then be supported by an Initial Third-Party Certification carried out by one of the consultants named in Section 7.
- ii. Within 6 months of the notification, the Operator shall decide whether the Tight Gas discovery merits appraisal or not? In such event, Operator shall present an appraisal programme for the approval of the Regulator/Authority. The Regulator/Authority will make all reasonable efforts to approve the appraisal programme within the next 30 working days.
- iii. Operator shall diligently undertake the approved appraisal programme within the allowed time-period. Within 8 months of completion of such programme, a Final Third-Party Certification shall be carried out to define the nature of the reservoir, size of the discovery area and reserve potential of the discovery area/field. Final Third-Party Certification along with commercial discovery notice shall be furnished to the Regulator/Authority for approval. The Regulator/Authority will make all reasonable efforts to approve the commercial discovery within the next 30 working days.
- iv. If Tight Gas Reservoir does not merit appraisal, the Operator shall submit commercial discovery notice accompanied by Final Third-Party Certification to the Regulator/Authority for approval of Tight Gas and Tight Gas Reserves on a single well basis. Such approval will be decided on a case-to-case basis.
- v. For the purposes of clarity, in case it is confirmed after completion of the appraisal program that some part of the discovery area does not bear Tight Gas and the same is supported by Final Third-party Certification, then the application for grant of Tight Gas D&P lease would only be restricted to that area holding Tight Gas Reserves only.
- vi. Following approval of the commercial discovery, Operator shall submit FDP comprising comprehensive programme for the development of entire Tight Gas Reservoir for approval of the Regulator/Authority. In case of Tight Gas discovery in the conventional lease area, an addendum to development plan for conventional lease will be submitted for approval of the Regulator/Authority to carry development and production substantially in accordance with the FDP for Tight Gas as well.
- vii. In case of an already known "Tight Gas" Reservoir in an existing Exploration Licence/D&P Lease/Mining Lease, the lease for Tight Gas Reservoir shall be granted to existing Operator after submission of an FDP for EIs and supplemental FDP for D&PL together with revised commercial discovery notice, which should be accompanied by the Final Third-Party Certification.
- viii. If the Tight Gas is discovered while drilling of development wells in conventional D&P lease area and the Operator are of the opinion that the reservoir can be designated as Tight Gas reservoir, Operator shall immediately notify the Regulator/Authority with details of such reservoir sequence. Production

from such well shall be classified based on approval of the Regulator/Authority subject to fulfilling requirements of this Policy.

- ix. Notwithstanding the above, for the Tight Gas Reservoir already discovered before the announcement of this Policy but which has not been developed, the Operator shall submit the FDP or, where the FDP has already been submitted a revised FDP shall be submitted within 8 months from the date of Gazette notification of this Policy. Remaining process shall be as stipulated above.
- x. If the Operator do not submit appraisal programme and FDP or revised FDP within the timeframe specified in this Policy, the entitlement to benefits under this Policy shall cease.
- xi. The lease holder shall undertake the development activities including drilling of wells in accordance with approved FDP and any material change thereto shall require regulatory approval.
- xii. Separate third party certification shall also be required for development well to demonstrate that the well is categorized as Tight gas well to be eligible for Tight gas incentives. However, in case, any of well in Tight gas lease does not qualify under the Tight gas criteria, then the gas production from such well shall be entitled for gas price for conventional reservoir under the applicable PCA/Policy and shall not be entitled to 40% premium on gas price as provided in Section 12(i) of this Policy.
- xiii. At any stage prior to according approval under this Policy the Authority may call for any information or record from the operator or Working Interest Owners (WIOs) to satisfy himself regarding the certification for Tight Gas. The Authority may also seek clarifications or confirmations from the operator or the WIOs as may be deemed necessary.

9. Early Production

After commercial discovery notice and before grant of D&PL or OML or pending execution of a Supplemental Agreement to give effect to the provisions hereof, the Regulator/Authority may grant approval to undertake Early Commercial Production (ECP) of petroleum from Tight Gas discovery, on the condition that the production taken during ECP shall be accounted for the purpose of payment of production bonus, royalty and all other obligations as are applicable to a lease. The Tight Gas produced and sold during ECP period will attract gas price as applicable under this Policy without any discount including but not limited to early well test (EWT) discount.

10. Management of mixed production from single well

If a Tight Gas and/or conventional gas are produced from the same well or from the different zones of the D&P lease, the allocation of the tight and conventional gas shall be done based on flow rates supported with third party determination. No commingled production shall be allowed from the same well unless produced through dual completions or other internationally acceptable method as approved by the Regulator/Authority. In case of production of Tight Gas and conventional gas from the same D&PL/OML, Operator shall provide daily wellhead gas production from each well as per requirements specified by the Regulator/Authority. Furthermore, company concerned shall put in place mechanism for observation of the wellhead gas flow rates by the representative(s) of the Regulator/Authority.

11. Delivery point

For the purpose of pricing and delivery obligations for Tight Gas, the field gate shall be outlet flange of the gas processing facilities. However, if the Tight Gas is discovered subsequent to the already developed

conventional field and the Tight Gas is processed and delivered from the existing facilities and infrastructure, then the delivery point for Tight Gas shall be same as for the conventional gas delivery. Subsequently, if normal gas volume is injected in the Tight Gas delivery point, then the tariff will be applied if the pipeline is constructed by the Government designated buyer.

12. Gas pricing

- i. In order to exploit Tight Gas Reserves, the applicable price for Tight Gas as defined in this Policy, shall be 40% premium on the respective zonal price of Petroleum (Exploration and Production) Policy 2012.
- ii. The above Tight Gas price incentive will be applicable from the date of the notification of this Policy to all Tight Gas discoveries under the existing and/or future exploration licenses, Petroleum Concessions Agreements (PCAs), Mining Leases and Development and Production (D&P) leases that satisfy qualification of Tight Gas under Section 4 of this Policy and are accepted as Tight Gas following the process set forth herein.
- iii. OGRA/any authority as may be notified by the Federal Government shall notify provisional incentive price without EWT discount once the Initial Third-Party Certification confirms the discovery as Tight Gas discovery. Any pending execution of a formal supplemental agreement shall have no bearing on notification of this provisional price. In this regard the Regulator/Authority shall issue appropriate Policy guidelines to the PDA/OGRA.
- iv. Final incentive price will be notified once D&PL/OML has been granted.
- v. After having approval of the Government in writing, the Operator with the consent of the JVPs may sell the gas to third parties within Pakistan at mutually negotiated prices but not less than the price offered in Tight Gas (Exploration & Production) Policy 2024. Moreover, Government has the first right of refusal.
- vi. Notwithstanding the above, the incentives of this Policy shall be applicable on projects that have been certified within ten (10) years w.e.f. the notification of this Policy.

13. Carried Working Interest

In order to attract more investment in exploitation of Tight Gas, any PCA that has a carried interest for a state-owned entity/national oil company will be amended such that the carry will only be applicable to the first well leading to the discovery of Tight Gas or Tight Gas Reserve in a particular discovery area.

14. Lease Term & Renewal

- i. Initial term of the development and production "Tight Gas lease" will be up to 30 years giving due consideration to production profile of the Tight Gas as per the proposed FDP. The lease may be renewed for a period, not exceeding 10 years subject to justifications acceptable to the Government. In case Tight Gas Reservoir is extending into a free area then the lease area for Tight Gas shall be extended to the adjoining free area on submission of technical justifications.
- ii. In case of discovery of the Tight Gas under the existing D&PL, such D&PL shall be amended to separately include the D&P rights for the Tight Gas Reservoir or issue a separate lease subject to justifications. On the expiry of the D&P right for the conventional gas under the existing lease, the area held for the production of conventional reservoir shall be relinquished, if it does not impede

the production operation of the Tight Gas wells and relevant amendments shall be incorporated in the lease on approval of Authority.

15. Royalty

Royalty will be payable at the rate of 12.5% of the value of petroleum at the field gate.

16. Tax Loss Carry Forward

Operating loss can be carried forward to a period not exceeding fifteen (15) years.

17. Abandonment Costs

As per Finance Act 2010.

18. Windfall levy

Windfall levy will be applicable as per Petroleum Policy 2012.

19. Other fiscal levies

If both conventional and tight gases are produced from the same D&P lease, lease rental, production bonus, training fund and social welfare obligations shall be levied once and shall not be duplicated.

20. Production Suspension

Suspension of production for a cumulative period of one year will be allowed to Operator subject to technical and economic justifications. A company concerned shall deem to have suspended the production in a month if the production is suspended for more than 15 days on account of reasons other than (i) force majeure and (ii) planned plant shut-down for maintenance in accordance with the provision of the Gas Sales Agreements. After expiry of the said period, the Regulator/Authority may grant further extension on case-to-case basis subject to justification acceptable to the Regulator/Authority.

21. Remittance of Proceeds Abroad

The provisions of Petroleum Policy 2012 shall be applicable.

22. Review of Tight Gas (Exploration & Production) Policy

The Tight Gas (Exploration & Production) Policy may be reviewed after five years, except for the List of Consultants / Laboratories (Section 7), which shall be reviewed from time to time during the term.

23. Incentives for Service Sector

In order to incentivize the transfer of technology and deployment of state-of-the-art equipment and machinery for the exploration and production of Tight Gas, the equipment and machinery by the services sector shall be exempted from Customs duty or other duties. Necessary amendments in the existing S.R.O shall be made accordingly.

24. Representation

In the event the operator or the Working Interest Owners (WIO's) are aggrieved by the final decision of the Authority as regards determination of the Tight Gas under this Policy, representation may made to the Petroleum Division within 30 days from the date of such decision.

Annex-1

TORs for the 3rd Party Certification Study for the Determination of Applicability for Tight Gas Price Incentive under Tight Gas (Exploration and Production) Policy, 2024

Introduction:

This document provides the Terms of Reference (TOR) for the consultant to carry out the assessment of subject well(s) or where applicable, a discovery area/field to determine the applicability of Tight Gas Price Incentive as provided for in the Tight Gas (Exploration and Production) Policy, 2024 (hereinafter referred to as the Tight Gas (Exploration & Production) Policy 2024) based on evaluation of available geological, petrophysical, reservoir engineering data and economics. In case of any data gap at said wells, consultant can utilize other wells/core information to bridge these gaps.

The work will be conducted by any of the consultants, listed under Section 7 of Tight Gas (Exploration & Production) Policy 2024.

Payment for the work and supply of all data/information to the consultant will be the responsibility of the company concerned.

1. Study Objectives

- i. The objective of the study is to ascertain whether the natural gas to be produced from a discovery area or field qualify for Tight Gas incentives in accordance with the criteria mentioned in Section 4 of the Tight Gas (Exploration & Production) Policy 2024.
- ii. The proposed study will cover the evaluation of the subject wells and determine the discovery area or field that meets the criteria defined under section 4 by following the scope of work provided below.

2. Consultant's Scope of Work

1. The consultant shall certify that the following three criteria are being met:

- i. Contributing reservoir (intervals/zones) in the subject well(s) has estimated value of effective permeability calculated using geometric mean of less than 1.0 milli Darcy.
- ii. Company concerned will have to apply advanced technologies for its exploitation/production such as high-performance perforation, hydraulic fracturing, horizontal wells, slant/deviated wells, multilateral wells and/or infill drilling or combination of these technologies.
- iii. The gas from subject wells cannot be produced naturally through conventional methods at commercial rates despite having hydrocarbon reserves.

- ii. The consultant certifying Tight Gas Reservoir assessment shall be required to adopt the following procedure utilizing sufficient static and dynamic data:
- 2.1 To facilitate an accurate estimation of Effective Permeability as well as to conduct the independent certification in accordance with Tight Gas Reservoir and Tight Gas Reserves associated with subject well or where applicable, a discovery area/field, Operator will be required to gather sufficient data and supporting material as reasonably possible, and which is required to generate reliable reports for Tight Gas certification/reserves and economic evaluation. Consultant must perform analysis of all available data, geological and geophysical report/data in order to understand the structural and depositional facies setting for the subject wells and their relationship with the nature of Tight Gas Reservoir by integrating other details on the surrounding wells for lateral/vertical information. All relevant data and supporting material will be provided by Operator including, but not limited to, seismic and VSP, mud logs, ditch cutting, cores, drilling records, DST, PLT, BHP, pressure transient analysis.
 - 2.2 Consultant will review sufficient data for subject wells including, petrophysical analysis, core data, well logs and geological depositional facies model etc. for the establishment of petrophysical units (layers, sub layers and vertical barriers/baffles) utilizing industry standard methods. Lateral and vertical extents of these petrophysical units should be evaluated to identify tight, naturally fractured, and conventional reservoir potential intervals if any and their porosity/permeability relationship with hydrocarbon saturation (including log-based method considering limitation). Clear Identification of tight and conventional reservoir potential intervals at subject wells based on results of afore mentioned methods. Further aid may be taken from RCA/SCAL (MICP/Centrifuge) data in case of inconclusive results.
 - 2.3 Consultant shall determine effective rock Permeability (Matrix +Micro frac+ vuggs+any other diagenetic feature) of the Tight Gas Reservoir based on core data analysis corrected to reservoir conditions, log data, test production and/or DST data. In case of limited or non-availability of core at subject wells, offset wells core intervals, well test data/analysis -initial DST, build up and draw down, Nuclear Magnetic Resonance (NMR) method, Pressure Transient Analysis (PTA) or any other method or combination of the methods may be used. However, the calculated value of effective permeability of the reservoir should be justified by the actual flow rates and removal of skin.
 - 2.4 Consultant shall determine that extracting value from Tight Gas Reservoir represents a challenge at subject wells; it requires the use of advance technologies for drilling, horizontal/multilateral wells, advance perforations, hydraulic fracturing, and reservoir stimulation entailing investments with longer recovery cycle and that it cannot flow naturally at commercial rates with conventional methods despite of having hydrocarbon reserves.
 - 2.5 Consultant shall evaluate that Operator has reasonably applied all possible and available advance technologies depending on the particular characteristics of a reservoir to enhance the production and reservoir pressure in subject wells, including drilling technologies, horizontal/slanted/multilateral well, advance perforations, massive/semi-massive hydraulic fracturing to flow gas at commercial rates.
 - 2.6 Consultant shall evaluate that Operator has applied high performance perforations to make gas flow at commercial rates from the tight reservoir(s).

- 2.7 Consultant shall evaluate that Operator has applied massive/advance hydraulic fracturing technique to make gas flow at commercial rates from the tight reservoir(s).
- 2.8 Consultant shall evaluate that if drilling technology (deviated/slant) used by Operator is essential for Tight Gas exploration and its impact over commerciality of reserves. The afore mentioned evaluation should be done in context of regional & local geology, structural setting, stress directions and reservoir geomechanics.
- 2.9 Consultant shall evaluate that if drilling technology (deviated/slant) used by the using pre frac volumes by conventional methods and an enhanced forecast and economics post high-performance perforations job, hydraulic fracturing and /or horizontal wells and including a detailed comparison of geological/reservoir parameters and economics of the two cases (pre and post hydraulic fracturing) to support Initial or Final Third-Party Certification, as the case may be, for Tight Gas.
- 2.10 Final report and deliverables shall include the following:
 - 2.10.1 Review/interpretation of geological, petrophysical, engineering and economics (CAPEX, OPEX) provided by the company concerned.
 - 2.10.2 Well log interpretation and reserves calculation.
 - 2.10.3 Pre-frac and Post-frac DST analysis and interpretation.
 - 2.10.4 Comparison of base case and enhanced case economics as per Article 2.9 above.
 - 2.10.5 Certification that subjects hydrocarbon reserves can only be exploited commercially using advanced technologies employed by the Company concerned.
 - 2.10.6 Certification that subjects well / discovery area / field qualifies as a Tight Gas as per the definition in Section 4 of the Tight Gas (Exploration & Production) Policy 2024 as per specimen placed at Appendix-I

3. Data Collection

All available data of subject field (all appraisal wells) will be made available to consultant by the company concerned. Consultant will conduct an initial review/scrutiny of the data to identify any additional data requirement before the commencement of study.

4. Meetings/Reviews

- 4.1 A Kick off meeting (Video Conference is preferred option) will be held between the consultant and Operator at the start of the project to further clarify the study objectives.
- 4.2 Weekly report indicating project progress and detailed working to be submitted by the Consultant to the company concerned. During study DGPC representative (s) shall visit the consultant for review of

the study and to address the any confusion /misinterpretation of the findings of the study at later stage. The expense of the visit will be borne by the Operator.

For Technical correspondence following professionals to be contacted:

Company concerned's Coordinator:

5. Duration

The Certification for wells / discovery area / field are to be completed within XXX weeks from commencement date of study (Kick-Off meeting). If needed, this period may be modified through mutual consultation of the parties.

6. Study Time Guidelines

Consultant will submit a detailed work plan for completion of the study within the agreed timeframe. A description of key activities, their duration, and a summary of man-hours for staff required to conduct the study should be clearly defined.

7. Reports and Presentation

The draft third party certification shall be shared with the Regulator for any comments/ clarifications from the consultant before the final report is issued. If no comments from the Regulator are received within 15 days of submission of draft certification, the report would be deemed approved. The Consultant will thereafter issue the Final report to Operator in both hardcopy and digital format.

Pre-Qualification Criteria

The Consultant will be scored and pre-qualified as per the following criteria, upon receiving marks equal to or more than ____.

Sr.no	Criteria	Max Weightage	Project Type	Marking Scheme
1	Technical Experience	20	Experience in Tight Gas Reservoir Mapping, Characteristics, Petrophysical Interpretations	<p>Experience of:</p> <p>>5 years shall be awarded 10 marks in Reservoir Mapping and Reservoir Characteristics of Tight Gas</p> <p>>5 years shall be awarded 5 marks in Petrophysical Interpretation of Tight Gas Reservoirs</p> <p>Any experience below 5 years shall be awarded zero marks</p>
		20	Experience in Tight Gas Well Modelling and Reservoir Modelling	<p>Experience of:</p> <p>>5 years shall be awarded 5 marks in well test analysis and interpretation of Tight Gas wells</p> <p>>5 years shall be awarded 5 marks in Well Modelling including sector modelling of Tight Gas wells</p> <p>>5 years shall be awarded 10 marks in Full Field Reservoir Simulation Modelling of Tight Gas fields</p> <p>Any experience below 5 years shall be awarded zero marks</p>

		15	Experience in Reserve Estimation and Evaluation	<p>Experience of:</p> <p>>10 years shall be awarded 15 marks in Reserve Estimation and Reserve Evaluation</p> <p>Any experience below 5 years shall be awarded zero marks</p>
2	Company Experience	10	Experience in reserve certification studies worldwide during last 10 years	<p>Provide the number of projects, along with names, tectonic regime, and project time. Each Year of experience of doing more than 5 certification studies will be awarded 1 Marks. (up to max. of 10 marks)</p> <p>Each relevant Project will be awarded 1 Marks. (up to max. of 10 marks).</p>
		15	Experience in Tight Gas Reserve Certification Studies Worldwide and Pakistan during last 10 years	<p>Provide the number of projects, along with names, tectonic regime, and project time. Each Year of experience of doing more than 5 Tight Gas certification studies will be awarded 1 Marks. (up to max. of 5 marks)</p> <p>Each relevant Project will be awarded 1 Marks. (up to max. of 10 marks).</p> <p>Each Project in Pakistan will be awarded an additional bonanza of 1 mark per project (up to a max. of 15 marks).</p>
3.	Team Qualification and Experience	10	Experience of Key Technical Personnel greater than 20 years to act as the Project Lead for conducting the Tight Gas Certification Studies	<p>If the consultant has the capacity to depute such an individual as project lead, full marks shall be given, otherwise zero</p>

				CVs to be provided of all such personnel
		10	Experience of Team members greater than 10 years for carrying out such projects	If there are at least 5 team members with such a profile, full marks shall be awarded.
				CVs to be provided of all such personnel