

**TIGHT GAS
(EXPLORATION & PRODUCTION)
POLICY-2011**

**GOVERNMENT OF PAKISTAN
MINISTRY OF PETROLEUM & NATURAL RESOURCES**

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1. Introduction

With a dimming possibility of economically viable alternative sources of energy in near future, ever widening gap between the energy demand and supply and the decline of production of conventional fossil-fuel in future, the thrust on unconventional sources such as tight gas is glowingly increasing world-over.

Pakistan is facing big challenge in meeting its ever growing energy needs due to expanding population and economic growth. Energy demand is projected to grow to 147 MTOE by 2022 reflecting a phenomenal increase of 245% compared to 2008. Gas being largest component of energy supply is also projected to decline from existing 4.2 BCFD to 1.6 BCFD in 2022 giving rise to deficit of 7 BCFD. To meet the targets identified, Pakistan's oil and gas industry will need to explore, discover and produce greater volumes of oil and gas than we are producing today. Increasing exploration is the first and essential step in this process. Exploration and development activity is critical to the long-term energy security of Pakistan and the growth of Pakistan's oil and gas industry.

The Federal Government and the Provincial Government concerned are committed to accelerate an exploration and development programme in order to reverse the decline in crude oil production, to increase the domestic gas production and supply and to reduce the burden of imported energy which otherwise will have adverse effect on the balance of payments & trade. In the current global energy price environment, E&P Policy has to be dynamic to meet the new challenges faced in meeting energy needs of the country at least cost option and to minimize the adverse effects.

Federal Government and the Provincial Government concerned recognises 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 development plans entailing massive investments with 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.

The purpose of this Tight Gas Exploration & Production Policy 2011 (Policy) is to establish the policies, procedures, tax and pricing regime in respect of exploration and production of tight gas in Pakistan.

The requirement of this policy is also reflected in clause 7.1.5, Section-III, Regulatory Process and Obligations of the Petroleum Exploration & Production Policy, 2009.

2. Objectives

Promulgation of the "Tight Gas (Exploration & Production) Policy 2011" is based on achievement of the following principle national objectives.

- i) Start of fast track development and production of gas from the existing tight gas reservoirs that are not being produced due to non-commerciality;
- ii) To open new frontiers for exploration of tight gas which would help increase the production level for reducing the energy deficit;
- iii) Raising additional revenues of Federal Government and the Provincial Government concerned ;

- iv) Improving balance of payment position by reducing the need for import of alternative fuels (LNG/Fuel Oil) which requires massive foreign exchange;
- v) Reducing recourse to sovereign debts by saving foreign currency;
- vi) Keeping the local gas prices at affordable level to the consumers by producing cheaper gas vis-à-vis imports ;
- vii) Generating employment for the nationals;
- viii) Boosting local manufacturing industry for supply of equipments for production of tight gas by international collaboration and transfer of technology;
- ix) Increase dependability and security of supply and its sustained availability.

3. Applicability & Effect of the Policy

The Tight Gas policy shall come into effect from the date of its announcement as published in the official Gazette. The incentives of this Policy shall apply to the tight gas discoveries that qualify and are accepted as “tight gas” under the existing and future exploration licences, Petroleum Concessions Agreements (PCAs) and Development & Production (D & P) leases and that are not in production prior to notification of this Policy

In case of conflict in the general terms of the PCA and this Policy, the provisions of this Policy shall hold precedence in respect of tight gas. However, the rights of Working Interest Owners will continue to prevail as per PCA of respective block.

4. Definition of Tight Gas

The Tight Gas is defined as a natural gas that:

- (i) the company demonstrates to the satisfaction of the Federal Government and the Provincial Government concerned that it can not flow naturally at commercial rates with conventional methods despite of having hydrocarbon reserves; and
- (ii) requires advanced technologies for its exploitation/production such as high performance perforation, hydraulic fracturing, horizontal wells, multilateral wells &/or infill drilling or combination of these technologies or any new technology acceptable to the Regulator; and
- (iii) has estimated value of effective permeability less than “1.0 milli Darcy (mD)” as determined pursuant to clause-5 of this policy.

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 and Certification of Tight Gas Reservoir through 3rd Party.

In order to become eligible to claim incentives given in the Policy, the Working Interest Owners encountering Tight Gas Reservoir (TGR) shall be required to adopt the following procedure:

- (a) All relevant data and supporting material including but not limited to logs, cores, ditch cutting, seismic, VSP will be provided to a recognized third party, included in list in clause-6 or as amended from time to time, and who has been selected through competitive bidding by the company with the consent of the Federal Government and the Provincial Government concerned for an accurate measurement of permeability and independent certification of both Tight Gas Reservoir and Tight Gas Reserves;
- (b) 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 as required by the Regulator;
- (c) 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.
- (d) The third party certification shall be needed for; (i) confirmation that such gas qualifies as Tight Gas as defined in this policy; and (ii) assessment of Tight Gas Reservoir and Tight Gas Reserves to be done in accordance with best international petroleum industry methods; and (iii) certification that such gas can not be produced naturally through conventional methods at commercial rate.
- (e) As required under clause-7 below, production allocation of Tight Gas and conventional gas being produced from the same lease will be based on the recommendations of the third party referred to in the sub-Para-(d).
- (f) In the event a well is capable of producing both Tight Gas as well as conventional gas, such well shall be completed in one interval so as not to allow commingle of Tight Gas and conventional gas from the same well unless recommended process as set out in clause-8 hereof is strictly followed..
- (g) The cost of all such tests/certification shall be borne by the Working Interest Owners/company and to this effect a pay order or bank draft shall be submitted to the Regulator for payment to the 3rd party selected out of the approved list of such Labs having world class standing.
- (h) The company and its contractor, where applicable, shall electronically transmit all relevant data/information to the Regulator within two days and in the event of wilful submission of wrong data/information, the company shall be liable to pay a penalty

of US\$ 5 million for such one time offence. Any subsequent repeated act of wrongful submissions will lead to termination of petroleum rights. In case of unsatisfactory report regulator may ask for re-evaluation of TGR and gas reserves from the approved list at clause-6 below and all the cost will be borne by the Working Interest Owners.

6. List of Consultants/Laboratories for Testing of Tight Gas Reservoir

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. Tracks International
5. PGS Reservoir Consultant (UK) Limited
6. RPS Energy
7. PTS Laboratories Inc. USA
8. IPR International Limited
9. Exploration Consultants Limited
10. Client Support Laboratory, Schlumberger KL, Malaysia
11. or any other party having World Class standing and subsequently approved by the Federal Government and the Provincial Government concerned.

7. Declaration of Commerciality of Tight Gas Reservoir

Declaration of Commerciality shall be as per following mechanism:

- i) Upon discovery of reservoir sequence in a well which in the opinion of the Working Interest Owners can be designated as tight gas reservoir, the operator concerned shall immediately notify the Federal Government and the Provincial Government concerned with details of such reservoir sequence and by a further notice within 6 months thereafter, intimate the Federal Government and the Provincial Government concerned whether tight gas reservoir merits appraisal. In the event, it is decided that tight gas reservoir merits appraisal, the company concerned shall present an appraisal programme for the approval of the Federal Government and the Provincial Government concerned. The company concerned shall diligently undertake the approved appraisal programme within the allowed time period. Within 8 months of completion of such programme, third party certification shall be carried out to define the nature of the reservoir and reserve potential of the field. Third party reserves certification along with Commercial Discovery notice shall be furnished to the

Federal Government and the Provincial Government concerned for approval. If TGR does not merit appraisal, the reservoir should not be declared as TGR.

- ii) Following approval of the Commercial Discovery, the Company concerned shall submit Development Plan comprising comprehensive requirement for the development of entire tight gas reservoir for approval of the Federal Government and the Provincial Government concerned. In case of Tight Gas discovery in the conventional lease area, an addendum to development plan for conventional lease will be submitted after appraisal for approval of the Federal Government and the Provincial Government concerned to carry development and production substantially in accordance with the Development Plan for Tight Gas as well.
- iii) In case of an already known "Tight Gas" Reservoir in an existing D&P Lease the lease for TGR shall be granted to existing working interest owners after appraisal of reservoir and submission of a supplemental Field Development Plan accompanied by 3rd party certification.
- iv) If the tight gas is discovered on drilling of development wells of the conventional D&P lease, the Tight Gas discovery would be appraised for its development in case the working interest owners are of the opinion that the reservoir can be designated as Tight Gas reservoir, the operator shall immediately notify the Regulator with details of such reservoir sequence. Production of such well shall be classified based on approval of the Regulator subject to fulfilling requirements of clause-4 & 5 above.
- v) Notwithstanding the above, for the tight gas reservoir already discovered before the announcement of this Policy but not produced, the working interest owners through operator shall submit the appraisal program followed by development plan within twelve months from the date of Gazette notification of this Policy. Remaining process shall be as stipulated above.
- vi) If the working interest owners do not submit appraisal and development plan within the timeframe specified in this Policy and the PCA, the said rights on Tight Gas shall be deemed to be lapsed.

8. 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 on the basis of 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. In case of production of tight and conventional gas from the same D&P lease, the operator shall provide daily wellhead gas production from each well as per requirements specified by the Regulator. Furthermore, operator shall put in place mechanism for observation of the wellhead gas flow rates by the representative(s) of the Regulator.

9. 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 Federal Government and the Provincial Government concerned designated buyer.

10. Gas pricing

10.1 In order to exploit Tight Gas Reserves, 40% premium would be given over the respective zonal price of Petroleum Policy 2009.

However in order to encourage the companies to fast track development & production of tight gas, an additional 10% premium would be given for those volumes that are brought into production within 2 years of announcement of this policy. For example if a field "A" produces 300MMCFD with in two years of the announcement of this Policy, it would be entitled to 50% premium for 300 MMCFD gas only. Any subsequent addition in volumes after expiry of the two years period would be entitled to 40% premium only.

10.2. The working interest owners shall have the right to sell the gas to third parties within Pakistan at mutually negotiated prices between the Seller and the Buyer.

11. Lease Term & Renewal

Initial term of the development and production "Tight Gas lease" will be up to 30 years. The lease may be renewed for a period, not exceeding 10 years subject to justifications acceptable to the Federal Government and the Provincial Government concerned. 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.

In case of discovery of the tight gas under the existing D&P lease, the lease 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 Regulator.

12. Royalty

Royalty shall be payable as per Petroleum Policy 2009.

13. Tax Loss Carry Forward

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

14. Abandonment Costs

As per Finance Act 2010.

15. Windfall levy

No windfall levy will be applicable to the tight gas production.

16. Other fiscal levies

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

17. Production Suspension

Suspension of production for a cumulative period of one year will be allowed to working interest owners subject to technical and economic justifications. A company 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 shutdown for maintenance in accordance with the provision of the Gas Sales Agreements. After expiry of the said period, Federal Government and the Provincial Government concerned may grant further extension on case to case basis subject to justification acceptable to the Regulator.

18. Remittance of Proceeds Abroad

The provisions of Petroleum Policy 2009 shall be applicable.

19. Review of Tight Gas Policy

The Tight Gas Policy would be reviewed after two years.

20. Implementation of Tight Gas Policy

A separate institutional mechanism will be provided to oversee the implementation of Tight Gas Policy and the Authority consisting of DGPC and one representative of each Province will also act as main forum for the matters related to Oil & Gas exploration. A sub-committee would be setup comprising a representative of the Province concerned and DGPC to resolve tight gas implementation issues in that Province. The implementation committee would be an umbrella body overseeing general matters only.