PETROFED

Petroleum Federation of India

Compendium of Industry Views on Natural Gas Transportation Pipeline Issues

December 31, 2007

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines	The capacity mentioned at clause 4.2.1.6.8.1 c)* above shall be available for use as common carrier by any third party on open access and nondiscriminatory basis. *4.2.1.6.8.1 The capacity of natural gas pipeline shall be an aggregate of the following: a) Capacity requirements of the entity; b) Firmed-up contracted volumes; and c) At least 33% 2 of (a) and (b).	**Issue No. 1(a) (i)**	**Summary of suggestions** 1) The access to un-contracted capacity in the transportation pipelines should be on a non discriminatory basis 2) The procedure for determination of capacity should be transparent taking into account actual long term commitments of the shipper and/or transporter. 3) Regulator to establish pipeline access code providing Level playing field and non-discriminatory open access to all Parties 4) New Pipeline capacities to be allocated on open season policy. 5) Available capacity in a particular existing pipeline needs to be notified by the regulator. All the interested parties may be requested to register their capacity requirements. 6) There should be an objective/fair & equitable/transparent & non-discriminatory methodology for allocation of capacity in existing pipelines. **Divergent issues** 7) Allow Open Access with tariff fixation by the parties involved on mutually agreed terms within overall cap fixed by the Regulator. Some industry

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 1(a) (i)**	members do not agree with this. 8) There should be a precondition that the parties should have source tie-up as well as customer tie-up for the required capacity. Some industry members do not desire that this precondition be laid for allowing access. **Inferences from International Regulatory Regimes** Third Party Access (TPA) or Open Access is the right of a third party (either a producer, a consumer, a shipper or a trader) to access/make use of the transportation and/or distribution related services of a pipeline company for a charge (tariff) to move gas owned by the third party. In 1992, the European Commission defined it as "a regime providing for an obligation, to the extent that there is capacity available, on companies operating transmission and distribution networks to offer terms for the use of their grid, in particular to individual consumers or to distribution companies, in return for payment". It evokes a right for any third party to buy the transportation service of a pipeline company and an obligation for the latter to offer such services, although the extent of such right and obligation may be limited by relevant legislation. It therefore differs significantly from voluntary access, which can take place freely without public

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 1(a) (i)**	intervention. In practice, essentially two kinds of TPA exist: a regulated regime and a negotiated one. In a Regulated TPA, the public authorities set the rules and access conditions, on the basis of published tariffs and/or other terms and obligations for the use of the system. Negotiated TPA requires the pipeline company to publish its basic conditions for access and related services, but leaves the parties concerned the freedom to define access terms and conditions Regardless of whether TPA is regulated or negotiated, there are certain conditions for the application of such a regime: ◎ There should be a sufficiently well developed gas market with excess pipeline transmission capacity; ◎ There should be a sufficiently large number of gas producers and consumers who seek to have access to the spare capacity rather than building their own pipelines; and ◎ Physical links exist or are feasible with the existing pipelines. In addition, to ensure access to all network users (or a defined class of customers, known as "eligible" customers), be they customers or companies, on equal conditions, impartiality and neutrality, a number of other issues have to be considered before the introduction of TPA in a country. They include:

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 1(a) (i)**	◎ Eligibility for participation: it has to be decided which category of companies should be able to benefit from TPA and, for instance, whether they should be of a certain minimum size (if gas consumers) or have to meet technical and financial standards (if shippers). ◎ Definition of facilities to which access is to be granted: e.g. transmission and distribution pipelines both onshore and offshore; gathering, storage, treatment and blending facilities. ◎ Definition of the services that may be involved apart from the transmission: e.g. metering, pressure balancing, quality management, load balancing, storage, back-up and stand-by services. ◎ Determination of the extent to which the pipeline company is obliged to provide these services separately; i.e. to what degree these services should be unbundled, which also raises the question of whether the pipeline company has to split its activities into separate companies. ◎ Definition of available capacity and the procedures to be followed when capacity is not sufficient (queuing procedures, requirements to build capacity). ◎ How to calculate the tariffs for transportation and related services. ◎ How much information the pipeline company will

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 1(a) (i)**	be required to disclose regarding availability of, and calculation of charges for, services. ◎ The relationship (degree of discrimination) between the pipeline company's own customers and third parties requesting access. ◎ The regulatory framework (regulatory bodies involved, instances of appeal, etc.) ◎ Legislation dealing with transitional problems caused by the introduction of TPA. ◎ Dispute settlement mechanisms to ensure expeditious resolution. ◎ Mechanisms to avoid abuse of dominant positions. ◎ The obligation to unbundle accounts. ◎ Technical rules to ensure inter-operability between gases of different quality. **International Experiences** The United States of America Interstate gas pipelines are required to operate as open-access contract carriers. Capacity on the pipeline is offered and allocated based upon long-established FERC regulations and precedence. Access to pipeline capacity needs to be viewed in four contexts: 1. Initial access to a proposed new pipeline 2. Initial access to pipeline expansions 3. Access to pipeline capacity that may become

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 1(a) (i)**	available because of contract termination or exploration and 4. Access as a result of temporary or permanent capacity release In each of these contexts, any credit-worthy party that is willing to make the necessary long-term shipping commitment has an equal opportunity to acquire pipeline capacity. On gas pipelines, gas is allocated through an open season process that allows all perspective shippers to review the preliminary rates, terms and conditions and to bid for capacity on the pipeline. The open season process is instrumental to the pipeline's ability to establish the economic viability for the project and to determine the optimum size of the pipeline. The open season process is designed to insure nondiscriminatory allocation of pipeline capacity and significant case law and precedent exists to insure that no shipper that is prepared to make the long-term shipping commitment has any advantage in taking pipeline capacity from another similarly situated shipper. In the United States, the FERC oversees this process, which must be open and transparent. Although the FERC allows reasonable flexibility in the design of open seasons, significant precedent defines the open season process. Typically, open season processes are conducted as follows: 1. The

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 1(a) (i)**	pipeline will often engage in preliminary discussions with the marketplace and will sometimes use nonbinding open seasons or solicitations of interest. This process helps the pipeline to judge the extent of the market support and to insure that the pipeline is neither too large nor too small for the apparent demand for the transportation services. 2. The pipeline then issues a public notice to announce its open season. The open season must be of sufficient duration to allow all interested shippers an opportunity to respond. The open season documentation will also outline the rules under which the pipeline will evaluate its bids. The pipeline's open season package typically includes significant information about the project including receipt and delivery points, route, timing, services, pro-forma agreements, a proposed precedent agreement and estimated rates. 3. If there's insufficient capacity to satisfy all the bids, the pipeline's open season package will specify the type of tiebreaker that will be employed to allocate the available capacity. 4. Once capacity has been allocated through the open season process, the shippers will normally enter into binding precedent agreements with the pipeline, which demonstrate the need and support

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 1(a) (i)**	for the project. The pipeline company uses these agreements to justify the project at the FERC and to underpin the financing of the construction of the pipeline. Pipeline owners and financial lenders require these long-term contracts for firm capacity to ensure repayment of the capital cost of building the pipeline. without these commitments, gas pipeline projects, which by their nature involve a longer payout than typical oil pipeline projects, could not be financed. Shippers need a contractual commitment from the pipeline to ensure capacity is available to support their own needs. Once capacity is awarded through the open season and binding precedent agreements are executed, a shipper's contractual right to the reserved capacity is protected. A shipper's economics are founded on the availability of this contracted capacity. In exchange for the pipeline's commitment to reserve a specified quantity of capacity for a shipper, the shipper agrees to pay a monthly reservation charge that is due regardless of whether gas is actually shipped. A pipeline must have sufficient binding precedent agreements or executed transportation contracts prior to filing its FERC application. If the pipeline verbuilds, it is at risk for all unsubscribed capacity and cannot recover those costs from the contracted shippers.

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 1(a) (i)**	The open season process is critical to determining the ultimate capacity of the pipeline. When additional gas is committed to the project, a larger physical pipeline may be justified (if operationally feasible), which may yield economies of scale that benefit all shippers. In some unique cases in the offshore Gulf of Mexico, pipelines have offered a pre-subscription open season to attract sufficient base volumes to underpin the pipeline. In these cases, the anchor shippers were pre-assured access to some of the pipeline's capacity in the open season consistent with the risk associated with their large capital investments in related production facilities. It should be noted, however, that in all of these distinctive cases any party meeting the base requirements could be an anchor shipper and a meaningful portion of the total pipeline capacity was still made available to any interested shipper in a non-discriminatory open season. FERC has approved this anchor shipper concept in order to facilitate types of unusual project development requirements. The current process for the allocation of expansion capacity is very similar to that described earlier for the allocation of initial pipeline capacity. However, prior to the

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 1(a) (i)**	expansion open season, FERC policy requires that the pipeline poll current shippers regarding their willingness to turn back their own capacity prior to the binding open season. An existing shipper does not have priority or right of first refusal for expansion capacity, but is treated the same as anyone else trying to obtain expansion capacity. All potential shippers must bid on expansion capacity during the open season and similarly situated shippers must be afforded the same rates, terms and conditions. When a project is economically and technically viable, this process allows a pipeline to efficiently identify customer requirements and to implement cost-effective expansions. It should also be noted that the FERC has very specific regulations that deal with the relationship between interstate pipelines and all of their energy related affiliates. Under these regulations, known as Order 2004, pipelines may not treat their affiliates in a preferential manner. These regulations include strict limitations on information flow, shared employees and corporate structure. Virtually every pipeline employee must now be specifically trained in these affiliate regulations. The penalties for violation are severe. If a pipeline is expanded, the resulting rate treatment is dictated by established FERC policy.

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 1(a) (i)**	The expansion rates are determined based upon the incremental costs of the expansion. If the resulting expansion results in a lower overall rate, then the cost is rolled in or basically included in the rate base of the pre-expansion pipeline. In this case, the existing shippers and the expansion shippers all pay a lower rate. If the expansion would result in an increase in rates to the existing shippers who hold the initial capacity, then the expansion rate will be incrementally priced. In this case, the existing shipper continues to pay their previous rate and the expansion shippers pay a rate based on the higher incremental costs to expand the system. The actual costs of an expansion will depend upon the design of the pre existing facilities and the specifics of the proposed expansion. It should also be noted that the proposed federal enabling legislation has unique and unprecedented language allowing FERC to require an expansion upon request if the shipper requesting this service meets the requirement outlined in the legislation. These requirements include: 1. No subsidization of expansion shippers by existing shippers; 2. No adverse effect on the financial viability, economic viability or operations of the pipeline and 3. No diminution of the contract rights of existing

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportat ion pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 1(a) (i)**	shippers to previously subscribed certificated capacity. There are other methods of allocating capacity. Any shipper who is paying the pipeline's maximum rate under a firm transportation contract that is 12 months or longer is granted a conditional right to extend its contract at the expiration of the primary terms. As a matter of FERC policy, this right of first refusal (ROFR) exists only at the end of the primary contract term and allows the shipper the ability to retain all or a portion of its contract subject to the expiring capacity if he is willing to pay the pipeline's maximum filed rate for the greater of one year or the term offered by a third party. This contract right of first refusal is not a right to obtain capacity in either an initial open season or an expansion open season. The pipeline is also required to allocate capacity that comes available as a result of contract expiration on a nondiscriminatory basis. This can be done through an open season or by posting the capacity on the pipeline's public bulletin board. In any event, the FERC approved tariff will provide the procedures consistent with FERC precedent and regulations for the nondiscriminatory allocation of such available pipeline capacity. Any method by which a shipper can obtain firm

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 1(a) (i)**	capacity is by obtaining capacity released by a firm shipper. This release can be for a temporary term or can be a permanent release. The FERC has established criteria that ensure such capacity is allocated to the party who values the capacity the most (subject to the FERC approved maximum recourse rate). **CHINA** In view of international experience and the need to provide strong incentives to investors, it is appropriate for the Chinese government to offer a degree of protection to investors in high pressure transmission pipeline and LNG projects and local distribution networks. In the near term, no transmission, LNG or distribution company should be legally obliged to offer transportation or regasification services to third parties (at least for a given period), although the companies would be free to negotiate such a service if they so wish. In practice, this would mean that each producer would in most cases have no choice over which transmission company to sell its gas to, unless there happened to be more than one transmission line within the vicinity. Similarly, there would be a single buyer of gas for local distribution for each supply area, although there

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 1(a) (i)**	could eventually be more than one transmission company supplying a single distribution area with gas from different fields and basins. The introduction of a third-party access regime to encourage gas-to-gas competition should nonetheless remain a longer-term objective, and the government should make its intention and timetable for introducing TPA clear to investors. **Philippines** **Open Access Obligation** Operators of National Infrastructure Pipelines and Transmission- and/or Distributionrelated Facilities excluding those constructed and operated for the sole use of the owner are obligated under these Rules to provide open and non-discriminatory access to third party users which may include Service Contractors, Suppliers and Gas End Users, with due regard to the economic viability of the operation of such facilities. Such operators shall negotiate in good faith with third-party users the provision and terms of access in accordance with Annex 2. Modification of Open Access Obligation. As a condition of a Pipeline Permit for a National Infrastructure Pipeline or Transmission Related Facility, the DOE may determine that implementation of Open Access may be deferred

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines	Sub Clause 4.2.1.6.8.2 of Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 1(a) (i)**	where: (a) It can be demonstrated that such deferment is necessary to enable the efficient planning of the infrastructure and aggregation of the initial demand necessary to justify investments in the Pipeline or Transmission- and/or Distribution-related Facilities. (b) It is in the interest of the Gas End-users served by the National Infrastructure Pipeline or Transmission Related Facility to ensure stability of supply. In either case, the DOE shall not defer implementation of Open Access for a period longer than three (3) years for Transmission Pipelines and five (5) years for Distribution Pipelines from the date the Permit was issued. The DOE may determine that implementation of Open Access should be accelerated in the interest of competition. **Australia** National Third Party Access Code establishes a national access regime for natural gas pipeline systems. The definition of Pipeline includes gas transmission pipelines and distribution networks and related facilities, but excludes upstream facilities. This process involves setting terms and conditions, including reference tariffs, which requires determination of a range of measures including asset valuation, a fair allocation of

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on "open access" to transportation pipelines			**Issue No. 1(a) (i)**	justified costs, a reasonable rate of return and an acceptable depreciation methodology. Regulator may approve a proposed Access Arrangement only if it is satisfied that the proposed Access Arrangement contains the elements and satisfies the principles set out in National Third party Access Code. The Gas Code allows for the outcome of a competitive tender to set the tariff for a new pipeline which is to be covered under the Code. This is a two stage process. First, a party seeking a pipeline to be constructed is required to lodge a Tender Approval Request, which sets out the terms and conditions of the proposed tender, with the Regulator. After this is approved, the applicant runs the tender. A Final Approval Request may then be lodged with the Regulator seeking approval of the outcome of the tender. If approval is granted the proposed pipeline becomes a Covered Pipeline under the Code and the successful tenderer, now the service provider, is required to submit a proposed access arrangement. This access arrangement must retain the specified outcomes, such as reference tariffs, from the tender for the duration of the initial access arrangement period.

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on Transportation Rate for transportation	Clause 4 and Annexure – A of Draft Regulations for Determination of Pipeline Tariff for Natural Gas Pipelines	**4 Determination of pipeline tariff** 4.1 Pipeline tariff refers to the unit rate of pipeline tariff 1 (denominated in Rupees per thousand standard cubic meter or Rs./ MSCM) for transportation of natural gas in a natural gas pipeline. 4.2 The pipeline tariff shall be determined as per the criteria at Annexure-A. **Annexure-1** **Procedure for Determination of Pipeline Tariff (as per Clause 4 of the Regulations for Determination of Network Tariff for Natural Gas Pipelines)** **1. The pipeline tariff of a Natural Gas Pipeline** shall be determined in accordance with the following principles: a) A reasonable rate of return on investments; b) Investments resulting in creation of an efficient & safe infrastructure; and c) Normative level of operating expenses required for efficient operation (including quality of service) of natural gas pipeline. **2. Financial Feasibility** The entity to which these Regulations apply is obligated to submit all financial details of the natural gas pipeline project that may be required by the Board in determination of the Pipeline Tariff. **3. Methodology for determination of pipeline tariff**	**Issue No. 1(b) (i)**	**Summary of suggestions** 1) Two part tariff base on capex and opex based on volumes transported with provision for incentives 2) Tariff to ensure fair return on capital investment and market volume fluctuations. Industry clarified that market fluctuations mean that due to market conditions, if capacity goes unutilized, during tariff revisions, Regulator should consider making up for loss of revenue in the future period. 3) A provision for suitably indexing the opex for escalation on three / five year basis, considering factors such as Govt. of India consumer index, & weighted average on increase in self consumed gas / fuel. 4) Transportation Tariff determined by Regulator should act as cap. Parties should be free to negotiate tariff below the cap. 5) Tariff could be reviewed periodically. However, first tariff review after period of loan payment in order to make the project bankable. 6) The market-determined rates may be a good principle subject to certain regulatory limits that could be derived taking stock of investments involved, operating costs , financing cost, etc. 7) Tariff has to be uniform to all shippers. In any case the tariff charged should not be higher than the approved tariff.

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on Transportation Rate for transportation	Clause 4 and Annexure – A of Draft Regulations for Determination of Pipeline Tariff for Natural Gas Pipelines	The tariff to be charged for a period shall be the calculated based on "Discounted Cash Flow" (DCF) methodology 2 considering reasonable rate of return determined as per clause 4 below. The parameters relevant to the applicability of the DCF methodology have been described in detail in clauses 4 to 6 below. **4. Reasonable Rate of Return** 4.1 The rate of return on capital employed shall not be higher than the average rate of long-term Government Securities issued by the RBI during the period of 12 months prior to submission of application + X%. The X% shall provide incentive to entities for making investment in the development of natural gas pipelines in the country. The X% shall normally be fixed for a period of at least one year taking inter alia into account the weighted average cost of capital (WACC) for such projects. However, considering the economic scenario in the country and the area / region to be served, the Board may review this X%, even before the completion of one year period. 4.2 The rate determined as per clause 4.1 shall be grossed up for the nominal applicable rate of income tax and the rate so derived shall be referred to as reasonable rate of return. This grossing-up shall be restricted to the first 10 years of the operations of the natural gas pipeline 3 and for the remaining period up to the economic life of the project, grossing-up at the actual	**Issue No. 1(b) (i)**	If discounts are given on tariff basis volume/distance/pressure, the same needs to be offered to other players with similar volumes/distance/pressure. 8) Tariff recovery to be for the actual volumes transported / capacity booked, which ever is higher. 9) Review of tariff may also be permitted by the regulator in case of change in the capacity requiring incremental investments, taxation, rates/policy, and Other circumstances in over all interest of the consumer. 9) Transportation rate to consider the prevailing tariffs applicable for various existing pipelines and accordingly benchmark against them. **Divergent issues** 10) The transportation charges should be distance related and there should be transparent mechanism for tariff determination. Some industry members disagreed to this and suggested that this be fixed for "cluster" than distance. **Inferences from international Regulatory Regimes** There is an increasing emphasis (largely deriving from experience in the United Kingdom) on the control of the level of tariffs for a specified period into the future combined with an incentive

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on Transportation Rate for transportation	Clause 4 and Annexure – A of Draft Regulations for Determination of Pipeline Tariff for Natural Gas Pipelines	income tax rate of the entity 4 shall be allowed. The grossing-up for the first 10 years of city or local natural gas distribution networks shall be allowed irrespective of any exemption or waiver of income tax allowed to the entity during this period, under the provisions of the Income Tax Act, 1961. **5. Return on Total Capital Employed** 5.1 The reasonable rate of return shall be used to determine the return on total capital employed in the project over its economic life and the authorized entity is free to leverage the project financing in any suitable manner. 5.2 The total capital employed shall be equal to the Gross Fixed Assets in the project less Depreciation (as per the rates allowed under Schedule VI to the Companies Act, 1956) plus Normative Working Capital (Equal to 30 days of operating cost excluding depreciation). 5.3 The Gross Fixed Assets shall be equal to the actual or that normatively assessed by the Board, whichever is lower, as required in the project over its economic life as per the following principles5 that may be considered as required to create an efficient and robust infrastructure: a. Capital costs in similar projects elsewhere in India benchmarked on a “liketolike” basis. b. Appropriateness of the pipeline design and the	**Issue No. 1(b) (i)**	mechanism to generate increased efficiency. This is commonly referred to as the “price cap” or “RPI-X” approach. Regulation, however, involves a tradeoff between eliminating excess profits earned by the monopolist while simultaneously providing incentives to efficiency. There is a spectrum of regulatory approaches that reflects a different balancing of this tradeoff. At the two extremes are rate-of-return regulation and permanent price caps. The Spectrum of Regulatory Approaches Rate-of-return regulation is the preferred approach of regulatory commissions in the United States. It aims to eliminate excess profits by equating revenue with actual costs. The regulated business is allowed to charge tariffs that will cover its operating costs and give it a reasonable rate of return on the value of the capital employed in the business. When tariffs move out of line with costs, the business (or customers, when costs fall) makes an application for a new set of tariffs. Rate-of-return regulation thus eliminates all prospects of excess profit. This has the advantage of keeping the cost of capital low, but it does not give the regulated business a strong incentive to reduce costs. Under certain conditions, rate-of-return regulation can also encourage unnecessary and inefficient investment, because the business is generally assured of being

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on Transportation Rate for transportation	Clause 4 and Annexure – A of Draft Regulations for Determination of Pipeline Tariff for Natural Gas Pipelines	operating philosophy with regards to maximum allowable operating pressure. c. Optimization of the equipments and facilities (CNG compressors, metering systems, SCADA, fire fighting, etc.) required based on an assessment of the appropriate available technology. d. Spur line (s) other than that required for a specific consumer. e. Design parameters & fuel consumption norms of the equipments, like, compressors. f. Assessment of the latest costs (excluding the financing cost) of major equipments in the pipeline system - pipelines, compressors, laying/ building costs, project management consultancy, pre-operative expenditure, etc. **6. Operating costs** Operating costs 6 required in the operation and maintenance of the natural gas pipeline over its economic life shall be allowed, on an actual basis or that assessed by the Board, whichever is lower, over the following heads: a. Consumables b. Utilities (Power, Fuel and Water) c. Salaries & Wages d. Repairs & Maintenance e. Insurance premia on assets (excluding the value of loss of profit) and on pipe line-fill quantity (in case the	**Issue No. 1(b) (i)**	able to recover the costs of that investment and earn a given rate of return. In an attempt to encourage efficiency, some regulatory commissions in the United States have now adopted the practice of prudential reviews. These reviews are designed to assess whether past investment was necessary. If the regulatory commission decides that such investment is not "used and useful," it will not be added to the asset base. Although this approach looks attractive in principle, it could result in a regulatory commission "micromanaging" the business by controlling individual investment and operating decisions. Permanent price caps were the starting point of the development of so-called incentive regulation. Permanent price caps involve a one-time setting of tariffs, beyond which all efficiency gains are retained by the business. They mimic the desirable incentives for cost minimization found in competitive markets, where prices are generally set without reference to the costs of individual producers, but by reference, in principle, to conditions in the market as a whole. The regulated business has a strong incentive to reduce costs, but the regulatory commission must define comprehensive output standards (to counteract

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on Transportation Rate for transportation	Clause 4 and Annexure – A of Draft Regulations for Determination of Pipeline Tariff for Natural Gas Pipelines	shipping of natural gas is also undertaken by the entity laying, building, operating or expanding the natural gas pipeline as a bundled operation) f. Administrative Overheads g. Depreciation (based on rates as per Schedule VI to the Companies Act, 1956) h. Miscellaneous income, if any, shall be netted from the operating cost 7 Volumes to be considered in determination of the unit pipeline tariff The Board shall assess the volumes of natural gas to be transported in the natural gas pipeline over its economic life and to be considered in the determination of the unit pipeline tariff on a normative basis 7 considering the bare minimum period required for achieving optimum capacity utilization. **8. Economic Life** 8.1 The economic life of the natural gas pipeline project consisting of pipeline (including spur lines) and other allied equipments (including compressor (s)) and facilities is normally expected to be for a period of 25 years. 8.2 During this period of the economic life, the entity may be required to carry out the following activity (ies) 8.2.1 further expansion in the capacity of the natural gas pipeline (through commissioning of additional compressors, looping of pipeline, etc.), 8.2.2 extension of natural gas pipeline,	**Issue No. 1(b) (i)**	incentives to economize by cutting the quality of service) and may have to tolerate permanently higher-than-expected profits. Permanent price cap regulation is not a credible or sustainable mechanism, since prices will sooner or later diverge from costs (in one direction or another). Demands for renegotiation of the cap—either from customers or the regulated businesses—will be impossible to resist. Between these extremes is a range of regulatory approaches that combine incentives for efficiency with some form of profit control. They are all profit control regimes designed to reset prices periodically so that they are equal to costs. E.g. Banded rate of returns, Sliding scale regulation, price caps with periodic reviews, permanent price caps and total revenue caps etc. a) Profit Controls— Banded Rates of Return: Typically, profit-sharing rules are invoked if a business' rate of return or its costs fall outside a set of specified limits, often referred to as a "dead band." Banded rate-of-return regulation is an improvement over straight rate-of-return regulation, since it provides businesses with some incentive to cut costs. However, although the problem is not as severe as in pure rate-of-return regulation, there is still an incentive to overinvest.

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on Transportation Rate for transportation	Clause 4 and Annexure – A of Draft Regulations for Determination of Pipeline Tariff for Natural Gas Pipelines	8.2.3 provide inter-connection to other natural gas pipelines and/ or 8.2.4 lay, build and operate additional spur-lines, including expansion beyond that considered in the grant of authorization under the Regulations Authorizing Entities for Development of Natural Gas Pipeline for meeting entity's own incremental requirements or other entities incremental requirements. The entity may submit a detailed techno-economic feasibility for an assessment by the Board and the decision of the Board in this regard may be final. The Board may also, in consumers' interest, direct the entity to commission aforementioned activity (ies). 8.3 The entity shall be obligated to carry out the replacements and upgradation of assets & facilities as and when necessary in order to maintain the natural gas pipeline's system integrity at all times including keeping it abreast of technical advancements. 8.4 Commencement of the economic life of the natural gas pipeline project 8.4.1 In case an entity proposes to lay, build or expand a natural gas pipeline after the appointed day- The date of grant of authorization to the entity by the Board as per the Regulations Authorizing Entities for Development of Natural Gas Pipelines. 8.4.2 In case an entity is laying, building or expanding natural gas pipeline before the appointed day-	**Issue No. 1(b) (i)**	b) Profit controls— Sliding-Scale Regulation: Sliding-scale regulation works by setting limits on the prices charged by the business, above which a mechanism is triggered that shares out with customers, in a specified proportion, the business' cost savings. The way in which the savings are measured depends on the particular scheme: examples are dividends ("dividend sharing") and profits ("price-related profits levy"). The key to the schemes is that there is some sharing of profits between the business and the customer, but that the business is free to determine the level of sharing by its choice of price behavior. Dividend Sharing: Under dividend sharing, the regulatory commission allows a company's dividends to rise above a predetermined level as long as prices remain below a predetermined level. If prices rise above that level, the company is required to reduce its dividends. Companies can therefore affect their dividends through their choice of prices. The scheme effectively shares out between customers and shareholders the benefits (losses) from a reduction (increase) in costs. The regulatory commission's task is to determine the standard price, the standard dividend, and the rate of dividend share that is invoked at different price levels.

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on Transportation Rate for transportation	Clause 4 and Annexure – A of Draft Regulations for Determination of Pipeline Tariff for Natural Gas Pipelines	The entity should have either an authorization from the Central Government before the appointed day or an authorization from the Board as per the Regulations Authorizing Entities for Development of Natural Gas Pipelines. For such an entity, the economic life of the natural gas pipeline project shall commence from the start-up date of the commencement of physical activities of laying, building or expanding the natural gas pipeline. 8.5 At the end of the economic life of the natural gas pipeline project, the issue of allowing further extension of the economic life of the project under the same authorization may be considered by the Board, and on such terms and conditions, as it may deem fit at that point in time. The broad principles which the Board may consider in this regard are given below- 8.5.1 Adherence by the entity to the technical standards, specifications and safety standards of the Board for the natural gas pipeline 8.5.2 Determination of pipeline tariff for the natural gas pipeline on a normative basis, as applicable to a single bid for a natural gas pipeline and also subject to an assessment by the Board of the revised DFR of the entity for modernization or expansion of the natural gas pipeline. 8.5.3 Submission of Performance bond as prescribed under clause 4.3 of the Regulations for Authorizing	**Issue No. 1(b) (i)**	• Dividend sharing: offers incentives for businesses to reduce prices by reducing costs, and does not suffer from the inefficient allocation of resources associated with rate-of-return regulation. It requires, however, that all additional equity capital be raised through the auctioning of new shares to prevent dividends to shareholders effectively being made through discounts on the price of new shares. This restricts the company's options for financing. The main problem for the regulatory commission is guarding against businesses trying to disguise dividend payments to shareholders by buying back shares or by making distributions to shareholders in other ways • Price-Related Profits Levy: Under a price-related profits levy, the regulatory commission sets a benchmark level of prices. If this benchmark price is exceeded, a proportion of the excess profits earned by the company is returned to the customer, for example, as an immediate rebate or as a tariff reduction for the following year. The regulatory commission's task is to set the benchmark price, the standard profit, and the rate of profit sharing at each price level. Price-related profit levies provide strong incentives to efficiency and encourage regulated businesses to

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on Transportation Rate for transportation	Clause 4 and Annexure – A of Draft Regulations for Determination of Pipeline Tariff for Natural Gas Pipelines	Entities for the Development of Natural Gas Pipelines. 8.5.4 Meeting the service obligations as prescribed under the Regulations for Authorizing Entities for the Development of Natural Gas Pipelines. **9. Tariff Review** 9.1 A Tariff review shall be carried out for each "Review Period". 9.2 The tariff review period shall normally be a period of three years (commencing from 1st of April and ending on 31st March of next year) from the end of the third year of the economic life of the project. 9.3 The actual performance with respect to the capital & operating costs during the previous review period shall be monitored against the parameters identified under clauses 5 to 6 and the variations shall be adjusted in the tariff calculations. 9.4 The adjustment for volume to be used as divisor in the determination of the unit pipeline tariff in the review period shall be higher of- (i) actual volumes achieved during the preceding period, or (ii) volume divisor considered in the preceding period, or (iii) volume quoted in the bid (or the detailed feasibility report (DFR) considered in the grant of authorization to the entity) for the review period.	**Issue No. 1(b) (i)**	select an efficient combination of inputs. Businesses may, however, manipulate profits by changing accounting rules on non-cash items (for example, depreciation and bad debts). This puts a considerable burden on regulatory commission accounting procedures. Price Caps with Periodic Reviews The approach to regulatory mechanisms adopted to date for the gas and electricity sectors in Argentina, Australia, Spain, and the United Kingdom is that of price caps with periodic reviews— or so-called CPI-X regulation (where CPI is the consumer price index). Price capping with periodic reviews is a form of incentive regulation with profit sharing. Under this form of regulation, the regulated business is required to keep the increase in its prices to less than (or equal to) the increase in a specified general price index (for example, the CPI), less x percent. If x is positive, this means that prices will fall by x percent in real terms. The level of the cap on prices reflects the anticipated levels of future operating costs and investment that might be incurred by the business and are set to provide a reasonable rate of return on assets, consistent with efficient performance. The price cap is therefore set at a cost-reflective level. The distinguishing feature of this form of regulation

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on Transportation Rate for transportation	Clause 4 and Annexure – A of Draft Regulations for Determination of Pipeline Tariff for Natural Gas Pipelines	9.5 The effect of the changes required for a review period referred to in clause 9.3 and 9.4 above shall be made in the tariff calculations on a prospective basis. 9.6 However, the Board either may, on its own or on the entity's request, carry out a review in between two tariff review periods, considering: (i) the requirements of the activity (ies) stated under clause 8.2 above to the extent not envisaged earlier and necessitating incremental investments. (ii) applicable Nominal Income Tax Rate during the initial 10 years of the commissioning of the project. (iii) sudden change in any parameter used in determination of the pipeline tariff. 10 Interconnection of Natural Gas Pipeline 10.1 The interconnection of a natural gas pipeline with other pipeline for transportation of natural gas shall be as per the provisions for Regulations for Access Code for Natural Gas Pipelines. 10.2 The capital and operating costs in the inter-connection shall be borne by the entity seeking inter-connection for the other pipeline for transportation of natural gas. In case the other pipeline is authorized as natural gas pipeline under the Regulations for Authorizing Entities for Development of Natural Gas Pipelines, such costs shall be considered in the determination of the pipeline tariff as per the provisions under these Regulations for Determination of Pipeline	**Issue No. 1(b) (i)**	is that the price cap applies for a predetermined period. Hence, the regulated business keeps all the profits associated with unanticipated cost reductions in the period between regulatory reviews. Customers, however, benefit in the subsequent regulatory period when the regulatory commission reduces prices to capture those cost savings. The shorter the interval between reviews, the more there is a tendency for price cap regulation to approximate rate-of-return regulation, with frequent assessments of the asset base and the appropriate rate of return on investment. The CPI-X mechanism provides incentives to efficiency on the part of the regulated business, while providing an assurance to customers that the benefits of efficiency gains will be reflected in lower prices in the longer term. This combination of qualities may explain why CPI-X regulation has become popular with governments and regulatory commissions, as well as with regulated businesses and their customers. This forward-looking control of the level of transmission tariffs is combined with the exercise of a measure of discretion by the transmission business in determining the structure of tariffs. The regulatory commission, however, continues to

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Regulations on Transportation Rate for transportation	Clause 4 and Annexure – A of Draft Regulations for Determination of Pipeline Tariff for Natural Gas Pipelines	Tariff for Natural Gas Pipelines. 10.3 In the case the inter-connectivity involves putting-up of new compressor (s) or upgradation of the existing compressor (s) and the same is attributable to the entity seeking inter-connectivity for its natural gas pipeline, that entity shall fully bear the full inter-connection charge.	**Issue No. 1(b) (i)**	monitor the structure of tariffs and is empowered to issue direction, where necessary. **USA & Thailand** Rate of Return Control or "Cost-Plus" model. **UK & Australia** Price Caps or "Market-Minus" model: Generally use CPI-X factor, where X factor often relates to expected efficiency gains.
Criteria and Procedure for selection by Regulator of entity for laying and operating Transportation pipeline	Clause 4.1 & 4.2 of Draft Regulation for Authorising Entities for Development of Natural Gas Pipelines	**4.1 Initiation of Proposal** 4.1.1 Expression of Interest (EOI) route An entity desirous of laying, building, operating or expanding a natural gas pipeline shall submit an Expression of Intent (EOI) to the Board in the format at Annexure-A. 4.1.2 Suo-Motu by Board The Board may also suo-motu invite EOI from entities interested in laying, building, operating or expanding natural gas pipeline along a route or in a geographical area. **4.2 Criteria for selection of entity** 4.2.1 For Expression of Interest (EOI) route 4.2.1.1 The Board shall carry out a preliminary assessment of the EOI with respect to the following a) natural gas availability position	**Issue No. 2(a)**	**Summary of suggestions** Summary of suggestions 1) Procedure : All authorization to put up a transmission/city gas pipeline should be based on Competitive bidding. 2) Optimal cost advantage to the consumer (transportation rates) 3) Market participation and reputation in other hydrocarbon sectors 4) Minimum net worth 5) Authorization should be based on application by entity having ◎ Gas source tie-up and ◎ Downstream market tie-up 6) Owner of gas should be given first preference if everything else is same 7) If at any point of time existing pipeline is

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Criteria and Procedure for selection by Regulator of entity for laying and operating Transportatio n pipeline	Clause 4.1 & 4.2 of Draft Regulation for Authorising Entities for Development of Natural Gas Pipelines	b) spare capacity available in the existing natural gas pipelines already serving the area, region or route along the proposed natural gas pipeline route (including techno-economic feasibility of expansion of the capacity and/ or extension of an existing natural gas pipelines) 1, c) possible connectivity with other natural gas pipelines, and d) Any other relevant issue. 4.2.1.2 The Board shall, within 15 days of the receipt of EOI and based on its preliminary assessment, either issue an open advertisement in at least one national and one vernacular daily newspaper (including webhosting) notifying receipt of an EOI and commencement of "Open Season" period of 30 days or reject the proposal. In the latter case, the Board shall inform the entity of the decision immediately along with the reasons for rejecting the proposal. 4.2.1.3 During the period of "Open Season", any person, entity, body, organization, etc. may submit, in writing, to the Board, its views, suggestions and comments, if any on the EOI.	**Issue No. 2(a)**	saturated and there is still demand for capacity, existing operator should not be automatically authorized to duplicate the pipeline. Instead, it should be made open to all interested entities 8) Transporters should not be end users of the pipeline. The pipeline should constitute a separate business, may be integrated with other generic logistic business. 9) Build pipelines to aggregate demand arrived at pursuant to an open season 10) Provide for Fair expansion opportunities 11) Regulators should consider anticipated future exploration success as the driver of pipeline expansion as opposed to having expansion built-in: a "slack factor" for initial capacity will only dampen initial demand. **Divergent issues** 12) Such regulation should not apply to captive use transportation lines with 25% extra capacity being offered on commercial consideration. Some industry members considered this as a way of circumventing regulations and hence did not agree to this point. **Inferences from International Regulatory Regimes** The authorization process contains economic and

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Criteria and Procedure for selection by Regulator of entity for laying and operating Transportatio n Pipeline	Clause 4.1 & 4.2 of Draft Regulation for Authorising Entities for Development of Natural Gas Pipelines	4.2.1.4 The Board may, based on the views and suggestions received, firm-up the indicative pipeline route, length and area/ region meant to be serviced by the natural gas pipeline. 4.2.1.5 The Board may, within a period of 15 days of the end of the "open season" period, notify through an open advertisement in at least one national and one vernacular daily newspaper (including webhosting), the proposal for the development of natural gas pipeline and invite bids for the same. 4.2.1.6 Minimum Eligibility Criteria The Board shall scrutinize the bids received in response to the advertisement in respect of only those entities, which fulfill the following minimum eligibility criteria: 4.2.1.6.1 Entity should be technically capable of laying and building natural gas pipeline as per the following qualifying criteria a) Entity has on its own in the past laid and built either a hydrocarbon pipeline of a length not less than 300 kilometers; or b) Entity has a joint venture with another entity (with at least 11% equity holding by that entity) which in the past has laid and built a hydrocarbon pipeline of a length not less than 300 kilometers; or	**Issue No. 2(a)**	non-economic components. Information requirements, technical, health and safety, and environmental standards comprise the non-economic components of the process. The economic component of the process allows for the exercise of some regulatory discretion. In general, a regulator will seek to prevent uneconomic duplication of existing pipelines and to ensure that economies of scale are exploited. The regulator will need an independent assessment of the viability of the project and a commitment to establish the procedures described in the previous section. In a developing market context it is reasonable to expect that a regulator will seek to avoid unnecessary duplication of pipelines and to encourage the construction of interconnects between previously separate pipelines as means of fostering increased competition in supply.

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Criteria and Procedure for selection by Regulator of entity for laying and operating Transportation Pipeline	Clause 4.1 & 4.2 of Draft Regulation for Authorising Entities for Development of Natural Gas Pipelines	c) Entity intends to lay and build proposed natural gas pipeline on Lump Sum Turnkey/ Project Management Consultancy basis through one or more technically competent firms, which in the past have laid and built a hydrocarbon pipeline of a length not less than 300 kilometers. The entity may also enclose a list of such firms along with aforesaid proof of their technical competence, along with its bid proposal. The entity will have the freedom to choose from amongst such firms at the time of execution of the project. The Board reserves the right to cross verify the credential of the party (ies) included in the list and seek clarifications, if any; or d) Entity has an adequate number of technically qualified personnel with experience in construction, pre-commissioning & commissioning of hydrocarbon pipelines and also has a credible plan to independently undertake and execute the natural gas pipeline project on a standalone basis. 4.2.1.6.2 Entity should be technically capable of operating and maintaining natural gas pipeline as per the following qualifying criteria a) Entity on its own has an experience of at least one year in operations and maintenance of a natural gas pipeline of a length not less than 300 kilometers; or b) Entity has a Joint Venture with another entity (with at least 11% holding of that entity) which has an	**Issue No. 2(a)**	

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Criteria and Procedure for selection by Regulator of entity for laying and operating Transportation Pipeline	Clause 4.1 & 4.2 of Draft Regulation for Authorising Entities for Development of Natural Gas Pipelines	experience of at least one year in operations and maintenance of a natural gas pipeline; or c) Entity intends to operate and maintain the proposed natural gas pipeline through an appropriate firm technical assistance agreement for a period of at least one year, with another party having experience of at least one year in operations and maintenance of a natural gas pipeline; or d) Entity has an adequate number of technically qualified personnel with experience in commissioning and operation & maintenance (O&M) of natural gas pipeline (s) and also has a credible plan to independently undertake the O&M activities of a natural gas pipeline on a standalone basis. Note: i) In case of c) above, the entity shall submit in its application-cum-bid, a list of proposed parties with whom it desires to have a firm technical assistance agreement, along with the proof of relevant and credible experience of such parties. The list may be exhaustive and the entity may choose party (ies) from amongst the parties in this list for operation and maintenance of the proposed natural gas pipeline. ii) The entity should also submit a credible plan along with the bid to develop an in-house O&M team for natural gas pipeline.	**Issue No. 2(a)**	

<table>
<tr><th>Issue</th><th>Reference in PNGRB Regulation</th><th>PNGRB Regulation Clause</th><th>Reference as per PetroFed Report</th><th>Industry suggestion</th></tr>
<tr>
<td>Criteria and Procedure for selection by Regulator of entity for laying and operating Transportatio n Pipeline</td>
<td>Clause 4.1 & 4.2 of Draft Regulation for Authorising Entities for Development of Natural Gas Pipelines</td>
<td>iii) The Board reserves the right to cross verify the credential of the party (ies) included in the list and seek clarifications, if any.
4.2.1.6.3 The applicant has the organizational and technical capabilities and undertakes to abide by such technical standards and specifications including safety standards, as may be specified by the Board from time to time for development of natural gas pipelines.
4.2.1.6.4 The applicant has adequate financial strength to execute the proposed natural gas pipeline project and operate & maintain the same besides having a combined net worth (equity share capital and free reserves of the applicant and its co-promoter (s)) as per the minimum amount as per the categories indicated below-
<table>
<tr><th>Range of estimated pipeline length (Kilometers) (including spur lines)</th><th>Net worth requirement (Rs. in crore per kilometer of estimated pipeline length)</th></tr>
<tr><td>1,751 and above</td><td>0.90</td></tr>
<tr><td>1,001 -1,750</td><td>0.85</td></tr>
<tr><td>251-1,000</td><td>0.75</td></tr>
<tr><td>Up to 250</td><td>0.50</td></tr>
</table>
4.2.1.6.5 The applicant is a body corporate or else undertakes to become a company registered under the Companies Act, 1956 on being declared a successful bidder, prior to grant of authorization.
4.2.1.6.6 The entity should have a credible plan for</td>
<td>Issue No. 2(a)</td>
<td></td>
</tr>
</table>

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Criteria and Procedure for selection by Regulator of entity for laying and operating Transportatio n Pipeline	Clause 4.1 & 4.2 of Draft Regulation for Authorising Entities for Development of Natural Gas Pipelines	utilization of the capacity in the proposed natural gas pipeline as per the basis indicated below a) The entity shall submit along with the application, a copy of the Memorandum of Understanding (MOU) or Heads of Agreement (HOA) with the entity with whom it intends to enter into an agreement for booking of capacity in the natural gas pipeline (hereinafter referred to as other entity). The other entity should i) either be the owner of natural gas or have a firm natural gas supply arrangement with a supply source, and ii) must be willing to use the pipeline capacity at the time of commissioning of the project. provided the other entity may also, re-assign directly or indirectly through a trading mechanism in a recognized national commodity exchange, the capacity booked to any other entity fulfilling subcriteria at i) & ii) above. b) Similarly, as regards the own capacity requirements of the entity, the entity shall submit a copy of the Memorandum of Understanding (MOU) or Heads of Agreement (HOA) with the entity (hereinafter referred to as other entity) with whom it intends to enter into an agreement for supply of natural gas. The other entity should i) either be the owner of natural gas or have a firm natural gas supply arrangement with a supply	**Issue No. 2(a)**	

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Criteria and Procedure for selection by Regulator of entity for laying and operating Transportatio n Pipeline	Clause 4.1 & 4.2 of Draft Regulation for Authorising Entities for Development of Natural Gas Pipelines	source, and ii) must be willing to supply the same to the entity at the time of commissioning of the project as per the schedule mutually agreed. gas pipeline (hereinafter referred to as other entity). The other entity should i) either be the owner of natural gas or have a firm natural gas supply arrangement with a supply source, and ii) must be willing to use the pipeline capacity at the time of commissioning of the project. provided the other entity may also, re-assign directly or indirectly through a trading mechanism in a recognized national commodity exchange, the capacity booked to any other entity fulfilling subcriteria at i) & ii) above. b) Similarly, as regards the own capacity requirements of the entity, the entity shall submit a copy of the Memorandum of Understanding (MOU) or Heads of Agreement (HOA) with the entity (hereinafter referred to as other entity) with whom it intends to enter into an agreement for supply of natural gas. The other entity should i) either be the owner of natural gas or have a firm natural gas supply arrangement with a supply source, and ii) must be willing to supply the same to the entity at the	**Issue No. 2(a)**	

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Criteria and Procedure for selection by Regulator of entity for laying and operating Transportatio n Pipeline	Clause 4.1 & 4.2 of Draft Regulation for Authorising Entities for Development of Natural Gas Pipelines	time of commissioning of the project as per the schedule mutually agreed. The Board reserves the right to directly approach the other entity under a) & b) above to ascertain the credibility of the MOU/ HOA and also assess the ability and willingness of the other entity to book the capacity in the natural gas pipeline or supply natural gas to the applicant entity, as the case may be in case the latter were to get authorization for natural gas pipeline project. 4.2.1.6.7 The applicant entity furnishes a bid bond of an amount determined as per the length of the proposed natural gas pipeline as per the applicable category indicated below- **Pipeline Length (Kilometers) (including spur lines)** — **Amount of Bid Bond (Rs. in crore)** 2,501 & above — 25 1,751-2500 — 20 1,001-1750 — 15 251-1,000 — 8 Up to 250 — 2 This bid bond is prescribed with a view to ensure that only serious and committed bidders participate in the financial bidding. The bid bond will be encashed if a bidder wins the bid and walks out. The Bid bond in respect of the unsuccessful bidders shall be released	**Issue No. 2(a)**	

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Criteria and Procedure for selection by Regulator of entity for laying and operating Transportatio n Pipeline	Clause 4.1 & 4.2 of Draft Regulation for Authorising Entities for Development of Natural Gas Pipelines	immediately while that of the successful bidder retained till the prescribed performance bid is furnished at the time of authorization. 4.2.1.6.8 The entity undertakes to build extra capacity in the natural gas pipeline with the following stipulation: 4.2.1.6.8.1 The capacity of natural gas pipeline shall be an aggregate of the following: a) Capacity requirements of the entity; b) Firmed-up contracted volumes; and c) At least 33% 2 of (a) and (b). 4.2.1.6.8.2 The capacity mentioned at clause 4.2.1.6.8.1 c) above shall be available for use as common carrier by any third party on open access and nondiscriminatory basis. 4.2.1.6.9 In case the bidder does not fulfill the requirements of any criteria under clauses 4.2.1.6.1 to 4.2.1.6.8 above, the application shall be summarily rejected and a communication in this regard shall be sent to the applicant. In such a case, the financial bid shall not be opened for that bidder. 4.2.1.7 Application-cum-Bid Format The application-cum-bid, to be submitted in two separate, properly earmarked and sealed envelopes, shall be in two parts a) Part I (Technical bid) covering general particulars of the applicant and technical details	**Issue No. 2(a)**	

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Criteria and Procedure for selection by Regulator of entity for laying and operating Transportation Pipeline	Clause 4.1 & 4.2 of Draft Regulation for Authorising Entities for Development of Natural Gas Pipelines	of the project (including minimum eligibility criteria) under clause 4.2.1.6. b) Part II (Financial bid) covering the financial details under clause 4.2.3. 4.2.1.8 A time period of 45 days shall be allowed for submission of the application-cum-bid for grant of authorization for laying, building, operating or expanding the natural gas pipeline. Application-cum-bid received after the notified date shall not be considered. 4.2.1.9 The Board may, if required, extend the date of submission of bids through an advertisement in the same manner as under clause 4.2.1.5 above, including a situation where only a single application-cum-bid is received in response to the original advertisement. 4.2.2 Invitation by Board for laying, building, operating or expansion of natural gas pipeline The Board may, suo-motu, through an open advertisement in at least one national and one vernacular daily newspapers (including hosting on its website) invite application-cum-bids from entities interested in laying, building, operating or expansion of natural gas pipeline along a specified route and the provisions in clauses 4.2.1 (except that the details of the	**Issue No. 2(a)**	

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Criteria and Procedure for selection by Regulator of entity for laying and operating Transportation Pipeline	Clause 4.1 & 4.2 of Draft Regulation for Authorising Entities for Development of Natural Gas Pipelines	EOI shall be replaced by Project details as perceived by the Board) shall apply. 4.2.3 Bidding Criteria 4.2.3.1 The Board, while considering a proposal for authorization, shall tabulate and compare all financial bids meeting the minimum eligibility criteria by applying suitable weights against the bidding criteria given below: 4.2.3.1.1 Pipeline Tariff Lowness of the present value of the proposed pipeline tariff (bid in Rs./ Standard Cubic Meter (SCM) and on a postalized basis 3, i.e., uniform at all delivery or off take points). The bidders shall, in their bids, indicate natural gas pipeline tariffs on an annual basis over the entire economic life of the project (25 years). This shall have a weightage of 70%. 4.2.3.1.2 Pipeline Throughput Highness of the present value of the natural gas volumes (in Million Standard Cubic Meters, i.e., MMSCM) proposed to be transmitted in the natural gas pipeline. The bidders shall, in their bids, indicate natural gas volumes build-up on an annual basis over the entire economic life of the project (25 years). This shall have a weightage of 30%. Note:	**Issue No. 2(a)**	

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Criteria and Procedure for selection by Regulator of entity for laying and operating Transportation Pipeline	Clause 4.1 & 4.2 of Draft Regulation for Authorising Entities for Development of Natural Gas Pipelines	The volume of natural gas considered for arriving at the tariff bid for each year under clause 4.2.3.1.1 and that considered as pipeline throughput for each year under clause 4.2.3.1.2 should be the same. 4.2.3.2 The present value in the criteria at clauses 4.2.3.1.1 and 4.2.3.1.2 above shall be calculated by the entity using a discount rate not exceeding the Reasonable Rate of Return (RoR). The RoR shall be fixed as equal to the average rate of long-term Government securities issued by the RBI during the period of 12 months prior to the last date for obtaining the application-cum-bid documents + X%.4 4.2.3.3 Entity with the highest composite score considering the criteria under clauses 4.2.3.1.1 to 4.2.3.1.2 above shall be declared as successful in the bid subject to the provision under clause 4.2.3.4 below. 4.2.3.4 In case of a single bid, the Board may scrutinize the Detailed Feasibility Report (DFR) of the project as assessed by the Financial Institution or a Bank and assess the reasonability of the proposed plan to lay, build, operate or expand natural gas pipeline. In case the same is found to be sub-optimal, the Board reserves the right to reject the bid.	**Issue No. 2(a)**	

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Suggestions on separation of activity of gas marketing and transportation to help GoI develop Code of Conduct	Clause no. 4.9.3 and 4.9.7 of Draft Regulations for Authorizing Entities for the Development of Natural Gas Pipelines	4.9.3 The authorized entity shall maintain separate books of accounts (including detailed activity-based costing records) to segregate direct, indirect and common costs (along with the basis of allocation) and the revenues earned in respect of the activities of- 4.9.3.1 purchase of natural gas (if applicable) 4.9.3.2 transmission of natural gas in the natural gas pipeline, and 4.9.3.3 marketing/ distribution of natural gas (if applicable). The costs and revenues associated with activities other than those stated in clauses 4.9.3.1 to 4.9.3.3 above should be reflected separately in the books of accounts of the entity. 4.9.7 The entity shall be obligated to take all steps in adhering to the requirements of unbundling of the activity of transmission from the activity of distribution/ marketing of natural gas in the natural gas pipeline, as and when so decided by the Board.	**Issue No. 5**	**Divergent issues** *Industry views were divergent as separation of activity of gas marketing & transportation. They are as follows-* 1) One organization can participate in both the activities but it has to be ensured that these activities do not lead to monopolizing and taking unfair advantage. Accordingly the Code of conduct can be developed to maintain the distinction and segregation of two activities. 2) Transportation activities should be separate from gas distribution activities 3) Purpose of unbundling is to ensure that pipeline ownership does not provide any competitive advantage to any gas seller. However,, such separation may await development of multi-supplier and pipeline developer and therefore, over the period as gas market matures, ownership between the transmission and downstream activity should be separated 4) The infrastructure should be distributor independent. 5) The network should be transparent to the customers. 6) The company should not be a consumer of gas in the area where it is carrying out transportation or marketing activity 7) The Gas marketing should be left to the

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Suggestions on separation of activity of gas marketing and transportation to help GoI develop Code of Conduct	Clause no. 4.9.3 and 4.9.7 of Draft Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 5**	individual NG producers / LNG suppliers to identify customers and sell their product to customers. 8) Ensure that the code of conduct stops operators of transmission facilities from disclosing information to affiliates engaged in production in order that the affiliate would gain an undue advantage. 9) Consider using the FERC's Affiliate Code of Conduct as a model or at a minimum, have provisions that result in comparable controls. 10) A well-developed affiliate code of conduct needs to meet certain requirements: A prohibition against a utility giving a preference for transportation services to its affiliate or the affiliate's customers over non-affiliates A requirement that requests for transportation services to be processed in the same manner and in a similar time period for all requests A prohibition against a utility disclosing information to an affiliate unless it is disclosed to all non-affiliates at the same time A requirement that the operating employees responsible for transportation services for the utility be functionally independent from the portion responsible for supply and from any marketing affiliate

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Suggestions on separation of activity of gas marketing and transportation to help GoI develop Code of Conduct	Clause no. 4.9.3 and 4.9.7 of Draft Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 5**	Till the time un-bundling takes place Board to carry out periodic audits to ensure that an entity has not taken any undue advantage while being a pipeline operator/transporter as well as a marketer. 11) Importer/ Producer and the Marketing company is one and the same entity. The pipeline transport organization is a separate independent setup only working as infrastructure service provider. The transport company should not distinguish between a large volume user versus small volume player Provide the facility on first in first out basis. No discretion on bulk volume discounts, that is, should have predetermined / predefined volume discounts. Maximum advance booking of transport space be for a month, Pipeline space, being a perishable commodity, booking only with predefined advance payment, that is, %age of expected transport cost. The advance be forfeited in case the requester fails to honor the commitment / schedule A formula can be devised as to up to how many days in advance, in the likely situation where in the said requester may not be in a position to honor his already committed schedule, the requester can request for waiver of the penalty amount ,in part or

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Suggestions on separation of activity of gas marketing and transportation to help GoI develop Code of Conduct	Clause no. 4.9.3 and 4.9.7 of Draft Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 5**	in full. Swapping of commitment should not be permitted, excepting incase where in immediately preceding or succeeding operators agree for a swap **Inferences from International Regulatory Regimes** **The Code of Conduct** is the document that describes the procedures put in place by a transmission business to implement and enforce the separation of its transmission and supply activities. Each transmission entity that is subject to regulation will be required to prepare such a code. It is envisaged that these codes will be prepared as part of a process of consultation between the regulatory commission and the regulated transmission entity with provision for the participation of other interested parties (for example, producers, eligible consumers, and UGDs) in the consultation process. A typical Code of Conduct document will include the following elements: • An Explanatory Note: This will set out the requirement for the document with reference to the specific transmission entity. • Definitions: This will set out precise descriptions of the relevant parties and activities that will be referred to in the code. • Objectives and Principles: This section includes

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Suggestions on separation of activity of gas marketing and transportation to help GoI develop Code of Conduct	Clause no. 4.9.3 and 4.9.7 of Draft Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 5**	the transmission entity's commitment to provide nondiscriminatory access to all eligible and suitably qualified applicants. A key feature of this commitment will comprise the principles governing the management of information flows and the access to information. • Management of information flows and the access to information: The transmission entity will receive commercially confidential information from applicants for a transmission-only service. The transmission activity has an incentive to pass this information on to its affiliated supply activity. For example, it will find out who, among its customers currently receiving a bundled service, is planning to contract for a gas supply from another supplier. This will allow its affiliated supply activity to target these customers and entice them to remain as customers. This would provide the affiliated supply activity with an unfair advantage relative to other suppliers. **Implementation of Code of Conduct:** This section addresses the implementation of the Code of Conduct and includes the following: The obligations of the transmission business. These obligations include the reorganization of procedures, policies, departmental structures, and job responsibilities to ensure compliance with the

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Suggestions on separation of activity of gas marketing and transportation to help GoI develop Code of Conduct	Clause no. 4.9.3 and 4.9.7 of Draft Regulations for Authorizing Entities for the Development of Natural Gas Pipelines		**Issue No. 5**	Code of Conduct. This section also includes commitments to establish employee communications and training programs to ensure that employees are informed and resourced to comply. A Complaints Procedure will also be established. The nature of the functional separation. This subsection deals with the following: • Sharing of facilities and resources. • Keeping of books and records. • Prohibitions on engaging in restricted activities. • Provision of business support services. **The conduct of business:** This subsection addresses the application of tariffs, charges, and discounts and the notification that will be required to ensure nondiscriminatory service. **Procedure for dealing with system emergencies:** This subsection addresses the procedures for dealing with responses to system emergencies that violated the Code of Conduct. **The maintenance of accounts and records:** This addresses accounting Code and statutory requirements. **The role of the Compliance Officer:** This subsection presents the powers, duties, and responsibilities of the Compliance Officer who is responsible for monitoring and enforcing

<table>
<tr><th>Issue</th><th>Reference in PNGRB Regulation</th><th>PNGRB Regulation Clause</th><th>Reference as per PetroFed Report</th><th>Industry suggestion</th></tr>
<tr><td>Suggestions on separation of activity of gas marketing and transportation to help GoI develop Code of Conduct</td><td>Clause no. 4.9.3 and 4.9.7 of Draft Regulations for Authorizing Entities for the Development of Natural Gas Pipelines</td><td></td><td>Issue No. 5</td><td>compliance with the Code of Operation, and outlines provisions for external audit.

International Experiences
<table>
<tr><th></th><th colspan="2">Unbundling Method</th><th colspan="2">Published Accounts</th><th colspan="2">Separate Corporate Identity</th><th colspan="2">Separate HQ Location</th></tr>
<tr><th>Countries</th><th>TSO</th><th>DSO</th><th>TSO</th><th>DSO</th><th>TSO</th><th>DSO</th><th>TSO</th><th>DSO</th></tr>
<tr><td>Bangladesh</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td></tr>
<tr><td>China</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td></tr>
<tr><td>Hongkong</td><td>Financial</td><td>Financial</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td></tr>
<tr><td>Malaysia</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td></tr>
<tr><td>Singapore</td><td>Own</td><td>Own</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Australia (Victoria)</td><td>Own</td><td>Own</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Belgium</td><td>Legal</td><td>Legal</td><td>Y</td><td>N</td><td>Y</td><td>Y</td><td>N</td><td>N</td></tr>
<tr><td>Germany</td><td>Financial</td><td>Financial</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td></tr>
<tr><td>France</td><td>Financial</td><td>Financial</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td></tr>
<tr><td>Itlay</td><td>Legal</td><td>Legal</td><td>Y</td><td>Y</td><td>Y</td><td>N</td><td>Y</td><td>N</td></tr>
<tr><td>Sweden</td><td>Financial</td><td>Financial</td><td>Y</td><td>Y</td><td>N</td><td>N</td><td>N</td><td>N</td></tr>
<tr><td>UK</td><td>Own</td><td>Own</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td colspan="9">N- No, Y - Yes, TSO - Transmission System Operator, DSO - Distribution System Operator</td></tr>
<tr><td colspan="9">Source: The World Bank - Oil & Gas sector review workshop, 2003</td></tr>
</table></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**	As per Draft Affiliate Code of Conduct released by PNGRB on November 29, 2007.	**Issue no. 5**	**Sample Affiliate Code of Conduct** **Definitions** The emboldened terms in this Code of Conduct Implementation Procedures have the following meanings: **Affiliate** means a related undertaking of [Transmission Entity X]. **[Transmission Entity X]** means the business unit of Transmission Company Y that is the Transportation provider on Transmission System Z. **Transmission System User** means a person with whom the Transportation Enterprise carries out business [or may carry out business] in its role of providing a transmission or distribution function. A Transmission System User is a person, who in dealing with [Transmission Enterprise X] in regard to those functions, might provide commercially sensitive information. A Transmission System User may also be described as a Shipper. **Business Support Services (BSS)** means those Business Support Services, both technical and administrative, including, but not limited to, finance, accounting, human resources, and information systems whether provided by [Transmission Enterprise X] employees or third parties to one or more Business Units of

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	[Transmission Enterprise X]/[to all business units], such as payroll, insurance, financial reporting, corporate accounting, corporate security, human resources (compensation, benefits, employment policies), employee records, pension management, and telecommunications and information systems. **Business Units** means those divisions of [Transmission Company Y] that comprise Gas Supply and the Transportation Provider. **Compliance Officer** means such person or persons as may be appointed by [Transmission Enterprise X] from time to time to fulfill the obligations of Compliance Officer as contemplated by the Code of Conduct. **Corporate Support Services (CSS)** means those services provided to the Chief Executive Officer and the Board to facilitate the CEO and Board in carrying out their respective functions. **Business Support Services Function** means those [Transmission Company Y] departments including but not limited to Finance, IT, Human Resources and Secretariat and third parties, providing BSS to [Transmission Enterprise X] or any Business Unit thereof]. **Gas Supply Customer** means a person with whom the Gas Supply Unit carries out business in the

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	normal course of the provision of [a [bundled] gas supply]. **Gas Supply Unit** means the business unit of [Transmission Company Y] engaged in the business of the sale for resale (or direct sale to final customers), or purchase for resale, of gas on the wholesale market, or the generation or sale of electricity including for avoidance of doubt acting in its capacity as supplier of natural gas to customers/end users at any Off-take Point from the Transmission System. **Transportation Provider** means [Transmission Enterprise X] acting in its capacity as an owner/operator of [Transmission System Z]. **Gas Supply** means the business as conducted by the Gas Supply Unit. **Transportation Systems Operations** means the transmission of gas undertaken by the Transportation Provider. **Transportation Information** means transmission construction plans, transmission abandonment plans, planned transmission system upgrades, downgrades, or modifications, planned transfer or sale of transmission facilities, transmission maintenance or outage plans or schedules, availability of transmission capacity, forecasted or scheduled new customer interconnection

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	information, planned customer disconnection information, and customer emergency curtailment information. **Supply Employee** means an employee of the [Transmission Company Y] or its Affiliates who works (solely or substantially) within Gas Supply. **Transportation System Employee** means an employee of [Transmission Enterprise X] or its Affiliates who works (solely/substantially) within the Transportation Provider. **Board** means the Board of [Transmission Company Y]. The **Chief Executive Officer** means the Chief Executive Officer of [Company Y]. The **Executive Management** means the Chief Executive Officer, the Heads of Business Units, The Chief Information Officer, The Head of Finance and the Company Secretary. **Commercially Sensitive Information (CSI)** means any information compiled by [Transmission Company Y] or a Business Unit thereof on a customer in the normal course of providing, in the case of the Transportation Provider, gas transportation services, and in the case of Gas Supply a bundled gas supply and designated by a Transportation Customer or Gas Supply Customer respectively as Commercially Sensitive. Information

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	relating to customers that is aggregated, redacted, or organized in such a way [for the purpose of proper business planning, forecasting, or otherwise and in a manner that does not reveal the identity of the customer to whom the information relates does not constitute Commercially Sensitive Information]. The **Regulatory Commission** means that person appointed by the State Council or such other person as may from time to time be designated with responsibility for regulatory commission matters within the gas industry. The **Code of Operations** means the code of practice for the operation of the Transmission System Z. **Code of Conduct** means the Code of Conduct as revised from time to time. **Implementation Procedure** shall mean such procedures, policies, instructions or otherwise as may be prescribed by [Transmission Company Y] or any Business Unit thereof for the purpose of implementing the Code of Conduct. **OBJECTIVES AND PRINCIPLES OF CODE OF CONDUCT** This Code of Conduct relate to [Transmission Entity X] in its gas-related activities within the China. This Code of Conduct is adopted by [Transmission Company Y] for the purpose of

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	• establishing Code and conditions for interaction between the Business Units within [Transmission Company Y] and to ensure equality of treatment as between the Business Units within [Transmission Company Y] and third parties; • ensuring there is non-discriminatory access to the regulated products and services of the Business Units within [Transmission Company Y]; • promoting nondiscriminatory access to information while protecting the confidentiality of proprietary Customer information and • [preventing cross-subsidization of competitive activities as between the Business Units all in accordance with statutory and regulatory commission obligations of the Board]. **NONDISCRIMINATORY ACCESS** Unless otherwise authorized by the Code of Conduct, no Business Unit shall 1. Represent that as a result of the affiliation with [Transmission Enterprise X] or any other Business Unit thereof it will receive any different treatment from or by such other Business Unit than the treatment that Business Unit provides to unaffiliated entities or their customers in respect of regulated services; or 2. Provide other Business Units or their customers any preference (including but not limited to terms

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	and conditions, pricing or timing) over unaffiliated entities or their customers in the provision or procurement of goods or services provided by that Business Unit. If a Business Unit makes a service or product available to other Business Units or a customer thereof, the Business Unit shall contemporaneously make the same service or product available to all unaffiliated entities or their respective customers on a nondiscriminatory basis. **NON-DISCRIMINATION IN PROCESSING REQUESTS** The Transportation Provider and Gas Supply shall process all requests for the same or similar services or product provided by the Transportation Provider and Gas Supply respectively in the same manner and within the same period irrespective of whether the request is from another Business Unit or an unaffiliated enterprise. **INFORMATION ACCESS** The Transporter shall establish a Transportation Information request procedure, which shall be a procedure whereby all Transportation Information from the Transportation Provider. Requests for Transportation System Information shall be made to the Transporter and dealt with under the Transportation System Information Request

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	Procedure. [Transmission Enterprise X] will ensure that Gas Supply Employees and new Business Unit employees do not have access to, or obtain by any means, Transportation Information, except that which is available through the Transportation Systems Information Request Procedure. In the event that the Transporter receives any request for information the Transporter may seek the opinion of [The Compliance Officer/regulatory commission] with a view to ascertaining whether the provision thereof should or may constitute a breach of the Code of Conduct. Gas Supply Employees shall not disclose confidential information to new Business Unit Employees and new Business Unit Employees shall not disclose confidential information to Gas Supply Employees. [Transmission Entity X] will ensure that: • Transportation System Employees do not disclose to Gas Supply Employees any Transportation Information, by any means other than as provided under a Transportation System Information Request. • Transportation System Employees do not disclose to Gas Supply Employees any information about the transportation system(s) of others except as

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	provided under a Transportation System Information Request. • Transportation System Employees do not share any CSI related to nonaffiliated Transmission system Users or potential nonaffiliated Transmission system Users with any Gas Supply Employees [except as provided under Transportation System Information Requests]. • CSS Officers do not disclose to Trading Employees any information about [Transmission Enterprise X]'s Transportation System. • CSS Officers do not disclose to Trading Employees any information about the transportation system(s) of others. • CSS Officers do not share any CSI related to nonaffiliated Transmission system Users or potential nonaffiliated Transmission system Users with any Trading Employees except to the extent that such information is publicly available. [Transmission Enterprise X] will ensure that CSI, insofar as possible, is not discussed at Executive Management Meetings. Members of the Executive not entitled to access to CSI will take no part in any deliberations of the Executive involving such matters. To the extent that CSI is discussed at executive management meetings such executive management

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	meetings shall be structured to ensure in so far as practicable that members of the executive not entitled to access to CSI shall not participate in discussions involving such CSI or that such CSI. The Code of Conduct shall not be construed as limiting the entitlement of the CEO and or the Board or any others properly entitled thereto to CSI however, all persons to whom such information is properly released shall be obliged to comply with the Code of Conduct. CSI required by the CEO and Board will be kept confidential by the CSS officers. Where CSI is provided to the Board it shall be [labeled]/[identified] as such at the time of its provision. The Board undertakes not to disclose CSI. [Transmission Entity X] will ensure (a.) that policies, procedures, organizational configuration, departmental structure and employee job responsibilities, (b.) physical and systemic restrictions, and (c.) communication, training and monitoring programs shall be structured to ensure compliance with the Code of Conduct. **IMPLEMENTATION OF CODE OF CONDUCT** *Obligations of [Transmission Entity X]:* **Communication:** [Transmission Enterprise X] will initiate and will maintain an employee

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	communication program, consisting of a series of company-wide communications (print media) describing the ongoing changes within the gas utility industry and the resulting changes that have happened or will happen within [Transmission Enterprise X]. The focus of the communication program will include communication of the principals and objectives underlying the Code of Conduct and their impact on the manner in which [Transmission Enterprise X], the Business Units, Affiliates and employees conduct business. **Training:** [Transmission Enterprise X] will design implement and maintain a program or programs to educate and train all [Transmission Enterprise X] employees in the requirements of the Code of Conduct. The training will be structured so that those employees in key areas (for example, employees engaged in Transmission System operations and Gas Supply Division, and others whose day-to-day responsibilities will be directly affected will receive the most comprehensive training. Documentation will be maintained detailing the training provided, including a listing of employees attending, dates held, locations, and specific subject matter covered. [Transmission Company Y] shall ensure (and to the extent necessary shall amend) its policies,

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	procedures, organizational configuration, departmental structures and employee job responsibilities to enable [Transmission Enterprise X] and its constituent Business Units (and each of them) to conduct business in compliance with the Code of Conduct. [Transmission Enterprise X] will establish a Complaints Procedure to address and resolve complaints made regarding alleged violations of the Code of Conduct such procedure to be established within [120 days] of the adoption of these Code of Conduct. The Complaints Procedure shall provide for inter alia • Those complaints shall be investigated and responses thereto made in writing within [________] days of receipt of complaint or receipt of relevant information sought to enable [Transmission Enterprise X] to address a complaint. • For advice to complainants that if they are not satisfied with the resolution of their complaint, they have the option of complaining directly to the regulatory commission if they so desire [a question arises as to whether the regulatory commission will have any power or entitlement to entertain such complaints]. • A log will be kept listing all complaints received and indicating whether they are resolved or still

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	pending. The log will contain the following information: (a) Date of complaint, (b) Identity of complainant, (c) Brief Description of the nature of the complaint including at a minimum the names of those involved and the facts and circumstances surrounding the allegation, forming the substance of the complaint. (d) The names and titles of those who investigated the allegation. (e) Status of complaint, whether pending or resolved, (f) If resolved, a description of the resolution, and (g) Any action taken by [Transmission Enterprise X] (other than the investigation itself) as a result of the complaint. **ENFORCEMENT PROCEDURES** [What internal Enforcement Procedures can be contemplated or established in the absence of an independent regulatory commission]. **FUNCTIONAL SEPARATION** *Sharing of Facilities and Resources* Except as otherwise permitted [by the Code of Conduct] the Transportation Provider shall not share office space, office equipment services, and computer or information systems with other

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	Business Units. Business Units shall not share inter se office space, equipment, services, and computer or information systems]. Where physical separation required is not accomplished by having office space in separate buildings, physical separation shall be accomplished by having office space and equipment in secure, controlled access areas within a building. The Transportation Provider shall not allow its other Business Units to access its computer or information systems unless appropriate computer data management, data access protocols and contractual provisions regarding the breach of data access protocols have been put in place to ensure that such access will not result in access by a Business Unit to information in a manner contrary to or inconsistent with the Code of Conduct. Nothing in the last sub-section above shall prohibit a (Business Unit) from having unrestricted access to any computer or information system that is available to the public. Each Business Unit shall maintain books, accounts and records [in respect of its regulated products and services] separate from those of the other Business Units within [Transmission Company Y] such books, accounts and records shall be kept in accordance with generally accepted accounting

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	principles and such guidelines or other system of accounts as may be prescribed from time to time, and shall be sufficient to allow for an audit of the transactions between the Business Units within [Transmission Enterprise X] [Transmission Company Y] prohibits Transportation System Employees from being involved in any way with the Gas Supply Division and requires that its Transportation System Employees operate independently of [Transmission Company Y] employees, or employees, engaged in the Gas Supply Division. This is accomplished by: • Restricted access, both physical and systemic, to Gas Supply information and facilities; • Work procedure design and job responsibility assignment; • Communication, training and monitoring programs as described above; and • Such other methods as may be prescribed by the Board from time to time. [Transmission Company Y] prohibits its Gas Supply employees, from engaging in Transportation System operations, and does not permit them access to the system control center or similar facilities used for transportation operations or reliability that differs in any way from the access available to other Transmission system Users. This is accomplished

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	by: • Restricted access, both physical and systemic, to Transportation System operations and system reliability information and facilities; Work procedure design and job responsibility assignment; • Communication, training and monitoring programs as described above; and • Such other methods as may be prescribed by the Board from time to time. [Transmission Company Y] provides [and procures from third parties] Business Support Services (BSS). Business Support Services shall be priced, reported and conducted in accordance with the principles herein and with any applicable pricing and reporting requirements imposed from time to time by the [Compliance Officer/regulatory commission]. The provision of Business Support Services or Corporate Support Services shall not allow or provide a means for the transfer of information, including proprietary customer information in a manner contrary to or inconsistent with the Code of Conduct, create the opportunity for preferential treatment or/and confer competitive advantage, lead to customer confusion create significant opportunities for cross-subsidization or otherwise provide any means to circumvent the

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	Code of Conduct. [Implementation procedures shall be prepared by Business Support Services and Corporate Services within 120 days of the Code of Conduct and submitted to and approved by the [Compliance Officer/regulatory commission]. **CONDUCT OF BUSINESS** The Transportation Provider shall strictly enforce all tariff provisions relating to the sale or purchase of regulated services or products and/or the utilization thereof that do not provide for the use of discretion. [Tariff provisions shall include and be deemed to include all financial charges or penalties that may apply together with cost of connection to the Transportation System]. In situations in which tariff provisions relating to the sale or purchase of regulated services or products or the utilization thereof do provide for the use of discretion. The Transportation Provider shall apply those tariffs in a fair and impartial way, and to treat all customers in a nondiscriminatory manner. The Transportation Provider shall maintain a record of all instances in which discretion was used in applying tariff provisions. Any discounts offered, relating to transportation service or ancillary services, be offered to all Transmission system. Users eligible for such

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	discounts on a nondiscriminatory basis. [Transmission Company Y] shall: • Design and implement policies, procedures, organizational configuration, departmental structure and employee job esponsibilities; • Design and implement physical and systemic restrictions; and • Design and implement communication, training and monitoring programs to ensure compliance with these Code of Conduct. **SYSTEM EMERGENCIES** [Transmission Enterprise X] recognizes that during emergency situations [affecting system reliability], its employees, or those of an Affiliate, may take whatever steps are necessary to keep the system in operation. [Transmission Enterprise X] will report to the regulatory commission within twenty-four hours any deviations from the Code of Conduct that result from necessary steps taken to address a [system] emergency. To meet this obligation [Transmission Enterprise X] has implemented the following procedures]: • The [Transmission Enterprise X] Compliance Officer [has been assigned the responsibility for ensuring] [shall ensure] reports of any such deviations are notified and sent to the regulatory

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	commission following an emergency. • Each report will contain a description of the deviation, the name(s), title(s) and job function(s) of those involved, and the name and phone number of a contact person within [Transmission Enterprise X], should additional information be desired. • To ensure that [system] emergencies are handled appropriately and to prevent, whenever possible, any deviations from the Code of Conduct that might occur as a result of having to contend with a [system] emergency, [Transmission Company Y] has established the following procedures that shall be implemented] by [Transmission Enterprise X]; [Transmission Enterprise X] shall procure; • The system emergency assignments of Gas Supply Employees will be reviewed, and changed where possible, to areas of [Transmission Enterprise X] or its Affiliates where they should not be exposed to information that would likely result in a deviation from the Code of Conduct; and • Communication, training and monitoring programs as described above. **ACCOUNTS AND RECORDS** [Transmission Enterprise X] currently maintains its accounts and records as prescribed by Generally Accepted Accounting Code and Procedures. [Transmission Enterprise X] shall modify (to the

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	extent necessary) its accounting systems to comply with the requirements of [INSERT NAME OF COMPANY ACCOUNTS LEGISLATION OR STATUTORY REGULATORY BODY]. [Transmission Enterprise X] maintains a copy of its rules and allocations used in drawing up accounts as required by [INSERT NAME OF COMPANY ACCOUNTS LEGISLATION OR STATUTORY REGULATORY BODY]. These rules will be available for review by the regulatory commission. **COMPLIANCE OFFICER** The Compliance Officer shall monitor, facilitate and review compliance with the Code of Conduct and any implementation programs in relation thereto. The Compliance Officer shall make a quarterly [monthly?] report to the Company Secretary in relation to compliance with the Code of Conduct to include a review of the implementation of the Code of Conduct and identifying in particular any areas of compliance in respect of which in further Code or implementation procedures may be required. In addition the quarterly report may indicate areas in which changes to implementation procedures would, in the opinion of the Compliance Officer be beneficial. The Compliance Officer shall liaise with members of the executive management to ensure that all

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	employees, within the area of the relevant member of the executive management are aware of the Code of Conduct and implementation procedures in respect thereof. The Compliance Officer shall also review with executive management, instances of employee misconduct or alleged employee misconduct. Alleged violations of the Standard of Conduct will be immediately reported to the Compliance Officer and thereafter investigated by the Compliance Officer in consultation with the member of executive management charged with responsibility for the business unit in which the employee is engaged. The Compliance Officer will ensure that appropriate action according to [Transmission Enterprise X] disciplinary procedures is taken to: • deal appropriately with employees found to have violated the Code of Conduct, and • initiate whatever changes may be necessary to prevent a recurrence of any such violation. If it is determined that an employee of [Transmission Enterprise X] or one of its Affiliates has violated the disclosure stipulations of the Code of Conduct, the Compliance Officer will ensure that the wrongful disclosure is promptly reported to the regulatory commission in accordance with the procedures outlined above.

Issue	Reference in PNGRB Regulation	PNGRB Regulation Clause	Reference as per PetroFed Report	Industry suggestion
Draft Affiliate Code of Conduct	**Draft Affiliate Code of Conduct for Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating or Expanding Natural Gas Pipeline as Common Carrier or Contract Carrier**		**Issue no. 5**	The Compliance Officer and the Executive Management will receive training specifically designed to thoroughly familiarize them with the requirements of the Code of Conduct as defined herein. The requirements of the Code of Conduct will also be incorporated into [Transmission Company Y]'s (including Affiliates) Corporate Code of Conduct and ongoing Compliance Program activities. The Corporate Code of Conduct will be distributed to all Company and Affiliate employees.