Petroleum Federation of India

Paper on “Government Actions for Gas Market Development in India”

April, 2007

Table of Contents

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This Paper is presented by Petroleum Federation of India (PetroFed) in its capacity as an industry association. The Paper has been developed with the objective of clearly stating the actions to be taken by the Government in Indian gas industry, as a logical extension of analysis carried out in PetroFed's recently released publication titled "The Green Imperative: Future of Natural Gas in India 2030".

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Citation Guideline

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1 Background to the Paper

1.1 Introduction

1.1.1 Petroleum Federation of India (PetroFed) is a federation of 43 companies which was formed with the objective of, *inter alia*, representing and projecting the views of hydrocarbon industry to bodies like the Government and the Regulatory Authority; and thereby facilitating the evolution of policies and regulations relevant to them.

1.1.2 PetroFed published a book titled "**Fuelling India's growth – Vision 2030**" in 2005, which projected the demand of petroleum fuels and natural gas up to year 2030, under two scenarios of yearly GDP growth of 6 per cent and 8 per cent on the datum of 2003-04. The projections were based on econometric modelling using time series data available since 1980. The demand for natural gas and natural gas equivalent of naphtha in the terminal year of 2030 was projected at 243 BCM and 405 BCM under 6 percent and 8 percent GDP growth rate scenarios respectively.

1.1.3 Noticing the vast gas demand potential and the necessity to mobilise investments, the subsequent publication of PetroFed, "**The Green Imperative: Future of Natural Gas in India 2030**" addressed to actions required for market development. After release of the publication, PetroFed prepared and circulated a Discussion Paper to individual companies with the objective of securing industry consensus on specific actions suggested to be undertaken around the recommendations made in this publication.

1.1.4 PetroFed organised discussion of industry on April 10, 2007 to deliberate and finalise specific actions to be recommended to the government to ensure optimum gas market development in India. Based on the inputs received from industry members on the draft Discussion Paper, in writing and also during the discussions, PetroFed has finalised this Paper.

1.1.5 PetroFed, on behalf of our member companies wishes to highlight the urgency and importance of optimum gas market development in India to address energy security and environmental concerns and sincerely hopes that the stakeholders would appreciate our proactive efforts to address this important issue and also hope that the recommendations contained in this Paper would assist the government in taking critical gas policy actions.

1.2 Structure of this Paper

1.2.1 This Paper attempts to capture and bring in focus specific actions required for gas market development in India as suggested in PetroFed's publication titled "**The Green Imperative: Future of Natural Gas in India 2030**".

1.2.2 In the following chapters, some of the major challenges to an efficient gas market development in India have been taken up for discussion along with suggested actions required from the Government as key stakeholder.

1.2.3 The major recommendations are summarised in **Chapter 2**: "**Summary of Suggested Actions**". **Chapter 3**: "**Issues/Challenges and Suggested Actions**" puts in perspective the characteristics of a natural gas market and the challenges associated with such a market. **Chapter 4** onwards challenges to India's gas market development to meet the targeted growth have been discussed. Each chapter begins with a

background to the issue/challenge. The suggested actions are then outlined supported by relevant international practices around those issues.

2 Summary of Suggested Actions

2.1 Government to formalise its intent and role in gas market development

2.1.1 Make a clear and formal statement of the Government's policy objectives and long-term strategy for natural gas in India through 2030. This could be done, for example, through a white paper on natural gas. More generally, work out an integrated national energy policy based on the completion of the 2007-2012 XI Five Year Plan for the energy sector and the various energy industries.

2.1.2 Strengthen and urgently operationalise a legal framework on natural gas, institutionalised by the Petroleum and Natural Gas Regulatory Board Act, 2006 (PNGRB Act, 2006). The legal framework should be flexible enough to cope with market evolution over the medium and long-term.

2.1.3 Clearly define the role of Government in the gas market to focus on the development of the policy, legal, and regulatory frameworks rather than on setting prices and managing individual gas projects. In designing the regulatory framework, anticipate the future need for third-party access and full competition when the gas industry has developed.

2.2 Focus on gas market development, the weakest link

2.2.1 The most critical issue in India's gas sector is to develop the end-use market. There is a growing recognition among India's gas sector players that the downstream market constitutes the weakest link in the entire gas value chain.

2.2.2 On the whole, the most critical issue is to get right the economics of the whole gas supply chain. This requires a major reform of the gas pricing system and a redefinition of risk/return on investments along the gas chain. It also requires that the economics of alternative fuels be closely taken into account. But key to this would be identification of sectors where natural gas would have the highest market value compared to existing fuels and to ensure that the economy of these sectors does not suffer from using natural gas. The government can take a number of policy actions to facilitate the development of the downstream market:

i. Reform the gas pricing policy, by adopting a net-back approach based on the market replacement value of gas compared with alternative fuels, through market-determined pricing;

ii. Promote switching to gas through financial incentives such as tax credits, low-interest loans and favourable depreciation rates, and by sector-specific measures;

iii. Reduce/exempt taxes and local add-on charges on natural gas;

iv. Introduce taxes and levies on competing fuels, coal and fuel oil in particular;

v. Facilitate and enable large gas off-takers such as power plants to fulfil their long-term commitments by ensuring respect for their power purchase agreements;

vi. Lighten the approval procedure for large gas end-use projects and improve procedural transparency in consultation with industry;

vii. Lighten the approval procedure for laying down common carrier pipelines in consultation with industry;

viii. Encourage private and foreign investment in the local gas distribution sector;

ix. Increase investment in end-use gas technology development and in building domestic capability for absorbing gas-use technologies;

x. Define and implement a systematic and rigorous approach to gas market development, by integrating all the necessary elements such as training of downstream gas professionals, definition of natural gas quality, integration of natural gas into urban planning, putting in place as soon as possible a set of technical and safety norms and standards, etc.;

xi. Form several regional centres of excellence for gas market development and set up all the important components along the gas chain, ensuring that none of them becomes a bottleneck;

xii. The last but not the least, take concrete steps to improve state and central Government coordination to improve the investment climate.

3 Issues/Challenges and Suggested Actions

3.1 Introduction

3.1.1 Energy plays a fundamental role in every country's economy. Poor production and distribution of energy can severely diminish an economy's aggregate efficiency. Natural gas is one of the most important sources of energy today because it is environmentally friendly and has economic and technical advantages. After a period of intervention by their governments in the energy sector, countries in Asia, Europe, and North and South America have introduced reforms to promote efficiency and attract private investment to their natural gas industries.

3.1.2 Liberalization of this sector is complex because the natural gas industry combines naturally monopolistic activities with potentially competitive ones. Pipeline transportation and distribution have natural monopoly characteristics and require regulation of tariff and non-tariff behaviour. Production is a contestable market, though in a few countries it is still maintained as a state monopoly. Gas marketing is also contestable, but the presence of a dominant upstream vertically integrated incumbent may pose significant barriers to entry. Market architecture decisions such as the degree of vertical integration, horizontal structure, and regional development are also crucial.

3.1.3 Perhaps the most critical issue in India's natural gas sector is to develop the end-use market. There is a growing recognition among India's gas sector players that the downstream market constitutes the weakest link in the gas chain.

3.1.4 On the whole, the most critical issue is to get right the economics of the whole gas supply chain. This requires a major reform of the gas pricing system and a redefinition of risk/return on investments along the gas chain. It also requires that the economics of alternative fuels be closely taken into account. But key to this would be the identification of sectors where natural gas would have the highest market value compared to existing fuels and to make sure that the economy of these sectors does not suffer from using natural gas.

3.1.5 Besides end-user market development, exploring alternative sources of gas needs serious consideration of the Government. The Government has already embarked upon an aggressive campaign to market its Coal Bed Methane (CBM) blocks which has received an encouraging response from the investors. Besides CBM, the Government has also chalked out a strategy to tap Gas Hydrates potential of India.

3.1.6 In the following chapters we have discussed, under various issues, the suggested Government actions necessary to achieve the overall objective of developing a healthy gas market in India.

4 Issue 1: Environment Protection

4.1 Background

4.1.1 The growing awareness of the urgency in solving serious air pollution problems provides a golden opportunity for the growth of gas and other clean energy sources. However, such development depends critically on the credibility of the country's environmental commitments – expressed in real national determination translated into concrete programmes and actions. Significant work needs to be carried out to make institutions efficient in dealing with environmental issues, in defining the instruments to achieve environmental objectives, and in making the investments needed to bring money to environmental programmes. Local environmental protection authorities need to be appropriately empowered and resourced to carry out their work.

4.1.2 One important factor that must affect gas-coal competition is the reflection of environmental benefits and costs in economic considerations. Such a reflection can be achieved by "internalising" the environmental benefits of natural gas and applying the "polluter-pays-principle" to coal specially in the power and industrial sectors. As it is difficult to impose emission fees on coal use in residential and commercial sectors, as well as in small industrial boilers, the country may need to rely initially on command and control measures to induce the replacement of coal by other fuels.

4.2 Suggested Actions by the Government

4.2.1 Acknowledge the environmental benefits of natural gas by reducing taxes on gas and gas-using appliances and increasing taxes on more polluting fuels.

4.2.2 In power generation and large industrial boilers, the selective use of economic instruments will be necessary in addition to strengthening the enforcement of existing environmental regulations. To start with, the price/penalty per tonne of emissions (SO_2, NOx, particulates) should begin to reflect the market value of emissions taking into consideration health damage to the public.

4.2.3 Given the fact that natural gas is more expensive than coal, the Government will have to decide how to support the environmental and energy diversification benefits of gas. The incremental costs of introducing gas into the Indian economy will be borne by Indian consumers against the substantial benefits of health and energy security improvement as well as the modernisation of industrial activities. The consumer needs to be sensitised to such benefits. Taxation is a powerful tool to achieve the right balance. Energy planners need to take into account the energy and environmental policy objectives of the country in designing a fiscal regime that will encourage not only substituting gas for more polluting fuels, but also investment in the gas industry.

5 Issue 2: Legal Framework on Natural Gas

5.1 Background

5.1.1 Countries like Argentina, Canada, Colombia, Great Britain, and the United States have strong autonomous regulatory institutions empowered with regulatory instruments and financial independence. They are typically concerned with prices and tariffs, permits and contracts, and overseeing safety, service quality, and environmental matters. The existence of these institutions ensures credibility and transparency of the regulatory framework, something which has proven to be decisive for mobilizing private investment on the scale required.

5.1.2 Towards this end, the Government has taken the first step by enactment of Petroleum and Natural Gas Regulatory Board Act, 2006 (PNGRB Act). The regulations and policies originating from the PNGRB Act, would need to provide a clear legal expression of the Government's policy and strategy for gas industry development and the ground rules for operation of the gas industry.

5.1.3 Natural gas market has a tremendous potential for development in India. Therefore, India needs a relatively simple regulatory structure that would allow its rapid development and provide an eventual transition to a competitive industry.

5.2 Suggested Actions by the Government

5.2.1 Publish a white paper on natural gas market development, setting out clearly the Government's policy objectives and long-term strategy for the development of the industry.

5.2.2 While developing detailed regulatory framework within the purview of the PNGRB Act, 2006, focus should be on establishing a framework conducive to investment in gas pipelines, and introducing competition for building new pipelines, while setting the stage for future competition in the use of these pipelines.

5.2.3 Put in place as soon as possible a set of regulations on health, safety and environmental impacts, as well as technical standards for the gas industry.

5.2.4 Develop a model concession agreement based on *inter-alia* the experience gained from the cities where city gas distribution projects are already operational.

5.2.5 Create a Central Administration for Energy. Such a specialist national energy department will be responsible for both energy policymaking and industry regulation. The electricity regulation and now the downstream petroleum regulation having been acted upon, there is a merit in looking at regulating other sub-sectors. The upstream sector would need to be regulated by an independent body.

5.3 International Practices

5.3.1 Regulatory frameworks and institutions vary considerably between different countries, reflecting differences in legal and political traditions, industry structure and approaches to regulatory reform. In particular, differences exist in the division of jurisdictional powers

between government, the courts, the general competition authorities, the national regulatory authorities and, in federal countries (such as the United States, Germany and Australia), the state regulators. There has been a trend in recent years towards the creation of regulatory agencies, although their sectoral scope, responsibilities, powers and degree of independence from government also differ greatly from country to country.

5.3.2 If regulators are to succeed, they must establish credibility with investors and legitimacy with consumers and other stakeholders, and they must produce results that enhance efficiency for the economy as a whole. A failure to do so can undermine investor confidence, leading to a higher cost of capital and lower investment.

Industry Structure and Government involvement in the gas industry

5.3.3 In most European countries, including Belgium, France, Italy, the Netherlands, Spain and the United Kingdom, the Central Government was heavily involved in the initial development of the natural gas industry through the creation of state-owned companies. In most cases, the state-owned gas companies were subsequently privatised and their exclusive rights removed as part of the liberalisation process.

5.3.4 Today, the degree of vertical integration in each country reflects the historical evolution of the industry. In most continental European countries and North America, high-pressure transmission is carried out by companies that are separate from production and processing activities and local distribution. In the United Kingdom, transmission and local distribution is carried out almost entirely by a single company, Transco (now National Grid Plc.), although it no longer has exclusive rights to develop the network. There are a few examples of integrated gas production and transmission companies, notably in Germany. The degree of horizontal integration also varies markedly. In Belgium, Italy and the Netherlands, a single company dominates transmission, while in the United States and Germany a number of separate pipeline companies serve different regions with a limited degree of overlap.

Regulation in a new gas market – Experience of Northern Ireland

5.3.5 The Northern Ireland authorities were eager to develop a natural gas market, both for environmental reasons and to make the province more attractive to foreign investors. Their effort was triggered by the conversion to natural gas of a power plant in Northern Ireland, which was commissioned in 1996 with gas transported from Britain by a sub-sea pipeline, which provided an opportunity to develop urban gas distribution. To seize this opportunity, the authorities granted the Pheonix Natural Gas Company a license to supply gas to the greater Belfast area, which accounted for 40 percent of the total population in the province. The licence gave Pheonix exclusive rights over transportation for 20 years, and over supply for up to eight years.

5.3.6 These exclusive rights were accompanied with obligations. In particular, the licence required Pheonix to complete its pipeline network in Belfast within 12 years, and to perform the work in each of Belfast's 12 districts in a specific order, within a specific timeframe. Moreover, a pipeline must run within 50 metres of 90 percent of the homes in each district. If Pheonix did not meet its obligations, it would lose its exclusive right in the districts where it fails so that other companies could be granted the licence.

5.3.7 For the first five years, there was no regulation of gas prices to consumers, other than the rules barring discrimination. This was because of the strong competition between gas and alternative fuels. However, the licence provides that after the initial period, the

authorities can introduce a price formula if it is judged that consumers' interests are not adequately protected by competition between fuels or with the gas market.

5.3.8 The regulatory process was also rather simple. As both the regulator and the gas company shared the same goal of rapid gas market development, the authorities tried not to burden small and medium-sized companies with unnecessarily high costs of funding the regulator's office, staffing a big regulatory affairs team, or funding inquiries from the Monopolies and Mergers Commission.

5.3.9 Although the size and potential of India's gas market is not comparable with Ireland, the above case demonstrates how gas market development can be made to be a common objective of the Government and investors.

6 Issue 3: Central Administration for Energy

6.1 Suggested Actions by the Government

6.1.1 Issues, such as coal-gas competition, gas for power generation, gas pricing and investment, and the environmental driver for gas market development, need to be addressed within the context of a national energy policy. A central body is desirable to co-ordinate national energy policy issues.

6.1.2 India does not have a single central Government entity in-charge of energy policy and regulatory matters. There is, therefore, a strong case for establishing a specialist Central Administrator, to manage policies on oil, gas, electricity, coal and other energy sources and markets which will oversee balance of policies and regulations by sub-sector regulators.

6.1.3 A number of other factors reinforce the call for the creation of such an Central Administrator:

i. As India's oil dependency grows there is a pressing need for a co-ordinated approach towards energy security;

ii. Competition in the electricity, oil and gas industries is just beginning, and there will be a need for specialised expertise within the government to resolve increasingly complex market related issues in the future;

iii. Concentration of energy knowledge and expertise in a single body would facilitate the formulation of macro-economic policies and accelerate problem resolution;

iv. There is a need for increased coherence and co-ordination in energy policy-making;

v. Better communication of energy policy decisions to industry stakeholders is also critical.

6.1.4 Without such a Central Administrator, it may be difficult for multiple regulators to simultaneously regulate the individual policies of separate sectors such as oil, gas (upstream and downstream) and electricity, taking into account environmental, regional development and urbanization considerations. To be effective, such a regulator should be appropriately resourced in order to build strong information and analytical capabilities.

6.1.5 The Expert Committee on Integrated Energy Policy (IEP), while highlighting several issues that call for an integrated energy policy, also emphasises the importance of regulation which should be consistent across different energy sources and across regions.

7 Issue 4: Use of Gas for Power Generation

7.1 Background

7.1.1 The utility industry is expected to be the largest gas consuming sector in the future and hence merits special policy focus in the context of gas market development. In some countries, electricity sector reforms have been implemented in parallel with reforms in the gas sector.

7.1.2 Rapid growth of electricity demand and the desire to diversify the power supply for environmental reasons are powerful incentives to gas-fired generation. The development of large-scale power generation is also critically important for anchoring large gas infrastructure projects, either pipelines or LNG. Realising this potential may not be easy. In many regions of India, gas is currently not competitive against coal in base-load, and what is needed in the power sector is new generating capacity for peak-shaving.

7.2 Suggested Actions by the Government

7.2.1 Where conditions permit, seek ways of promoting base-load gas-fired power generation plants to support the expedient development of a gas market and to anchor large-scale gas infrastructure development.

7.2.2 Encourage the development of decentralised gas-fired generation by a large number of relatively small and medium-sized gas turbines, and where possible as heat and power cogeneration or heat, cooling and power tri-generation projects, and pursue this as a medium and long-term strategic orientation. This would, in effect, mean removing all hurdles in practice for operationalising the provisions of Electricity Act, 2003.

7.2.3 Rationalise electricity pricing schemes to ensure that tariffs at wholesale levels better reflect the cost of peaking and mid-merit generation.

7.2.4 Include pro-clean energy sources in the power-sector reform package and make a clear policy pronouncement that sets the government's long-term vision for the power sector in order to reduce uncertainties.

7.2.5 Tighten environmental regulations on coal-fired power plants and strengthen their enforcement.

7.2.6 Exploit the potential of the summer-winter complementarities in gas and electricity demand by promoting gas-fired vapour absorption air-conditioning systems and peak-load generation.

7.2.7 Develop the domestic capacity to manufacture, build and operate small and medium sized gas turbines and CCGTs in India.

7.3 International Practices

7.3.1 Distributed generation, especially by small plants fired with natural gas, has attracted interest and policy attention of many countries. Combined heat and power (CHP) is a

well established application of distributed generation. In a 1997 communication, the European Commission proposed a community strategy to promote CHP to increase energy efficiency and reduce greenhouse gas emissions. It required the Member states to remove various obstacles to CHP.

7.3.2 In 1998, the Department of Energy (DoE) and the US Environmental Protection Agency jointly developed a "National CHP Roadmap" intended to double the CHP capacity from 46 GW in 1998 to 93 GW by 2010. In Japan growth in CHP has been steady since the late 1980s. The growth of CHP in these countries is largely due to favourable government and regulatory policies. These policies have taken the form of national targets for electricity from CHP encouraged by investment tax credits, obligations on the electric utility to purchase the power produced, favourable prices for fuel or for ancillary services provided to the CHP scheme, and favourable electricity prices, in some cases supported by government subsidies.

8 Issue 5: Natural Gas Pricing and Taxation

8.1 Background

8.1.1 To a large extent, the size and shape of a country's gas industry is determined by its pricing policy. Natural gas pricing and taxation are thus critically important for market development. They should encourage both gas consumption and gas production, by providing incentives for energy users to switch to gas, and by giving investors a fair and reasonable return respectively. They should ensure the viability of each link in the gas chain.

8.1.2 Gas pricing regime in India has created distinct gas markets in the country. A sound pricing policy calls for natural gas prices to be based on market value of gas vis-à-vis other fuels. Price discovery along different parts of the gas value chain is best left to the market participants. GoI should ideally restrict itself to protecting captive customers against unfair use of market power and to using taxation as a tool to reflect difference in externalities created by various fuels and provide incentives for gas industry development.

8.2 Suggested Actions by the Government

8.2.1 Define a timetable for the transition of all gas prices and volumes to be freely agreed to by market participants, subject to protection of captive customers and prevention of misuse of market power. Use taxation and standards as instruments to implement the Government's gas policy.

8.2.2 Encourage co-operation between its pricing and fiscal authorities and energy policy institutions to work out a pricing and taxation regime that would better reflect the energy policy objectives of the country.

8.2.3 Remove – in a phased manner – all controls on gas prices at the well-head and city-gate, and to large end-users directly off high-pressure transmission pipelines. During the transition, ensure end-use competitiveness of gas by adopting a net-back pricing methodology, based on the market replacement value, to gradually replace the current cost-plus formula.

8.2.4 Implement a comprehensive reform of the fiscal regime for natural gas, to lower the overall burden of taxation on gas supply, and improve the market position of gas relative to other fuels, especially coal, to reflect its environmental advantages and to stimulate switching to gas.

8.2.5 Reflect the relative environmental benefits of gas through appropriate tax levies on competing fuels. If that is not politically possible for coal, then for polluted areas no new coal-fired equipment should be installed, and old coal-fired equipment should be phased out.

8.2.6 In the first phase, remove end-use based pricing levels. Then at the soonest, apply true Value Added Tax (VAT) mechanism of taxation for gas. Allow the input tax credits at every transaction. This is necessary including due to the unbundling of entities planned, because that will force more transaction than in a regime when only one or two agencies were involved in the production to end-sale.

8.2.7 Boost investments into all parts of the gas chain, by providing gas-related investment fiscal concessions. Consider tax credits, e.g. by extra depreciation for gas-related investment.

8.2.8 Regularly review the structure and management of upstream taxation to ensure international competitiveness of E&P for gas in India.

8.3 International Practices

8.3.1 In many countries market forces determine the price of natural gas. For example, in the United States and several European countries, wellhead prices reflect competition in the market for gas production. In the United Kingdom competition among producers for contracts determines gas prices. Before they were opened to competition in 1998, such contracts were arranged with British Gas, a single purchaser that was able to obtain low prices and longer terms because of its monopolistic position. Now both physical and contractual markets have developed.

8.3.2 In most of continental Europe methods for gas pricing differ significantly among countries. Contracts are usually with national gas companies, such as Statoil (Norway), Sonatrach (Algeria), and Gazprom (Russia). Countries in the Organisation for Economic Cooperation and Development (OECD) use two main techniques for natural gas pricing. In some countries (Denmark, Germany, the Netherlands, Spain, Sweden, and Switzerland) gas prices are set according to prices of competing fuels; in others gas prices are set according to cost. Belgium, France, Italy, and the United Kingdom use a mix of the two principles. In Japan and the United States the price of imported gas is set by adding the price at the border to costs for transportation, distribution, and storage.

Cases of successful promotion of rapid gas market development through tax incentives

8.3.3 The rapid penetration of gas in the energy balance, such as in Spain and Turkey, demonstrates the importance of price competitiveness. In both countries, lower taxes on gas sales than on competing fuel oil played a major role in making gas competitive against other fuels and stimulating rapid fuel switching (and also giving the sellers more revenue for investment).

8.3.4 ***Spain***: Gas consumption increased rapidly since the 1970s, reaching 12 percent of total primary energy supply (TPES) by 2000 and 18 percent by 2004. Originally only LNG was consumed, but was subsequently supplemented by piped gas from Norway and Algeria. The Spanish government promoted the uptake of natural gas in industry through explicit oil-related pricing and lower taxes on gas (no excise tax) than on oil products (e.g. an excise tax of 40 percent was levied for light fuel oil). Gas has been consistently much cheaper on a heat equivalent basis than gasoil, and broadly in line with heavy fuel oil prices in recent years. The non-price advantages of gas over fuel oil mean that gas is usually the preferred fuel when an oil or coal boiler is replaced, or for new boilers or direct heat applications.

8.3.5 ***Turkey***: Natural gas supply (by pipeline and LNG) began in 1992 and reached 16 percent of TPES in 2000 and 23 percent in 2004. Gas to industry is priced in relation to heavy fuel oil and is taxed lower than oil products and coal.

9 Issue 6: Natural Gas Transportation

9.1 Background

9.1.1 The Government of India, on December 20, 2006, notified the Policy for Development of Natural Gas Pipelines and City or Local Natural Gas Distribution Networks. The Policy while recognising the fact that competition can reduce the need for regulation emphasises the need to regulate specific areas of monopoly where the benefits of regulation potentially outweigh the cost. Natural gas pipeline infrastructure and city or local natural gas distribution networks fall under this category.

9.1.2 The objective of the Policy is to promote investment from the public as well as private sector in natural gas pipelines and city gas distribution networks, to facilitate open access for all players to the pipeline network on a non-discriminatory basis, to promote competition among entities thereby avoiding any abuse of the dominant position by any entity and to secure the consumer interest in terms of gas availability and reasonable tariff for natural gas pipelines and city gas distribution networks.

9.2 Suggested Actions by the Government

9.2.1 Develop the regulations relating to selection of company for laying pipelines, transportation tariff, unbundling and open access, keeping in view new sources addition in the period to come.

9.2.2 Encourage competition and competitiveness through unbundled transportation operation.

9.2.3 Plan for gas reserves and schedule pipelines accordingly.

9.2.4 Enable the transportation companies to lay pipelines by extending help on complicated matters like RoU and access code.

9.3 International Practices

9.3.1 In **Mexico**, the State-owned company Pemex and private transporters, distributors, and operators of storage facilities must obtain permits from the regulatory authority to carry out their activities. Users that wish to construct pipelines for their own use must also obtain permits. Permits are issued for 30 years and are renewable. Transportation and storage permits are issued under market risk with no exclusivity, for specific capacities, and, in the case of transportation, for defined routes. Permits are assigned to applicants that present technically sound proposals, and the market decides which licensed project is finally carried out. For transportation projects promoted by the government, transportation permits are issued through public bidding.

10 Issue 7: City or Local Natural Gas Distribution

10.1 Background

10.1.1 A very significant (up to 50%) share of the value added in the gas chain is in gas distribution. Gas distribution has traditionally been viewed as a monopoly. However, the current assessment is that only the physical distribution of gas remains a natural monopoly, in other words, it would not be economically efficient to have competing pipelines. Other activities making up what is normally associated with gas distribution are contestable.

10.1.2 Fundamentally, there is no automatic incentive for monopolies to minimise costs, maximise efficiency (or productivity) and reduce prices to consumers, in the absence of competition which would force them to do this in order to survive. The establishment of a new market framework with competing suppliers and consumers able to exercise choice will spur suppliers to look systematically for productivity gains and comparative advantages. This is a self-reinforcing process – as energy markets become more competitive and more complex, new forms of competition emerge, and the structure of the industry will undergo significant changes.

10.1.3 Technology has also played an important role in shaping a new perspective, by driving down costs and providing incentives for competition.

10.2 Suggested Actions by the Government

10.2.1 In assessing the best approach to stimulating competition, the Government should be clear about the underlying policy goals and priorities. Maximising economic efficiency needs to be balanced by considerations of the effects of competition on supply security, environmental policy and long term security of supply. Social objectives may need to be redefined to make them compatible with competitive markets.

10.2.2 Related regulatory or market issues, including taxation, ownership, regulatory structure and the role of general competition law need to be addressed, in order to maximise the effectiveness of the chosen approach.

10.2.3 Current gas pricing practices need to be changed/rationalised and a new tariff structure developed on the basis of sound economic principles. Only a financially sound distribution sector can provide the creditworthiness needed for long-term gas supply projects.

10.2.4 Create a national promotion group for gas conversion, to be placed under the appropriate authority of the Government (say MoPNG), to define and promote rules and safety standards for gas conversion work. (*see UK example in Para 10.3.1*)

10.2.5 Oblige local distribution companies to define a contractual quality of gas with their customers.

10.2.6 Encourage close co-operation between gas research institutes, gas appliance manufacturers and distribution companies in order to help gas market development and accelerate gas conversion work.

10.3 International Practices

Gas promotion in the United Kingdom

10.3.1 In the United Kingdom, surveys in the North Sea had indicated the enormous potential of tapping undersea reserves of natural gas. In 1966 the decision was taken to convert Britain to natural gas, and a year later the first North Sea gas was brought ashore at Easington terminal. During a ten-year national conversion programme every appliance in the country was converted from town gas to run on natural gas. Visits were made to 13 million homes and factories and 34 million individual appliances were converted. In 1977 the national programme to convert to natural gas was completed.

Tariff Setting

10.3.2 In IEA countries, the pricing structure charged by local distribution companies to end-consumers varies significantly from country to country. The tariff structure of a country depends not only on the pricing approach (either cost plus or market value) taken by gas companies, but also by regulatory models of the country. In reality, the tariff structure in most countries has elements of both the cost-plus and the market value approach.

10.3.3 France adopted a cost-plus approach for distribution gas pricing. The tariff system of Gaz de France is sophisticated and factors seasonal variations and volume rebates. The price consists of a subscription fee, a capacity charge and a commodity charge. The latter is by far the most important element in the final prices. The United States follows a cost of service approach. The rate structure usually consists of two parts: a base rate, which provides a fixed cost recovery and a return on capital investment; and a volumetric rate that is based on the amount of gas purchased or transported. This traditional rate structure is supplemented by a variety of non-traditional rates such as market-based and incentive-based rates.