LL.M THESIS

ENHANCEMENT OF COMPETITION IN THE GAS MARKET THROUGH THIRD PARTY ACCESS SYSTEM

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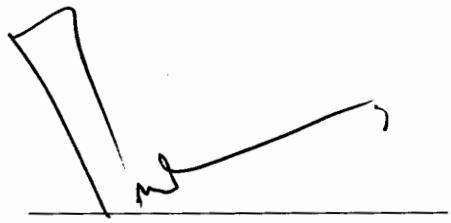

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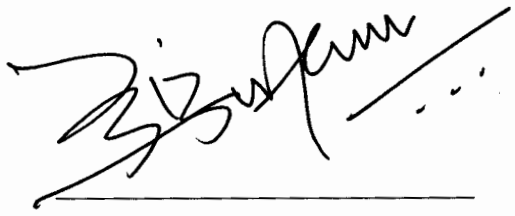

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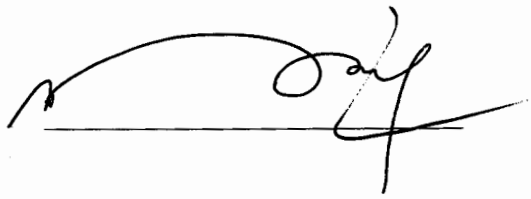

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ADB	Asian Development Bank
C & F	Cost and Freight
CNG	Compressed Natural Gas
COS	Cost of Service
DGG	Directorate General Gas
DGO	Directorate General Oil
DGPC	Directorate General Petroleum Concession
E&P	Exploration and Production
FOB	Freight on Board
GDS	Gas Development Surcharge
GoP	Government of Pakistan
GPA	Gas Purchase Agreement
GSA	Gas Supply Agreement
GST	General Sales Tax
IMF	International Monetary Fund
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas (cooking gas)
MMBUTU	Million British Thermal Units
MMCFD	Million Cubic Feet per Day
MMCFT	Million Cubic Feet
MPNR	Ministry of Petroleum and Natural Resources
NGRA	Natural Gas Regulatory Ordinance
O&M	Operation and Maintenance
OCAC	Oil Companies Advisory Committee
OECD	Organization for Economic Cooperation and Development
OGDCL	Oil and Gas Development Company Ltd.
OGRA	Oil and Gas Regulatory Authority
OMC	Oil Marketing Company
PEPP	Petroleum Exploration and Production Policy
PPL	Pakistan Petroleum Limited
RoR	Rate of Return
RR	Revenue Requirements
SNGPL	Sui Northern Gas Pipeline Company Ltd
SSGC	Sui Southern Gas Company
T&Ds	Gas Transmission and Distribution Companies (SNGPL and SSGC)
TCF	Trillion Cubic Feet
TPA	Third Party Access (Open access)

DEDICATION

This thesis is dedicated to my parents and my teachers of LLM Degree Program at the International Islamic University, Islamabad who supported me to earn this degree and complete my thesis.

INTRODUCTION

Pakistan is one of the Asian countries which are considered to have the most extensive gas network. According to the available data its transmission system extends to 8,200 Kilometers from Karachi in the South to Peshawar in the North. There are two gas companies i.e. SNGPL and SSGCL which are working in the gas sector. These companies are carrying out the functions of transmission, distribution and sale of natural gas therefore they are called TDS. These TDS perform the functions of transmission, distribution and sale in the form of bundled services. This Type of infrastructure termed as a close gas system where the producers and consumers have no other alternatives which resultantly affect the development of the competition and render the intensive regulatory activity insufficient in order to develop competition in the sector.

The government of Pakistan in order to convert close access system into open access system has introduced many reforms in the gas sector after taking into view the experiences of different countries. One of such reforms is the lessening the role of the Government in the regulation of the gas sector and establishment of a regulatory body for monitoring the sector. The Government has also gradually taken many other initiatives through its policies in order to bring competition in the sector. For example it has introduced the concept of third party access or open access in its Petroleum Policy 2001 and for practical purposes incorporated the relevant provisions in the OGRA Ordinance, 2002. However, it is pertinent to mention here that no substantial step for the implementation of third party access system in the gas sector has been taken so far by the Government or OGRA. Moreover there are some factors in the present setup which are considered to be hindrance in the way of implementation of third party access system; among them are (i) organization structure of the gas industry (ii) Tariff system (iii) non conformity of third party access with the regulations (iv) market opening for demand and supply. (v) Problems of access to the transmission and distribution network.

The international experience shows that many countries which are facing the problem of close system due to monopoly of few companies in the gas sector have adopted many measures. They allowed third party access to their transmission and distribution network, they also restricted the vertical integration of the companies, by breaking down the business;

they also made seller/users relationship unprivileged and empowered the regulator to regulate the sector without any interference of the government.

In Pakistan the situation of gas sector is not favorable for the implementation of third party access. However OGRA took some initiatives towards the unbundling and segregation of accounts of regulated activities. One of its steps is the introduction of uniform accounting system for the TDS; where OGRA has advised the TDS to maintain their separate accounts for their each regulated activity. Moreover, SNGPL is shipping the gas from Zamzama field through SSGCL transportation network Thus establishing the example of third party access in the present setup. Due to the infancy of the gas sector and problems it is facing for introduction of competition in it .I selected third party access/open access the topic of my thesis.

This thesis will present the current situation of gas sector and will highlight the problems which the Gop and regulator are facing for the implementation of third party access in Pakistan.

I will also discuss the cases of Brazil, Mexico, Italy, Argentina and European Union and the actions taken by them for effective third party access to transmission, distribution network and then in the light of their experiences I will suggest / recommend actions need to be taken for the implementation of third party access system.

This thesis will prove that by third party access producers will be able to compete among themselves for large consumers and consumers can select their suppliers of their own choice; which will result in creation of healthy competitive markets for different players where dominant players are restricted from their monopolistic activities. The regulator will be free to monitor the sector in efficient and effective way. Thus ensures that the benefits of competition and efficiency gains are passed on to consumers in terms of price, quality of service, safety, and supply reliability.

CHAPTER 1

1.1 CURRENT SITUATION OF THE GAS INDUSTRY IN PAKISTAN.

1.1.1 Demand –Supply Situation

The natural gas produced domestically plays a prominent role in Pakistan's economy. Its shares in the total energy is expected to be 48-50%.Gas use for the power Generation is 17.4 % ,for industry it is 10.9%, for fertilizer as feedstock it is 2.5% and for household 4.2% and commercial establishment it is 4.6% and for Transport(CNG) 58.7%. It is estimated that 4.3 million of consumers are connected to the gas system. This number is increasing rapidly. In Financial Year 2004-2005 the estimated consumption was 1,161.0 Billion CF[1]It is expected that the gas demand will grow in the next five years up to 6.8% where power –industrial and domestic sectors are expected to account for 82% of the increase in demand[2]. It has been observed that the demand of power and industrial sectors increase in winter season due to which TDS has to face the problem of gas shortages. Therefore they are constrained to curtail the supply to power plants and general industry in order to make the gas available to other consumers. However it is pertinent to mention over here that Ministry of Petroleum and Natural resources have set curtailment rules and consumption priorities which TDS has to follow it in case of shortage of gas supply.

Pakistan is recently meeting the demand of gas from its domestic production. Sui is considered the main production field from where High BTU gas is supplied in the Northern region of Pakistan through SNGPL Network and in the South through SSGCL' network. However there are also small medium BTU gases produced from Mari gas field and Kandkot fields which supply the gas to some fertilizers and some other supplies of gas having low BTU (Uch) which are supplying gas to Uch power limited. It is estimated that these gas reserves are in the range of 32.81865 TCF with the reserve to the production ratio is 22 years.[3] However the Gop estimates that this gas production will fall after 2010 if significant gas was not explored. According to the projected gas demand for Pakistan indicates that a

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[1] Hydrocarbon Development Institute of Pakistan, Pakistan Energy Yearbook,2005(Islamabad:Dec2005)p-58

[2] Raul E.Garcia, Current situation of the Gas industry in Pakistan,(Islamabad: February 2006) P- 3

[3] Asian Development Bank, *Report on Technical Assistance for the Islamic Republic of Pakistan for Restructuring the Gas sector.*(August,2001)p-1

gap between demand and supply will emerge in 2008 and 2009 of 500 mmcfd[4] . The Government planning to meet the increasing demand by (a) additional indigenous production until 2010(b) import of natural gas through large infrastructure projects. Since these infrastructures require longer planning and implementation period therefore it is expected that the gas from these pipelines will come in the system in 2015-2020.

Keeping in view these constrained in the transitional pipelines the Government decided to develop LNG import projects first. As first step it has also issued LNG Policy, 2006. It is expected that through this project 0.3BCFD of natural gas will be supplied in the first phase and 0.5 BCFD of gas will be supplied in the second phase. It is expected that through this gas the demand of industrial and commercial consumers will be met and it will represent 67% of natural gas supply in 2025.[5]

1.1.2 The Ownership Structure.

There two large TDS companies which are working in the gas sector.. The Government is holding 70% of shares in these TDS hence it is considered to be the majority stakeholder in the gas industry. Since both the TDS are majority owned by the Government and do not enjoy commercial and management independence, therefore the Government exercises control over the provision of services. As TDS are the only provider of transmission and distribution services and no other private pipeline is developed so far to provide the services in the gas system. The government also established a regulatory body in the gas sector but did not give the regulator full independence. The regulator has to depend on the policy guidelines of the Government before initiating any step. Moreover the Government also regulates the price regime in the sector as it fixes the end price for the consumers. The Government also plays an important role at the time of allocation of gas to the various end users as far as at the time of shortage of supply. Thus the gas sector of Pakistan is working under the control of Government where its functions overlap with the functions of the

[4] http://www.ssgc.com.pk visited on 06-08-2006

[5] Raul E Garcia, Rashid Aziz and Waqar Haider, Oil and Gas Third Party Access Policy guidelines(Islamabad:2006) P-8

regulator which will ultimately create hindrance in the implementation of efficient regulations[6]

1.1.3 Long Term Contracts

The TDS enters into long term contracts with the producers. The reason attributed to such long term contracts is the quality of gas which due to its low quality needs additional compression or special treatment facility and the construction and operation of the connecting pipeline from the field gate to the injection point. Moreover the producers are reluctant to invest in field and to discover it until they are certain that they will get buyer for the gas at that stage, therefore, in gas contracts the Government stands guarantor on behalf of the buyer. Furthermore, the TDS are reluctant to carry out the requisite investment until they are sure that producers will supply them firm volume of gas.

Due to these reasons the sale contracts are drafted in such a way that no provision is incorporate which can limits the resale of gas. Moreover if the gas delivery rate prudently increased from the present gas contract then according to Petroleum policy for the production and concession: the gas will be offered first to the Government and if Government refuses to take it or does not allocate it, then the seller has the right to enter into contract with third party.

1.1.4 Tariff Structure

In Pakistan a dual pricing system is prevailing in the gas sector. The retail tariff is prerogative of the Government while prescribed tariff is to be set by the OGRA. The mechanism of determining the prescribed price is provided in the OGRA laws. OGRA under the OGRA Ordinance and Tariff Rules, 2002 determines the prescribed prices of the TDS for each category of the consumers and advice the same to the Federal Government. The Federal Government after adding the development surcharge on the prescribed price advises the minimum charges and sale price of each category of consumers to the Authority. The Tariff so determined is inclusive of all components, and the separation between the cost of gas as a commodity, transmission and distribution costs, allowed rate of return to T&Ds, and taxes is

[6]Marc Heitner and Waqar Haider, *Pakistan Oil and Gas Sector Review(* world Bank:2003) –P-74

not explicit. The gas until 2002 was billed on volumetric basis (on terms of MMCFD) after that the gas is now sold on heat content basis (in terms of MMBTU)[7]. Due to change of unit, the consumers are now protected if he is supplied low heat content gas.

The tariffs applicable in the gas sector vary for each category for example the tariff applicable to the domestic and fertilizer block is heavily subsidized by the rest of the consumers. The commodity charges for both the first and second slabs of the domestic and fertilizer do not even cover the cost of gas. Further more tariffs of households is considerably higher than to industries or power plants, as the former requires the construction of low pressure pipelines to many consumers, each with a very small load, while industrial users are connected directly to high/medium pressure pipelines and their load factors are high.[8]

Keeping in view the present situation of the gas sector the Tariff system of Pakistan can be summarized as follows: a) Services are end use oriented;(b) Retail Tariff does not reflect location costs or distance from the gas fields, i.e. consumers pay the same price without regard to their consumption location;(c) most important component of Tariff is the volumetric charge in a binomial tariff(including a fixed charge) for billing purposes structure;(d) tariff reflects political and social considerations: mainly in the first and second slabs of the residential consumers and the fertilizer plants;(d)higher tariffs to other consumers;(e) since tariff does not reflect cost appropriately services do not reflect either the quality or the responsibility of consumers, in the costs of providing those services.[9]

Thus no distinction is being made between firm and interrupted services. One inconsistency of the present tariff regime is that some consumers such as power plant pay higher price for interruptive service they receive than other consumers such as domestic or fertilizers ;(f) tariff is not calculated for each activity carried out by the integrated TDS separately ;(g) tariff is reviewed periodically by OGRA under a retroactive cost of service methodology; through

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[7] Marc Heitner, Waqar Haider, *Pakistan Oil and Gas Sector Review*(world Bank:2003) –P-94

[8] Franz Gerner, The Gas Sector(Islamabad: 2003) P-16

[9] Raul Garcia, Rashid Aziz and Waqar Haider,*Oil and Gas Third Party Access(TPA) Policy Guidelines,* (Islamabad:2006).P-13

these revisions the prescribed tariff allows the companies to recover their prudent O&M costs and to obtain a "reasonable" rate of return on their assets. [10]

OGRA has recently conducted a study of tariff methodology and a computation model was developed for purpose of tariff revision. However, no specific methodology was developed for the separate calculation of transportation/ distribution charges. Whilst most of methodology is related to the principle of providing to the licensee a reasonable return on the asset base, however it differs on the extent to which cost allocation is affected by cost drivers(capacity demanded, distance from markets, volume) and how allocated cost is then translated into the tariff component. Recently an experience was developed in the computation of transportation tariff following the general revision methodology utilized by OGRA.[11]

1.1.5 Government privatization of the Midstream Activities

Internationally, at the end of the last century a new view point on the regulation of gas market was initiated. On the one hand, international economic integration of national markets for goods, labour, capital and services was developed, and on the other hand , the role of the state in the coordination and ownership of economic activities was reduced in favor of the market and private initiatives. This new approach was slowly accepted in the latter part of the last century. Initially, a simple withdrawal of the state interference from the economy was appreciated, through the privatization of state owned enterprises and the deregulation of public utilities, which would be sufficient to bring the advantages of unconstrained markets and the gains in welfare and economic growth. Over time, however, the policy makers made the economic restructuring and rules formulation as part of the process. Deregulation became re-regulation, and privatization was undertaken as a strategic process. [12]

Pakistan also followed the international trend by restructuring its gas sector. The natural gas of Pakistan was mainly controlled by the Government, where the Government acts as owner, regulator and policy maker. The Ministry of Petroleum and Natural Resources is the

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[10] Ibid P-41

[11] Khaleeq Kiani, "*OGRA hires consultants for oil & gas firms: Uniform accounting*", Dawn the internet.5 July,2002

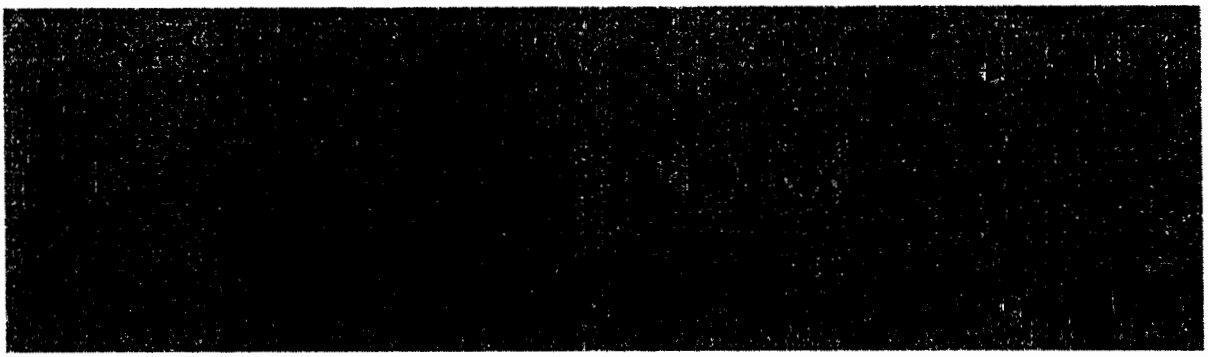
[12] Coby Van der linde and Jonthan stern, "security of supply: invest in energy efficiency." (September 2005)P: 7

administrative arm of the Government and is responsible for all aspects relating to natural gas and oil. The Government also enjoys a major share holding in the upstream and downstream companies therefore the state owned companies are not giving their expected result and efficiency as were expected from them if they were privately owned. As result of the interference of the government, inappropriate tariff structure and inefficient utility operation was observed which lowered the pace of development and private investment. The Government in order to attract the private sector to invest further in the process of exploration and production has developed a package of incentives for them. The Government has also developed a policy to deregulate the gas sector. For that purpose the government planed to reduce its ownership holding and to restructure the gas sector. Under this policy, SSGCL and SNGPL will be unbundled corportized and eventually privatized. However the process of privatization is expected to be initiated after decision on sector reforms have been taken and finalized. Moreover Government has also entered into dialogue with the producers in order to set internationally market oriented well head prices for the domestic natural gas. Further the Government has also lessened its role in the regulation of gas sector by creating a regulatory body for the natural gas sector. The government intention behind all these steps is to build investor's interest and to accelerate capital inflow of private sector in the sub sector.

1.2 INTRODUCTION OF THIRD PARTY ACCESS IN THE GAS SECTOR OF PAKISTAN

The concept of third party access (TPA) to the transmission and distribution network was introduced in 2001. Since then no contract for capacity has been entered into between the T&Ds and producers (called shippers) or large consumers, in order to transport gas from reception points through the high pressure pipeline system to the city or factory gates(the delivery points). The T&Ds are the sole buyers and the sole sellers of the gas to consumers, and as such they constitute a monopsony/monopoly market for gas under a *closed access mode.* This situation can be illustrated by the following flow chart.

Flow Chart 1: CLOSE ACCESS



To improve the present situation of the gas sector important measures adopted over the past three years. One of them is the introduction of the concept of third party access in the gas sector and defining the role of OGRA in order to regulate it. [13] Though there is no specific definition is provided in the OGRA's laws but according to the general concept of third party access prevailing internationally; third party access can be defined as under.

1.2.1 Concept of Third Party Access, Common Carrier and Common Operator

Third Party Access or Open Access

Access can be defined in relation to capacity not contracted for in the pipeline.The concept of access comes into play when the seller plans the development of a gas field and the seller has assumed responsibility for the transportation of gas to the buyer's delivery point. The seller to fulfill this responsibility has two options to develop and own a new pipelines to deliver the gas to its intended place of delivery or to enter into an agreement with a third party to have the gas transported through an existing pipeline.

Common Carrier

When the seller elected to develop and own its pipeline then it has to decide whether the pipeline will be used only to transport gas for the purpose of meeting the sellers's GSA commitment or to be used as a multi-shipper(or common carrier) pipeline, i.e. an income

[13]Public Private infrastructure Advisory Facility, Argentina, *Review of Institutional Regulatory Regime and Development of Policy Frame Work for Introducing Competition in the Gas Sector of Pakistan.by* Raul E, Garcia (March, 2006), P-39

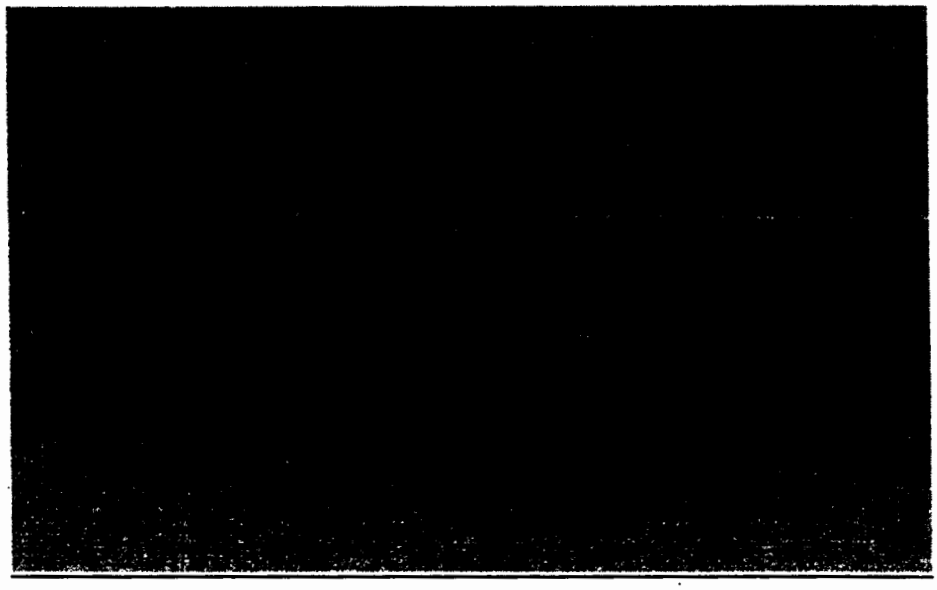
generating asset in its own right through exploitation the option for the transportation of third party gas for a tariff.

Common Operator

In practice the sellers of gas from several adjacent gas fields might team up to develop a new gas pipeline. This kind of joint venture arrangement is often called pipeline operating agreement or POA. Through this agreement the sellers regulate their relationship. In this kind of arrangement some body need to take responsibility for the day to day physical operation of the pipeline and so the seller will appoint an entity to operate the pipeline on their behalf. The operator might be one of the sellers acting in the separate capacity of operator (appointed or operating under the terms of POA. The basic principle which applies is that the operator (common operator) makes neither a loss nor a profit(although its costs of acting will be met by the sellers in proportion to their ownership interest percentages) and assumes no liability for its acts or omissions. Although this limitation is usually misapplied in the case of the operator's proven willful misconduct.

All the three concepts mentioned above are for the introduction of the competition in the sector. A clear picture as how the third party access will be provided in the transmission and distribution set up can be illustrated by the following flow chart

Flow chart 2



1.2.2 Types of Access: Regulatory versus Negotiated

The access provided by the common carrier or contractual carrier can either be (i) Regulated third party access (ii) Negotiated third party access.

Regulated third party access means that the access is governed by the terms of the contracts which are regulated including the Tariff. The Regulatory Authority determines to significant extent the returns and the allocation risk. Whereas in the negotiated third party access the parties are free to determine their terms of contracts, and the matter is referred to the Authority only when there is any conflict. The parties usually determine return and allocate risk through commercial negotiation which results in a contract between the parties.[14]

1.2.3 Mechanism how third party access works in the gas system

A pipeline is usually built by a gas producer who wants to gain access to the market or to a specific customer, who needs gas (customers like a power plant, a chemical factory or an aluminum producer), or it can be built by a third party (usually, a specialized pipeline operator acting on behalf of the producer or the customer), or by any other combination. The pipeline is only constructed by the gas producer after he determines that how much gas he needs to produce and the cost per unit of gas and cost of his production which will become part of the price at which he will sell the gas.[15] If the producer is sure that he will sell his gas over the requisite duration (typically 15-20 Years or more), then he will invest in the pipeline; on a cost basis.

However a third party will build a pipeline if it can profit from it, as it is not involved in either gas production or consumption and cannot make a profit from the rest of the chain. It is possible to build "merchant" projects, i.e. "build it and they will come" - you build the infrastructure and charge for its use. This is possible only in places where there is a lot of supply and a lot of demand and there is not enough transport capacity, which does

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[14] Raul E.Garcia, Current situation of the Gas industry in Pakistan (Islamabad:2006) P- 25

[15] Jerome.a.Paris, "Pipeline economics-Why the Afghan pipeline will not be built", Booman tribune: 16April, 2005 at http://www.Boomantribune.com last visited on 18-08-2006

not happen very often. In most cases, the third party is a pipeline operator acting on behalf of the gas producer or consumer, and the ownership is shared between them in various combinations; the only important thing in that configuration is that the pipeline is an independent entity which must make a profit.

There are several ways to remunerate the pipeline company:

- a simple tariff, proportional to the volume of gas shipped
- a "capacity" charge: i.e. the user pays for the right to use a given fraction of the pipeline capacity, *whether it actually uses this capacity or not*
- or any combination of the two.
- a capacity charge which is high enough to guarantee a minimum level of revenues (enough to pay off the initial investment on its own), and a low tariff which reflects operational costs for the use of the pipeline and provide potential profit for the pipeline operator (a minimum level of use will provide a small profit, a full utilization will yield a nicer, but never extravagant, profit).
- Another way to materialize such arrangements are "ship-or-pay" contracts, where the tariff will only be proportional to the volume, however there is certain value which has to be paid by the user even if the corresponding volume is not shipped (the shipper then getting "make up" rights) - i.e. it can ship more without paying for it again, if it exceeds the requisite volumes in future periods.

The essence of all these arrangements is that someone has to commit to provide a minimum level of revenues to the pipeline operators in order to pay off the initial capital investment. Such commitment is what makes a project economic and usually makes it finance able as well. For someone to commit to paying such tariff -, a pipeline usually requires 15 years of operations for the tariff to make economic sense - it has to have a pretty good certainty that (i) it will need the capacity for such a period, (ii) it will have use for it and (iii) it will be able to afford it. Such a commitment to pay can be a major financial drain if the corresponding revenues (from selling the gas or from using it) are not there.[16]

[16] Jerome a Paris," Pipelines economics why the Afghanistan pipelines is not built," Booman tribune:16 April, 2005 at http:// www. Boomantribune.com last visited on 21/08/2006

1.2.4 TPA and Competition Law

Pakistan has promulgated competition law in the form of the Monopolies and Restrictive Trade Practices Ordinance (control and Prevention), 1970 (MRTPO). The main provisions of this Ordinance are: to control and prevent undue concentration of economic power, unreasonable monopoly power; and unreasonably restrictive trade practices. Monopoly Control Authority is the statutory body which is empowered to carry out functions under the Ordinance. However after introduction regulatory reforms in electricity, telecommunication and oil and gas sectors an amendment in the MRTPO Ordinance was carried out in 2002 where the regulatory bodies where empowered to check the activities or functions of undertakings which are regulated, prescribed, determined or required to be approved by them. Because a well-structured program of regulatory reform brings lower prices and more choices for consumers, helps stimulate innovation, investment, and, thereby boosts economic growth.

Since the Regulatory Authority is held responsible to achieve the goal of competition law therefore it has introduced third party access system. Third party access is considered as an effective tool of competition law because it emphasis on the segregation of the transmission, distribution and sale activities which will open the market and will help the new players to participate in the gas sector. Moreover the regulatory body has also eliminated the exclusivity of the existing companies in their area of operation which is considered to be effective in order to prevent undue concentration of economic power, unreasonable monopoly power; and unreasonably restrictive trade practices. All these steps provide the consumers choice to select supplier of their own choice which will encourage the companies to compete among themselves in order to get more consumers .This will result in reduction of prices and better quality to the consumers. These all are the fruits of competition which can be achieved by the introduction of third party access in the gas sector.

1.2.5 TPA and Doctrine of Essential Facility Access

The pipeline is an essential facility therefore without its access the new entrant can not enter the market therefore the concept of third party access has close relation with the doctrine of essential facility access which is one of the important doctrines of competition law. The doctrine of essential facility access can be defined as the access to certain facilities without which it cannot compete effectively. Essentially, the essential facility doctrine is only invoked in certain circumstances, such as the existence of technical feasibility to provide access, possibility of replicating the facility in a reasonable period of time, distinct possibility of lack of effective competition if such access is denied and possibility of providing access on reasonable terms. Since pipeline access involve technical feasibility to provide access and since the denial of its access will effect the establishment of the competitive environment therefore TPA is introduced in the Petroleum Policy, 2001 and made imperative part of OGRA Ordinance and Rules in order to achieve competition in the gas sector.

1.2.6 Concept of third party access under the Petroleum Policy 2001

Petroleum Policy 2001 is based on third party access regime. It provides under section 2.1.5 that E&P companies operating in Pakistan will be allowed to construct and operate pipelines for local requirements and for exports of their share of petroleum which shall be regulated by the concerned regulator in accordance with applicable laws, rules and regulations based on any open access regime. The E&P Companies constructing such pipelines may be allowed priority accesses based on a firm utilization plan. The Policy also provides guidelines for gas allocation and sale of gas. The policy in this regard states that E&P companies operating in Pakistan will be allowed to contract with gas transmission and distribution companies and third parties, other than residential and commercial consumers for the sale of their share of gas in Pakistan at negotiated prices in accordance with applicable laws, rules and regulations. In case the nominated buyer of the Government agrees to purchase gas from the producers then the producer has to construct and operate gas pipeline connecting the field to the Delivery point for which transmission tariff will be payable as approved by the concerned regulator in accordance

with applicable laws rules and regulations. Further more the gas producer can arrange for the construction and operation of the connecting gas pipelines through an independent third party for which the producers will invite sealed bids on BOOT basis. The producer can also request the buyer nominated by the government to lay such pipeline form the field gate to the nearest transmission system at its own costs. In such a case the delivery point will be field gate and the transportation tariff payable to the third party or the nominated buyer will be fixed by the regulator. But in case a interconnected pipeline is proposed to be constructed by a third party or the buyer, the producer will be required to confirm the requisite gas supply, volumes and pressures, reserves and other technical parameters on standard supply term contract basis for a period of nor less than fifteen years. However where the connecting pipelines is constructed by the producers or third party or nominated buyer of the government then the regulator has to regulate it in accordance with the applicable laws, rules and regulations based on any open access regime; unless the regulator decides that the pipeline is not regulated pipelines.

1.2.7 Concept of Third party access under the OGRA Ordinance

The OGRA Ordinance however does not define the access in precise terms; rather it introduces the concept of common carrier and common operator. These terms are not defined anywhere in the rules or regulations. Generally speaking the ordinance is mainly concerned with jurisdiction of authorities and the principles that guide authorities in setting access conditions. Section 6(j) of OGRA Ordinance states as follows:

> " ensure the provision of open access, common carrier and common operator as may be deemed necessary or expedient by the Authority in the public interest based on an application made by an interested party to the Authority and provide that:-
>
> (i) The Authority decides excess capacity is available; and

(ii) Any decision relating to open access, common carrier and common operator adequately compensates the owner of the relevant facility, pipeline or installation"[17]

The Ordinance provides that Gop will set out the guidelines for third party access and that OGRA on its basis will issue rules and regulations on the access conditions and supervises their compliance by the licensees. It also approves tariffs for transmission and distribution services and solves the disputes in case of conflict between the parties.

However OGRA has to face two distinct issues for approval purposes: the negotiated price of gas either at city-gate or at the injection point, and the transportation-distribution tariff. As a matter of fact, the price negotiated for the commodity (whether additional gas from existing contracts or gas from the PEPP 2001) should not be of concerned to the regulatory authority except for the registration of the contract, transparency principles and information on market conditions.

Access to pipeline space and service thereof, is a business function to be carried out by the TDS. However neither TDS are granted regional exclusivity in the provision of services nor are transmission licences granted to producers to build their own pipelines. It is expected that this structural feature will promote competition in the long run as market grows and incremental cost of expanding existing pipelines become prohibitive. But in the short run pipeline to pipeline competition may not be possible due to lack of capacity in the existing system of the incumbent companies. Therefore, pipeline competition does not guarantee access to the market. It is only possible if access to the available capacity of the existing network is granted.

1.2.8 Concept of third party access under Natural Gas Regulatory Authority's Licensing Rules, 2002

The Natural Gas licensing Rules, 2002 provides very comprehensive definition of third party access and common carriage. For reference both the definitions are reproduced below:

[17] Oil and Gas Regulatory Authority Ordinance, 2002

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"**Open access**" means the non-discriminatory access for a fee or any other basis approved by the Authority, to transmission or distribution facilities."

"**Common carriage**" 'means the obligation to transport , on a non discriminatory basis, for a fee or any other basis approved by the Authority of natural gas, through the pipelines of a licensee."

To achieve a non-discriminatory access the licensing Rules also obligated the TDS under Rule 20(xx) to provide for a fee determined by the Authority, non discriminatory open accesses to its transmission or distribution facilities provided spare capacity not being used by it is available. Moreover, the TDS also under obligation under Rule 20(xxi) to provide interconnection to its transmission or non exclusive distribution facilities on mutually agreed terms and conditions provided spare capacity not being used by it is available and the interconnection is technically feasible. The Rules also imposed conditions on the TDS to publish information regarding available capacity and capacity not contracted for and the regulator made it part of their license documents. Therefore the TDS has to provide information regarding its capacity i) on its web(ii) to any interested party and (iii) to the Authority.[18] This condition not only be helpful to the third party interested in to enter in the system but also keeps the regulator informed about the latest position the available capacity and capacity not contracted for, which ultimately will be helpful to offer access to other companies.

1.2.9 Concept of third party access in the LNG Policy, 2006

GOP recently in its LNG policy 2006 gave guidelines to OGRA how to establish regulatory framework for application of third party access in the LNG sector. It is for the first time the idea of regulated and negotiated third party access was given in practical sense. The policy provides that all LNG terminals and associated facilities will be

[18]Liquefied Natural Gas Policy, 2006. at http://www.mpnr.gov.pk last visited on 21-08-2006

operated on a system of regulated third party access ("RTPA") based on published tariffs or tariff methodologies determined by OGRA and applied objectively and without discrimination. Exceptions from such regulation will be given to those LNG terminals and associated facilities that are developed for own or dedicated use. Access to such terminals will be based on negotiated third party access ("NTPA"). RTPA and NTPA will be administered by OGRA through a clear regulatory mechanism. It is clarified that the LNG Developer will have priority access to its own LNG terminal capacity provided it has firm capacity utilization plan for own or dedicated use. [19]

1.3 IDENTIFICATION OF THE OBSTACLES IN INTRODUCTION OF COMPEITTION IN THE GAS INDUSTRY OF PAKISTAN

The main obstacle in the way of implementation of the third party access system in the gas market is the non-issuance of any policy on third party access system by the GOP and non-formulation of any rules for third party access, common carrier and common operator by OGRA. However there are many there factors which are also creating hindrance in the way of introduction of third party access system. These factors can be listed as under:

1.3.1 Market Opening Supply Side

The government during the last decades encouraged private investments in exploration and development, which resulted in significant gas discoveries in the Southern part of Sui. Hence significant progress has been made in de-bottlenecking of the gas supply chain.[20]

The government in order to attract capital from E&P companies has introduced Petroleum Exploration and Production Policies (PEPP) for oil and gas sector. These policies provide gas pricing formulas which are linked to internationally traded oil/oil products, and allocate gas according to Government' allocation policy. The most important effect of both these measures is that it re-moves commercial risk and producer

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[20] Oil and Gas Regulatory Authority, "Study on Development of Open Access and Common Carrier Regime," Terms of Reference , Islamabad P-2

can not allocate gas to buyer other than those designated by the GOP. However with regard to "additional gas" the producers will have to offer it first to the Government and after its refusal then he will sell it to third party. This kind of transactions can be considered as the ground for introduction of third party access in the existing system; however there are obstacles in the existing system which can create hindrance in the process. These obstacles are: (i) the demand conditions (ii) The Government policy guidelines for approval of TPA transactions by OGRA (iii) the transaction approval may create the issue of PEPP pricing formula (iv) the additional gas represent not more than 50% of existing contracts for supply of gas .

The demand for gas is increasing rapidly every year from the buyer side or through its designated TDS companies which will result in the increase of gap between the demands and supply. The government in order to reduce this gap intended to import the gas. Because the gas will be import either in the form of LNG or pipeline gas which is considered to be another source of supply, these import projects will help to alleviate the demand gap and price formula will make import gas competitive to other fuels. However there is a chance that gas to gas competition may be eliminated. The reason behind it is that the business structure of large imported projects usually includes provisions that reduce the commercial -regulatory -political risk which ultimately reduce the competition in the long term. [21]

It is common to find import projects with large infrastructure development, for which the GSA (Gas Sales Agreement) and GTA (Gas Transportation Agreement) have clauses which restrict the competition in various ways like: gas resale restrictions; most favored nation clauses; temporary closed access to third parties. If these clauses are not considered at the stage of development of the market, they will create obstacles in the long term.

1.3.2 Structure and Organization of the Gas Industry

[21] Raul Garcia, Rashid Aziz and Waqar Haider,*Oil and Gas Third Party Access(TPA) Policy Guidelines, (Islamabad:*2006).P-37

SSGCL and SNGPL are carrying out the merchant functions along with the transmission and distribution activities. These companies are carrying these functions and thus compromising the TPA principles only for the reason that the activities are not actively regulated as compare to other countries where functional, legal and ownership restrictions have been implemented and the merchant function for buying/selling gas has been separated from the transportation function.

The government in order to create a favorable ground for the TPA transactions. It has to separate the T-DS activities and to restrict its ownership. The recent development of the government in this regard is that it made successful public offering in case of OGDCL and PPL. Moreover the Government has fully divested its shareholding in POL and ARL. [22]

Government is also planning to privatize the two TDS companies, for that reason OGRA as a first step has obligated both the gas utilities i.e. SNGPL and SSGCL to complete the accounting ring fencing of its transmission and distribution activities from 1 July, 2005. Because if privatization were to proceed by selling the majority shareholding of the two companies in the form of "sell as is ", TPA objectives and principles will likely to be compromised. Unbundling of activities is an affective pre-requisite to service unbundling.

International experience shows that if unbundling does not take place with the privatization; the performance of the industry does not render the expected competitive results. Hence government has to take steps in the direction of imposing further unbundling and to impose stricter provisions on TPA and market opening on the supply and demand side.

1.3.3 Issues of Access to the Transmission and Distribution System

The natural Gas has to pass through three or four main stages, while reaching from the reservoir to its final user. Those providing these services are partly independent actors, partly horizontally and/or vertically integrated with each other. Each stage of the market

[22] Raul E.Garcia, Current situation of the Gas industry in Pakistan.(Islamabad: 2006) P- 5

is characterized by a strong concentration of firms, often monopolies. These monopolies influence the profit when there are in-elasticities both in the supply and demand for gas and transportation services.

In Pakistan the two gas transmission and distribution merchant companies, SNGPL and SSGCL are vertically integrated utilities as they carry the activities of transmission, distribution and sale of natural gas, hence create a monopoly in the sector. These companies due to their monopolistic position are in better position to restrict competition in the market and to create barrier for the new entrant. Moreover they set such policies and enter into such contracts with other companies and consumers which are more favorable to the utilities.[23]

OGRA in order to control the monopolistic position of these companies and to open the market for access issued licenses to both these utilities. Under these licenses no regional exclusivity is granted to them, moreover the exclusivity with respect of distribution of gas to new consumers is finished on June, 2005 and that of the existing consumers will be finished on June 30, 2010, hence any party can distribute the gas in their area of operation. However it is pertinent to mention here that any new entrant who is allowed to operate in the existing setup requires an access to the infrastructure at the transmission, distribution stage. OGRA under the Ordinance obligated these companies to furnish their available capacity and capacity not contracted for. Both the companies are showing non availability of capacity on their system. Hence the access is not possible in the present setup. Access can only be provided when the pipeline capacity is extended. The companies for that purpose have to provide their own estimation of system load and the affect of costs of expansion on the tariff. it is pertinent to mention here that no rules or regulations provide for the capacity allocation in case of pipelines capacity extension. It is therefore required to develop capacity allocation rules in accordance with the principles of access i.e., non-discrimination and transparency. The new shippers should access the extended capacity under fair rules and terms of service moreover open season

[23] Ole Gunner Austvik, The open access issue; A Gas producer prospective.(NUP/Vett&Viten: 1991) at www.kaldor.no/energy/gas9100 last visited on 19-08-2006

procedures should be developed for the new shippers if they want to compete for new capacity.

Another step which is also considered as key element for effective introduction of competition is the separate calculation of T and D charges. In the present setup OGRA only calculate prescribed tariffs for bundled T and D services with no clear rules on how costs have been allocated for each type of service and customer class. Therefore there is a need that OGRA should develop the conditions and access pricing mechanism in order to initiate the process of access in the system.

1.3.4 Capacity Allocation

The present rules and regulations on access are silent on procedure for the allocation of the capacity when pipeline capacity is extended or expanded. The concept of the spare capacity is more appropriate to be used for interruptible services while that of capacity none contracted for (available capacity) is more appropriate for the provision of firm services. It is expected that the shippers and prospective shippers- before the expansion or the extension of the transportation system occurs –should access the capacity under the fair rules and terms of service. Allocation of firm and interruptive services from existing capacity can be carried out on first come first served basis (either bundled or unbundled) as long as complemented with transparent procedures. Use it or loose it rules can be used to prevent capacity hoarding from shippers of affiliated firms. Simplicity is preferred at this stage to more adequate complex rules that can be used for expansion and extensions. Open season" procedures in which prospective shippers compete for the new capacity should be developed.[24]

OGRA is involved in determining the available capacity for TPA. OGRA under Rule 20 of the NGRA Licensing Rules, 2002 obligated the licensee to publish information regarding available capacity and capacity not contracted for.[25]It is provided in the license document of both the utility companies that they shall provide information regarding

[24] Raul Garcia, Rashid Aziz and Waqar Haider,*Oil and Gas Third Party Access(TPA) Policy Guidelines,* (Islamabad:2006).P-39

[25] Natural Gas Regulatory Authority (Licensing) Rules, 2002

capacity on their transmission and distribution system with in ninety days or by such other date as is approved by the Authority i) on its web site ii) to any interested party who requests the same and in iii) in writing to the Authority. And the licensee shall update the information on six months basis[26]. It is the duty of the provider of the service to bear the commercial risk of the transaction and of capacity availability for the provision of firm services.

OGRA Should not be involved neither in the micromanagement of capacity availability nor in the process of approval of the transaction. OGRA should be involved in issuing the regulations and in solving conflicts; and in obtaining price information from registered gas and transportation contracts. The existing approval procedure may turn out to be unnecessarily bureaucratic, and can create an obstacle to unbundled transactions; and can be a source of conflict of interest if who is involved in approving the transaction will also be involved in solving an access dispute.

1.3.5 Natural Gas Allocation and Management Policy

The present Gas Allocation and Management policy, 2005 is sector oriented rather then to be economic oriented. The management policy may indeed be efficacious in the sense that the curtailment rules may achieve its purpose-respecting the priorities established without major supply disruption but they may not be efficient at all. Without the regard of economic value of the gas to particular uses; some consumers like fertilizers are in better priority place then the users who are paying high for their firm services. The Government on the basis of allocation of gas to the fertilizer plants evaluated the need of the domestic sector. The Government has also taken some steps to improve the supply to the consumers like industrial consumers who pay high rates as compare to other consumers, now the gas is supplied to them on yearly basis while gas for all other uses will be assured on nine month basis (off peak), However inspite of these steps the

[26] SNGPL and SSGCL, licence for transmission, distribution, sale of Natural gas issued by OGRA (Islamabad: 2003)

allocation policy is divorced from economic valuation which is in turn effect the tariff structure.[27]

1.3.6 Approval of TPA Transactions

OGRA under the Ordinance is competent to approve the TPA transactions, to monitor whether the TDS comply with the TPA principles, rules and regulations; and to approve the prescribe tariff and to resolve the disputes in case of conflicts. However there are some factors which create hindrance in the exercise of these functions by the Authority like (i) it requires policy guideline from the Government. (ii) the definition of third party access is not clear under the existing rules and regulations (iii) several terms need to be defined so as to properly measure unused capacity for provision of interruptible/short term services as well as available capacity.(iv) TPA services are not part of in standardized contract. The standardization will help to create secondary market for capacity. It will also facilitate regulatory oversight and help in resolving the disputes (v) in addition to that there are no separate transportation and distribution contracts which can correspond to each type of T-D infrastructure and to its operational conditions. (Whether firm or interruptive services).

1.3.7 Tariff Issues

1.3.7.1 Absence of comprehensive transparent methodology for tariff structure

Access Tariff will be calculated on the same principles which are used for calculation of Tariffs for bundled services. However Access tariff if approved will turn to be economically inefficient because: a) It does not reflect adequately the economic costs of providing both types of services and ; b) no provisions are taken at the time of introducing TPA with respect to the conditions and obligations under which firm and interruptible service should be provided by the incumbent TDS. This scenario will result in uneconomic unbundling provided by inefficient suppliers and heavy losses to the incumbent.[28]

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[27] Natural Gas Allocation and Management Policy, 2005

[28] Franz Gerner, *The gas sector, (Islamabad, Dec 2003),P-16*

Present Tariff system in Pakistan is full of inefficiencies that represent an "obstacle to economic access" the main reasons for this are discussed below:

i) Retail Tariffs do not cost on the basis of difference in the location. Because consumers pay the same price wherever they are located; even disregarding the social –political considerations. Tariffs also do not reflect regional cross-subsides among users. The implicit transportation distribution charges do not reflect any of the cost drivers- distance and capacity volume adequately weighted in the tariff calculations.

ii) Retail Tariffs reflect political social consideration. The residential and fertilizer categories get the benefit of the first and second slab at the expense of the consumers which are paying higher tariff. This is one other source of cross subsidization that needs to be tackled at restructuring and possibly the largest obstacle of unrestricted third party access.

iii) Those large users paying higher tariffs will have an incentive to leave the bundled service. The reasons to leave the bundled service would not arise from economic advantage but from financial advantage based on a tariff distortion. The side effect is the entrance to the industry of inefficient suppliers of unbundled services.

iv) Bundled Tariffs are not well designed in terms of charges (volumetric, capacity demand user charges) and do not reflect cost drivers (capacity, distance volume users location). Firm service related to capacity availability under all circumstances-except force majeure-while interruptive services are provided if capacity is unused. Therefore interruptible cost will be mostly related to moving gas and a volumetric charge is appropriate. On the other hand for firm services the capacity charge relates to the capacity costs and the volumetric charge is correspondingly less important and related to fuel use. At present the fixed charge is small and is not related to

capacity- fixed- costs. The main source of revenue to the TDS companies is the volumetric charge.[29]

v) One paradox of the present tariff regime is that some consumers such as power and industrial consumers pay a higher price for an interruptible service than other consumers, such as the fertilizers consumers which are assured the gas supply on firm basis.

vi) Well designed access conditions require that service categories reflect the type of service at least on a firm or interruptible basis, whether bundled or unbundled.

vii) OGRA is reviewing the methodology of tariff. However the model has not been adapted to calculate tariffs for unbundled (separate T and D charges)/ bundled service provision.

viii) Pass through costs (transportation and gas) to Retail Tariffs need also to be consistent with the unbundling of T and Ds. The Ds company will be buying T (transportation) and G(gas) through such methods and procedures which are not of importance as long as third party access is not an issue. The methods/procedures should be changed which offer inadequate incentives to the companies for stay/or move from the bundled services.

1.3.7.2 No Pass Through Rules

Under the existing methodology for the calculation of prescribed rates, total costs are collected through total revenues. Some services provide excess income as compare to its costs to compensate for losses from other services. The absence of gas pass through in most of unbundled gas system is a problem that needs to be addressed. In principles there is no reason why the molecules of gas should be priced differently according to it use or to its consumption category. [30]

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[29] Raul Garcia, Rashid Aziz and Waqar Haider,*Oil and Gas Third Party Access(TPA) Policy Guidelines,* (Islamabad:Febrauary,2006).P-41

[30] Marc Haitner and Waqar Haider, Pakistan –Oil and Gas Sector review, (World Bank: 2003), P -13

Gas pass through rules whether related to existing contracts of merchant pipeline with the producers or to gas prices in other markets need to be clear and transparent so as to minimize regulatory political risk. These rules need to be related with the calculation of separate T and D tariffs for the services.

Changes in transportation cost also involve the design of pass through rules to tariffs of bundled and unbundled service users. The allocation rules are not present in OGRA methodology and should be clarified. At present it can be argued that if the present tariff methodology is being used for collecting the transportation cost from all the users, it is not clear how those extra transportation costs are allocated and collected from each consumer's class. Residential users impose higher system cost for unused capacity in off peak period – than industrial consumers who consumes similar amount during the year. If costs are not adequately reflected in tariffs, and industrial consumers are charged more than their stand alone cost, then some users may leave the system and this is an inefficient outcome. This obstacle should be addressed and is also part of the cross-subsidization issue in general.[31]

1.3.7.3 No Separate pricing for T and D-S

The methodology for calculating separate T and D-S charges has not been developed. Presently OGRA is calculating the prescribed price for bundled T and D services with no clear rules as how costs have been allocated to each type of service and customer class. The T tariff case (SSGCL is providing shipping services to SNGPL, the Zamzama case) can not be used as a methodology for calculating tariff for all other cases. The ideal situation is one in which both SNGPL and SSGCL publish the applicable T and D tariffs for unbundled gas services; with the methodology known in advance.[32] The Zamzama case implicitly defines a "distance" transportation rate since only the assets through which the gas moves from the reception to the delivery point are used for its calculation. However one can not anticipate to which extend this will be the methodology and if it will be whether it can be applied for all other cases.

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[31] Ibid p- 13

[32] Khaleeq Kiani, *"OGRA hires consultants for oil & gas firms: Uniform accounting"*. Dawn the internet.5 July,2002

Conflict of interest will continue to exist unless the restructuring and regulatory action reinforces independent behavior for each of the shareholders. Present institutional arrangement as well as organization of the industry and of its transactions will affect the implementation of "effective access".

a) Tariff and access may be difficult to be handled by the GOP when it directly or indirectly (as a shareholder) participates in various functions (investor, E&P, regulation, policy making provision of gas services, planning) along the gas chain.
b) The regulatory agency is involved in the approval of the TPA transaction and in the definition of available capacity. The contracting practice for the sale/purchase of gas is one feature in the Pakistani gas industry that should facilitate restructuring. This practice is not present in most of the countries where the TDS are government owned. Contracting as part of doing business helps introducing new types of services. Its absence on the consumption side on the other hand may be an obstacle when trying to install new contract provisions or new services.
c) Depending on how the sale of TDS business is structured in terms of separation of activities and cross ownership restrictions, the likelihood of favoring access to shippers from affiliated companies will differ.

1.3.7.4 Curtailment Rules for setting priorities of gas supply

The gas companies face a high demand of gas during the winter season; therefore to supply the gas to different consumers they set their priorities according to the curtailment rules issued by DGG. These rules raised a number of issues regarding the merit of having DGG involved in enforcing curtailment guidelines as DGG is neither competent to monitor the access rules nor is involved in solving access disputes. Moreover theses rules do not reflect market valuation of the scare capacity. [33] Therefore it is difficult to impose at this stage online market for trading capacity rights so as to allow the price of capacity to reach the level at which demand capacity equals capacity supplied.

[33] Monem Farooqi, "WB criticises OGRA role in regulating petroleum sector," the Nation. 15 December 2004

1.3.7.5 Obstacle of Access and Market opening demand side

Gas is bought from SSGCL and SNGPL under long terms contracts. Therefore the market is demand driven; all they supply is absorbed by the TDS for serving their captive market. The average price of gas from the contracts is a mixture of high and low prices of gas. TPA can be introduced at the stage of induction of additional gas to the system, the price of which can freely be negotiated among the parties. The restructuring process does not burdened TDS to pay for the higher priced gas or establish such rules which provide incentives to the consumers if they leave incumbent for reasons which are unrelated to efficiency.[34]

[34] Ibid page-55

CHAPTER II.

SELECTED INTERNATIONAL CASES FOR COMPARISON OF GAS INDUSTRY RESTRUCTURING AND RELATED ISSUES

The nature, structure and organization of gas industry determine the degree of effectiveness of the competition. Moreover the infrastructure, access to the transmission and distribution network, restriction on the vertical integration of players and regulatory system determine whether the industry is at preliminary stage or it is a mature industry. Therefore it is necessary that the economic pricing of gas services, transparent and nondiscriminatory access rules to the common network infrastructure should be made. Many countries have adopted different types of access system in their gas industry like Argentina, Brazil, Australia, Spain and European Union apply contractual access regime. Contractual access is practiced either in the form of regulated or negotiated access. Experience shows that regulated access have several advantages over negotiated access in terms of transparency, ease of monitoring, enabling more players to enter the market and consistent regulations. The main difference between the two regimes is that in negotiated access the parties decides the terms of contracts including the tariff and in case of dispute refers the matter to the regulatory body while in regulated access the regulatory body decides the terms of contracts and tariff and resolve the disputes between the parties. Due to the great advantages of regulated access countries like Argentina, Spain, Australia and European Union adopted regulated access regime. However there are hybrid cases like Netherlands where the parties set Tariff in accordance to the rules defined by the regulatory body.

What ever is the form of access applicable in a country; international experience shows that access is facilitated when: (i) the activity is regulated; (ii) the pipeline company is prohibited from performing the supply function;(iii) vertical integration through ownership participation is restricted to minority shareholding for producers, large users and pipelines in the industry; and (iv) access pricing for transmission and distribution

services does not promote the entry of inefficient suppliers, which means economic pricing.

In the following experience of few countries were given to show how these countries have traveled from infancy stage to a mature stage. What is the degree of unbundling of services, how much the market is opened and what is the ratio of liquidity in secondary markets for capacity, and the extent to which expansion related problems have been resolved.

2.1 BRAZIL

Gas supply has small share in the energy market of Brazil. It occupied about 2,5% of total energy consumption). It has very low reserves and very few infrastructures to transport the gas to the consumers. Brazilian per capita gas consumption is very low (30 m3/year) as compared to mature gas markets, such as Argentina, where per capita consumption is 580 m3/year.[35] There is franchised monopoly in the organization of the industry which was used to reduce transaction costs. However the companies which have monopoly in provision of one service are not permitted to carry other services like communication and electricity because these industries were operated by other companies that have territorial monopolies as well. Moreover long term contracts were used to link projects and strategies of few producers and most often one transmission company. Constitutionally the gas regulation was divided between the Federal and state authorities this vision dominated the regulatory framework of the gas industry until the 1970s, when many gas markets reached its mature phase. Since the 1980's, the industrial organization of the gas industry started to change dramatically in mature markets. Third party access to the network of pipelines was given; competition was introduced among suppliers and barriers that forbidden public service suppliers to move into other industries were removed. This new context has completely reshaped the regulatory regime that has been historically used to oversee gas supply.[36]

[35] Edmar Luiz F. de Almeida and Adilson de oliveria, Regulatory Issues in Brazilian Emerging Gas Industry, ,(Rio de Janeiro,October, 2000).P-1

[36] Ibid P-2

2.1.1 Regulatory Issues in Brazilian Natural Gas Industry

Constitutionally, gas sector is regulated by the federal and state authorities. Oil and gas production and transportation to the city gates are regulated by the specific federal regulatory agency (ANP) while gas distribution is regulated at each state by local regulatory agencies .Since its inception, ANP encouraged new players to come into the Brazilian oil and gas markets, aiming to introduce competitive pressures in these industries. Several blocks were offered for companies interested to explore oil and gas in a first bidding round. Gas imports especially from Argentina and Bolivia were stimulated and existing trunk pipelines were opened to upstream producers, importers and distribution companies.[37]

New trunk pipelines will be franchised soon. Although Petrobras still owns most of the domestic natural gas reserves and controls the existing trunk pipelines, it is expected that newcomers will rapidly reduce its market power.

There was no clear price policy for domestic gas. The consumers have to pay a maximum price at each city gate that will result from the sum up of a commodity price and a transportation cost. The commodity price is settled by the Energy Ministry on the basis of international prices of a basket of fuel oil. The transportation cost is regulated by ANP, according to the distance traveled by the commodity. At distribution level, state regulatory agencies are building a new regulatory framework as well. Their main objective is to create an attractive investment context, reducing risks for investments needed to build up the distribution network. At present franchised monopoly has been the main industrial organization chosen by state level regulatory agencies to achieve this goal. The two main distribution companies, COMGAS and CEG, have been privatized and several other state owned gas distribution utilities have been sold off to international oil and gas companies in the last 5 years. So far, competition does not concern the gas

[37] Andre Rosside Oliveria, Future of Privatization and regulation in Brazil what can be learnt from the recent Reforms? (Lima, February, 2003) at http://www.up.edu.pe/ciup/AER/textos/Brazil_Andre_Rosside last visited on 22-08-2006

end-users and thermal power plants are constrained to buy their gas supply from their local distribution utility.[38]

ANP (an independent Regulator) developed an institutional framework that offers gas utilities and gas producers third party access to trunk pipelines. This framework will promote the competition in the upstream. However there is no access option at the distribution level therefore the state level regulators organized distribution as a monopoly. This situation confines competition to bulk market only, consumers are still prisoners of their local distribution company. Therefore, there is irregularity in a fundamental market power between players positioned in the upstream and players positioned in the downstream. This irregular market power will entail long term consequences.

2.1.2 Monopoly downstream but competition upstream: what consequences?

First, it represents a premature selection of dominant market players because monopolists can take advantage of its contracting power both in upstream and downstream to decide the rhythm and pattern of new investments. Downstream, these players can, for instance, direct their gas supply to thermal power instead of other consumers like residential and commercial users of gas. Upstream, they can select which players will receive their contracts in order to provide gas to the market and to transport this gas to the city gates. Therefore, they will be the gate keepers and the new entrants in the BGI (Brazilian Gas Industry) will have to deal with them.

Second, gas distributors can use their market power to effect inter-fuel competition. Since there is no restriction for gas utilities to enter the electricity or the oil markets, they can operate their monopoly power at the gas end to use cross subsides in order to avoid inter-fuel competition. This will be made easier if gas utilities take positions in many segments of the energy market. It is expected in the near future that gas demand will come from new gas power plants. Competition between gas and electricity at end-users

[38] Edmar Luiz F. de Almeida and Adilson de oliveria, Regulatory Issues in Brazilian Emerging Gas Industry,(Rio de Janeiro,October, 2000).P-4

will result in a situation where the gas fired power plants will be able to pass over any increase in gas price to consumers.[39]

In the above mentioned circumstances, it seems important to change current regulatory framework in order to re-establish equilibrium in the market power and regulatory coherence throughout the gas chain. Keeping in view the new driving forces of emerging gas markets, a fundamental trait of the regulatory framework should be develop which will provide non-discriminatory opportunities for new players to participate in this rapid growing market. Because a market oriented regulatory framework is essential to foster investments and to offer power generators and large consumers the right to choose their gas supplier.

2.1.3 Conclusions

Natural gas is expected to assume an important place in the Brazilian energy balance. The share of natural gas in primary energy demand is expected to increase by the private investment from 2,8% to about 12% in 2010. Since the new regulatory framework for the infant BGI intends to create an attractive environment for private investors.[40]

Territorial monopoly has been given to distribution utilities, in order to allow these firms to face the high risks faced by an infant industry. This type of regulation was chosen in North America and in Europe some decades ago when their gas industries were infant. However, the BGI is facing a different economic and technological context. A territorial monopoly is given in gas distribution segment while competition is introduced in other segments of the gas industry. Gas distribution companies can use their monopoly power to discriminate among consumers and to develop verticalization strategies as well.

Therefore there is a need that new regulatory framework is to be established which will preserve the market power equilibrium and regulatory coherence throughout the gas chain, in order to make third party access more effective in the gas industry. This can be

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[39] Centre for Energy Economics, Brazil's restructuring of the Oil and Gas industry, at http://www.beg.utexas.edu/energyecon/new-era/case_studies/Brazil_ Restructuring_of_the_Oil_Gas_industry last visited on 22-08-2006

[40] Edmar Luiz F. de Almeida and Adilson de oliveria, Regulatory Issues in Brazilian Emerging Gas Industry,(Rio de Janeiro,October, 2000)

achieved by offering power generators and large consumers the right to choose their gas supplier. The development of the distribution network to supply low volume consumers (residential and commercial users) is a much riskier business. Therefore, the regulator has to find forms of incentives other then cross subsidies from higher consumers (power generators and large consumers). A careful evaluation of economic and financial risks of projects intending to supply low volume consumers; will help to develop a mechanism to protect the investor from the excessive risks markets can generate. [41]

2.2 MEXICO

The Mexican government initiated a reform in the gas sector in 1995. Private investment was encouraged in new transportation, distribution and marketing projects. However, the monopoly of Pemex in the production and processing remained unchanged. Due to rapid expansion in the natural gas market demand grew by 42 % in 1997-99 and is projected to increase upto 10 percent annually from 2000-2007. This growing demand will not be met by the present industry structure where the production is in-efficient and competition is lacking. Therefore the gas law (Regulatory Law of Constitutional Article 27) was amended in April 1995 to allow private investment in new transportation, distribution and storage projects, and commercialization of natural gas. The law established general principles for developing the country's natural gas industry. To put these principles in practice it is required to create a regulatory framework that specified the organization, operation, and regulations of the industry. This framework was designed in 1995 and presented in the *Reglamento de Gas Natural.* [42]This framework focused on the noncompetitive conditions in the production. As fist step it defined the main market players i.e. producer, transporters, operators of storage facilities, distributors, marketers and consumers. Pemex monopoly in the transportation, exploration and production was

[41] http://www.iclg.co.uk last visited on 22-8-2006

[42] Juan Rosellan and Jonathan Halper, Regulatory Reforms in Mexico's Natural Gas Industry: Liberalization in the context of a dominant upstream incumbent' (Mexico city, The world Bank Latin America and the Caribbean Region, Finance, Private Sector, and Infrastructure Sector Unit: 2001) at http://www.ksg.harvard.edu/hepg/papers/Rosellon_reg_reform_gas industry last visited on 23-08-2006

reduced to production only. The economic relation among the market players are dominant feature in the projected structure of the Mexican natural gas industry.

The current structure of Mexico's natural gas industry shares some characteristics of market structures of other countries. For example in some European nations, markets are controlled by a large entity. In North America there are hundreds of producers; several transportation companies participate in a competitive environment, local distribution companies have exclusive franchises and freely purchase gas from producers, pipelines, or marketers; and many large end-users are directly linked to transportation pipelines and have several supply sources. The Mexican structure is halfway between vertical integration and full competition. Even today the gas production and processing activities have remained a state monopoly for political, historical, and cultural reasons. Since Pemex was a major source of revenue to the state therefore in 1938's nationalization, it was excluded from the privatization and became state owned enterprise. The new regulatory framework was designed in a context in which market players possessed private information regarding technological and market characteristics. The regulators in this regard has to face problems while dealing with pricing, vertical integration, exclusivity, third party access, commercial and physical bypass, international trade, marketing, bidding processes, and secondary markets. They attempted to do so in a way that maximizes social welfare subject to costs of regulation and operators' rationality constraint.[43] The development in the Mexican gas industry will surely entail maximum social welfare, in sense that transportation and distribution network will be developed and the prices and tariffs will be reduced.

2.2.1 Key Policies and Regulatory Instruments

Mexican regulators in order to get a competitive gas industry had three primary goals: (i) to develop infrastructure by introducing policies with respect to exclusivity and vertical integration,(ii) to regulate market power by regulating the price and tariff and

[43] Haynes and Boone, Mexico's Gas Markets,(Texas:2004) at www.hg.org/articles last visited on 25-08-2006

liberalization of international trade, and(iii) to promote competition by liberalization of marketing activities and introduction of third party access to services.

The regulators selected permit regime as a fundamental regulatory instrument. They grant permits in order to ensure more technical and economic uniformity in projects across the country and to provide certainty to investors.

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. The regulator provides permits only to the technically feasible projects which can easily be carried out in the present market. For transportation projects promoted by the government, transportation permits are issued through public bidding. Similarly distribution permits are granted for geographic zones defined by the regulatory authority through a public tender.

The first distribution permit grants 12-year exclusivity in gas distribution but not in gas marketing. [44]

2.2.2 Vertical Integration.

The policy decision in Mexico was made with respect of prohibition of vertical integration between transportation and distribution services therefore it restricted the activities of Pemex to transportation of gas in order to encourage new entrant in the distribution of gas. The policy also specified that vertical integration between transportation and distribution can only be authorized when a transportation permit is necessary for a distribution project or a distribution permit is necessary for a transportation project. For example if a company wants to establish a distribution network in an isolated area where there are no transportation pipelines and no other party

[44]Juan Rosellan and Jonathan Halper, Regulatory Reforms in Mexico's Natural Gas Industry: Liberalization in the context of a dominant upstream incumbent' (Mexico city, The world Bank Latin America and the Caribbean Region, Finance, Private Sector, and Infrastructure Sector Unit: 2001) at http://www.ksg.harvard.edu/hepg/papers/Rosellon_reg_reform_gas industry last visited on 23-08-06

interested in constructing them, then distributor may construct and own the transportation system.

Producers, transporters, distributors, and operators of storage facilities can buy and sell gas. But they have to unbundled their services and have separate accounting systems for their commercial and service activities in order to prevent cross-subsidies.

2.2.3 International Trade.

Since Pemex remains the sole producer, the price of domestic gas was regulated and imports of natural gas from the United States were permitted without an import license and without import duties. Since competition prevails in the North American market, this policy sought to establish a credible threat for Pemex in prices and possibilities of contracts. This would be especially relevant for consumers in the north of the country—such as local distribution companies and power generators—that wished to import gas either directly from the United States or by bypassing the Pemex transportation pipeline.[45]

2.2.4 Marketing Activities.

Mexican policymakers sought to encourage vigorous competition in gas marketing activities. Marketers need no permit to operate and may carry out such commercial transactions as:

- Buying gas, transporting it through the transportation network, and selling it to distributors or to consumers directly connected to the transportation system.
- Selling gas to consumers within a distribution franchise area (commercial bypass).
- Buying and selling transport pipeline capacity.

2.2.5 Third party access.

Third party access to consumers for transportation and distribution capacity can limit market power and create competitive conditions for providing goods and services in the natural gas industry. For example, a consumer in a distribution area may wish to bypass

[45] ibid

the local distribution company to buy gas in the gas field or storage facility and transport it through the pipelines, paying the transport and distribution charges. This action restricts the market power of both transporters and distributors in their gas marketing activities. But for this to work both the transporter and distributor must provide access to their networks. The third party access policy becomes more complex in light of preexisting contracted capacity and real-time congestion. Usually the company that owns the pipeline network is required to provide third party access when there is enough available capacity and in a "not-unduly discriminatory manner."[46]

2.2.6 Regulatory Authority.

The existence of regulatory institutions ensures credibility and transparency of the regulatory framework, something which has proven to be decisive for mobilizing private investment on the scale required. Therefore the Mexican policy framework for natural gas included institutional changes with a view to separate and more clearly define the responsibility of policy, planning, regulation and service provision. In the past these functions were carried out by Pemex and treasury.

The new institutional arrangements include the following:

The Energy Ministry's role was strengthened. It became the administrator of the nation's energy resources and was charged with planning and supervision of the state owned firms in the sector.

- Pemex's role was restricted to operations. It was to disclose previously classified information to the authorities.
- The CRE was assigned regulatory authority for granting permits, price and tariff regulation, regulation of access to services, oversight of distribution franchise award processes, and dispute resolution.

The changes in the law also gave CRE greater technical, operational, and financial autonomy as compare to the Energy Ministry. This was considered essential in order to provide the investors with a stable, predictable regulatory framework. In theory the CRE

[46] ibid

has the authority to ensure compliance with regulations. It can require the presentation of any relevant information, take a company to court, and revoke a permit for violations of regulations. Sanctions and penalties are made public in the *Diario Oficial* in a resolution that requires the permitee to take appropriate measures within a specific time period.[47] Likewise, affected parties are able to use public resolutions to take legal measures against violators. [48]The Ministry of Finance, through its local representatives, usually collects monetary penalties. Technical and financial audits are performed based on Official Mexican Standards. The CRE and international standards verification units approved by the Energy Ministry carry out such audits.

2.2.7 Conclusions

Structural reform in Mexico's energy sector has proceeded at a slower pace than in many other countries, but important changes have been introduced to attract private investment in natural gas transportation and distribution. These changes were a response to the rapid growth in demand for natural gas in Mexico, which was in turn a response to economic development and the enforcement of environmental regulations. The new regulatory regime provides incentives for firms to invest and operate efficiently and to bear much of the risk associated with new projects. It also protects captive consumers and enhances economic welfare in general.

Pemex's still continued vertical integration and the retention of a state monopoly in production side which creates important challenges to regulators. The regulation of firsthand sales prices and natural gas distribution made the Mexican case an interesting example of regulatory design.

Regulation of distribution tariffs can not necessarily be the same for infant and mature industries. In general, in the new industry the regulations were flexible in order to encourage initial development and attract investment. Tariff flexibility permits new entrants to appropriately handle risk and uncertainty.

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[47] Haynes and Boone, Mexico's Gas Markets,(Texas:2004) at www.hg.org/articles last visited on 23-08-2006

[48] ibid

The Mexican industry has concluded the initial stages of mobilization of investment and competition in the distribution projects therefore in the next few years the regulator and policy makers are going to face enormous challenges. One will be to consistently and transparently apply and enforce regulations and to coordinate among government agencies to successfully perform these tasks.

Another challenge is how to handle projected growth in Pemex's transportation system—estimated at an annual rate of 11 percent. According to the permit granted by the CRE to Pemex for transporting natural gas, Pemex will meet this new demand by expanding its pipeline capacity, but there could still be bottlenecks during peak periods. Especially important is the 1,597 kilometer-long pipeline system in the Reynosa and Monterrey operating sectors, where a huge increase in demand is expected and where two of the three compression stations are obsolete.

Government policy for ensuring sufficient pipeline capacity to clear gas markets is premised on consumers paying Pemex for expansion of the pipeline system. This is presumed to generate enough savings to gas consumers that they would be willing to pay for such investment. According to Pemex's transportation permit; pipeline expansion can be financed in two ways. A "rolled in" methodology can be applied when the expansion will benefit all consumers; an incremental cost method is applied in other cases.

Perhaps the greatest issue in the immediate term will be the evolution of competition in the market. In the Directive on Firsthand Sales the CRE identified some regulatory mechanisms for Pemex gas marketing activities. Pemex can play many strategic games with contracts of different type of consumers therefore it is very difficult for a small regulator to cope with it.

Moreover marketing is a contestable activity as compare to production, and there is no apparent reason to leave gas commercialization with a State monopoly.[49]Hence, one of the first issues to be tackled to enhance the role of market forces in the sector in order to lessen Pemex's discretionary discounts on domestic gas and access to transport services.

The regulator has the principal instrument of regulating Pemex's contract pricing, but more durable and tractable instruments will need to be considered. These include

[49] ibid

arrangements permitting risk sharing with new participants in domestic gas development and production, full legal and financial separation of Pemex-Gas and Pemex-Transport from Pemex-"Holding," and more efficient pricing of competing fuels like electricity and liquefied petroleum gas. [50]

2.3. ARGENTINA

At the beginning of the 90's there were major regulatory and corporate changes in the hydrocarbon industry. Prior to these changes the Government was controlling the market through it two companies YPF (oil and gas producing company and DGE (Distributor Company). There was very less participation of private sector mainly as service or production contractors for both Government and company. Soon after the reforms the private industry participation in different activities of gas system was increased. [51]The government owned YPF and DGE were privatized in accordance to their nature of business; which resulted in unbundling of services and encouragement for new entrants to enter into activity of production, transmission, distribution and marketing. However with this type of segmentation few businesses were regulated such as transmission and distribution due to their natural monopoly conditions. Every thing was done to introduce competition in some potential competitive areas such as production and marketing.

The basis of transformation is to ensure a highly regulated non-discriminatory third party access to transmission and distribution facilities in order to foster competition in a deregulated gas market.

The access to the infrastructure is regulated where the regulatory body approves the terms of contracts between the transmission and shipper companies and regulate their tariffs; moreover the allocation of capacity is made in accordance to the set rules.

For purpose of promoting competitive and less conflicting transactions, restriction was imposed on the vertical and horizontal integration, which resulted in the entry of new

[50] Juan Rosellan and Jonathan Halper, Regulatory Reforms in Mexico's Natural Gas Industry: Liberalization in the context of a dominant upstream incumbent' (Mexico city, The world Bank Latin America and the Caribbean Region, Finance, Private Sector, and Infrastructure Sector Unit: 2001) at http://www.ksg.harvard.edu/hepg/papers/Rosellon_reg_reform_gas industry last visited on 25-08-2006

[51] Raul.E. Garcia, Rashid Aziz and Waqar Haider, Oil and Gas Third Party Access(TPA) policy Guidelines, (Islamabad:2006)

players with less conflicting interest into the market. Moreover transmission companies were not authorized to purchase and sell gas as they have separate companies doing this type of business only(no merchant function) however this restriction did not apply to distribution companies as they may purchase and sell gas to supply captive users or be competitive. [52]

There are major yet partial limitation to cross ownership control for Distribution, Transmission companies, producers and marketers are very strict in this sense as cross ownership of the chain is absolutely banned through direct, indirect or common cooperate control of link over another one. There are also other measures which were used to promote competition in the gas industry among them is the establishment of a secondary market for the resale of the capacity. The advantages of this measure are given as follows:

a)Allocate firm capacity to the shippers that most value it; b) Reduce the firm unit cost of all the shippers with a firm contract capacity; c) sell unused capacity as firm service rather than interruptible; d) increase the load factor of the gas pipelines and e) the supply capacity without resorting to expansions unnecessarily.

b) The selection of contractual third party access jointly with transparent capacity allocation procedures and framework contracts in order to have access to services proved to be a good complementary system that gave option to users. The third party access process is evolved pursuant to the demand for more transparency. This was no hindrance to allocation of capacities nor the negotiation of specific aspects required for gas supply. This procedure was used both for transportation expansion to cover the needs of the domestic market when a new transportation structure was created to cater for the foreign market.[53]

[52] Investment Opportunities at http://www.consargenmt.com last visited on 25-08-2006

[53] Ibid

2.4 EUROPEAN UNION

The European gas market is experiencing since the second half of the Nineties a wide and complex liberalization process. The European Directives and the national plans have designed a common path for energy markets; this path is built on the principles of Third Party Access or third party access to the transport networks, of unbundling of the incumbent activities and of demand. Several key points were addressed in the implementation of the liberalization process, which created both theoretical and political challenges. Among these challenges were: the redesigning of the horizontal and vertical structure of the industry, the privatization of the incumbent, the separation of the network segments from the potentially competitive ones, the role of regulation in guaranteeing a non discriminatory access to the network infrastructures, the development of a competitive environment.[54]

Europe through their liberalization policies focused on two steps. First is the opening of the market and second is the development of the competition. These two steps are interconnected. By the market opening new entrant are encouraged to enter the market through the principles of third party access and on its basis to develop competition in the energy market, since entry is not synonymous of competition. There are many ways through which the new entrant find its profitable market position without threatening the incumbent's market power. The liberalization policies, therefore, have to closely monitor the two phases of market opening and of competition development.

2.4.1 Liberalization of the energy markets: a key economic issue

The European commission has approved a design for energy market in the second half of the Nineties. The member countries on its basis developed their national plans with slight differences and with more or less advance approached. In November 2002 the commission approved new directives for the energy market that refine the approach followed in the liberalization process.[55]

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[54] Michele- Polo-and Carlo Scarpa .The Liberalization of energy markets in Europe and Italy.(Rome, 2002).P-17

[55] Ibid P-19

2.4.2 The European Directives

The European commission in the second half of the Nineties promoted the liberalization of the gas industry. For that purpose it issued several directives through which it defined common framework of principles and rules and made the member countries under obligation to frame a national liberalization policy with in a prescribed time.

The general principle that the Directives promote is Third Party Access (TPA). According to this principle the owner of the network is obliged to accede to all the delivery requests through the network made by the production and sale operators after setting a cost reflecting and non discriminatory access price. The Directives also gave choice to the member countries to set access price either by way of negotiated access or regulated access. The directives also provide exception to the principles of third party access; in case if the request is beyond the available transport capacity then the network owner can refuse to give access to third parties or if the incumbent, giving access to the competitors, is unable to deliver its own gas to cover the take-or-pay obligations, even then the network owner has the right to refuse access. Due to the excessive use of take and pay clauses and long list of long tem contracts of operators this exception can create non trivial problems to the implementation of the TPA principle in the gas industry.[56]

Third Party Access alone can to be used as a mechanism to avoid the barriers that the current firms can create to hinder the entrance of the new entrants. Therefore some sort of separation of activities is promoted, under the general heading of unbundling. Different solutions are left to the member Countries; one of the fundamental solutions is the mild legal separation of proprietary monopoly activities from the competitive ones by creating different companies under a common holding with weak version of separation of accounting. Since the separation of accounts does not reduce the strategic opportunities to foreclose the market, therefore the scope and powers of the regulators cannot be defined without taking into account the degrees of freedom left to the incumbent.

The Directives also focused on the opening of the demand side along with the market opening and development of competition. To open the demand side it introduced the

[56] Liberalization of EU electricity and gas markets, Euractiv ,4th Ocotober,2005.at http://www.euroactive.com/en/energy/liberalization-eu-electricity-gas-markets. last visited on 25-08-2006

notion of eligible customers, i.e. the gas clients that have the right to seek for the most convenient supplier. These customers are identified by their yearly consumption and a timetable is set to widen the portion of liberalized demand by defining lower and lower consumption thresholds. Moreover, a Single Buyer for the franchise customers is suggested among the possible solutions.

The directives have not adequately treated other factors like desirable degree of separation of the competitive segments of the industry, the kind of market organization and the role of state ownership in the different segments. All these factors are left at the discretion of the member countries. The directives only focused on prevention of foreclosure of new comers by granting access to the monopoly segment on non discriminatory terms. The directives considered the barriers that the current firms could build for refusing the entry of new competitors by refusing to give access to the essential infrastructures as the first obstacle to liberalization. However, creating a level playing field is not the only condition to promote a competitive environment, in particular when the liberalization process starts from a situation dominated by a vertical integrated state owned monopolist.[57]

2.4.3 The national plans in the member Countries: creating a level playing field

Almost all the member Countries have set up and approved the national liberalization plans within the deadlines set by the Directives that is August 2000 for gas. Since the members states were given choices on different issues concerning market liberalization therefore different types of plans and implementation policies exist in the gas industry of member countries, with a reference to the three relevant issues of the liberalization problem, TPA, unbundling and demand opening. Some countries, as Belgium, Finland, Germany, Ireland, Spain and UK, have designed a liberalization plan for gas that closely follows the same approach and solutions of the electricity case. There are, however, some relevant cases in which the gas plan seems less advanced than the electricity one. Namely, Austria, Italy, Netherlands and Sweden have adopted a solution on the unbundling issue less effective than in the electricity case and Denmark and Sweden

[57] Commission of the European communities, Annual Report on the implementation of the Gas and Electricity internal market.(Brussels:2005)p-7

designed a slower time path for demand opening. Finally, France, Greece and Portugal have left unspecified most of the key topics of their plan, designing a very unsatisfactory solution.[58]

2.4.4 Third Party Access: further issues

The implementation of third party access within the general frame work of national plans requires to address some additional issues with respect to level and structure of network charges, the access to the balancing services and cross border interconnection. These issues play crucial role in the effective liberalization of the gas industry.

The first issue is net work charges which need to be address for the effective implementation of third party access. The incumbents in some countries where the separation of the network from the competitive activities has been only partial (legal or accounting unbundling) usually increase the network charges to the competitors reducing their ability to compete in the liberalized segments. Or some time the network charges are not cost reflective. Other form of rigidity also derives from the fact that the transport capacity between two points is given only for period of one year thus limiting the ability of the company to meet the demand of the consumers if variation occurs during that period. Or due to non availability of transport capacity at certain entry point the chance of local submarket become limited for competition thus protecting the incumbent in that area. The access to the storage facility is also an other problem to be solved since the storage capacity is sold along with the transmission capacity in countries like France, Belgium, and Netherlands thus creating rigidity in the system.

The second important issue in the implementation of TPA refers to balancing. Since new comers have to purchase supply capacity before knowing the amount and characteristics of demand, they can find themselves unbalanced, with an excess or a gap in supply. The balancing regime, and namely the prices for imbalances, therefore, can represent a serious problem for new comers, mostly when there is no wholesale liquid market where additional capacity can be bought.

[58] ibid

The third relevant problem with TPA concerns cross border transactions and interconnections. Foreign capacity is crucial under two respects: the possibility of buying supply capacity abroad gives more degrees of freedom to small new entrants in a national market; moreover, cross border transactions can be a way for large European incumbents to start competing on the other markets. Hence, sufficient interconnection capacity and a non discriminatory and cost reflective tariff structure can help creating an effective competition at the European level.

However there are several problems with respect to cross border transactions which still remain to be solved. These problems are concerning harmonization of the transmission tariff systems across countries and the allocation of interconnection capacity. The designing an efficient and cost reflective tariff structure is not an easy task since the inflow of gas from abroad can reduce congestion, with a benefit rather than a cost for the system.[59]

The allocation of capacity is still far from settled under market based standards. Lack of transparency on the availability of transport capacity is prevalent. Moreover the import contracts contain destination clauses that prohibit reselling the gas in other member countries. And finally, for cross border transactions, huge investment is required to increase the capacity of interconnections.

2.4.5 The creation of a competitive environment

The national liberalization plans focused on TPA, unbundling and demand opening, because these are the areas which the European directives obligated them to develop national plan for it. Since the issue has been left to the member countries, and in most cases no effective intervention of commission is found therefore very concentrated markets in the upstream segments (production/import for gas) is found. Only UK and, partially, the Netherlands and Denmark, correspond to a competitive market structure, while in most cases the degree of concentration is extremely high.

[59] Michele- Polo-and Carlo Scarpa .The Liberalization of energy markets in Europe and Italy.(Rome, 2002). P-20

2.4.6 The new 2002 Directives on Gas.

In November 2002, the European Commission has approved new Directives for gas that review in parallel the experience of the recent years and propose some refinements within the approach so far followed.

The directives to handle the issue of unbundling developed a minimum standard i.e. the legal separation within a holding group for the network activities. This measure clearly binds, and represents a step forward towards the right direction. However effective proprietary separation is not imposed due to the lack of power and jurisdiction of the Commission. Moreover, the Directives do not require the network segments to be financially autonomous from their parent companies, leaving room for cross subsidies.[60]

The directive also abolished the negotiated access regime for the TPA transactions. It also introduced regulated regime which is based on prior publication of access tariffs, or at least of the methodology for their calculation. Moreover, the Directives obligated each member Country to establish a regulatory authority for the energy markets, which will review the access tariff. Both these measures have a major impact on the German situation, where the liberalization process took place under negotiated access prices and in the absence of a regulatory body. On demand opening, the timetable for complete opening is shortened, with a final deadline for all the retail markets by 1 July 2007 and for customers other than households by 1 July 2004.

2.5. ITALY

2.5.1 The liberalization plans

In 1999 and 2000 the Italian Parliament has approved the liberalization plans for gas prepared by the Government in accordance to the deadlines set in the European Directives. Although the two policies share the same general approach, they present significant differences.

The Italian liberalization plan in pursuance to the European Commission directives was developed in February 2000. At that time ENI group was dominating the market in all its segments. However it was privatized in the second half of the Nineties. The main elements

[60] Ibid p-22

that were addressed national plan in accordance to the directives were summarized as below:

a) The unbundling principle has been implemented through legal separation of the different activities within the ENI group. Separate company carries the transportation and storage activities, with accounting and managerial unbundling of the two activities; however it can not carry out the local distribution and sales activities. Moreover a separate company carries out the function of production and imports of gas.

b) Third Party Access is introduced with regulated tariffs defined by the regulator; the access can be denied if there is insufficient capacity; moreover, transport capacity requests by operators burdened with take-or-pay obligations must be given priority in defining the access order.[61]

c) Antitrust ceilings are introduced in the interim period of liberalization: beginning from January 2002 no single operator can enter more than 75% of gas into the national transport network; this threshold will be reduced by 2% each year until 2010, with a final market share of 61%. Moreover, from January 2003 to December 2010 no firm will be permitted to sell more than 50% of gas to final customers.

d) From January 2003 all the customers (commercials and households) will become eligible, with complete demand opening.

e) The tariffs for franchise customers and for the transport, distribution and storage activities are set by the regulatory authority (AEEG) according to a non discriminatory and cost reflective standard. The Ministry of Industry retains many competencies on several specific issues, and the Authority implements its intervention within the general lines of the energy policy designed each year by the government.

In the last two years the AEEG has reformed the structure of gas tariffs for franchise customers under a cost reflective approach, and it defined a reference tariffs also after

[61]. Michele- Polo-and Carlo Scarpa .The Liberalization of energy markets in Europe and Italy.(Rome, 2002).P-29

January 2003, when all the clients will become eligible. The average national gas tariff (November 2002) can be divided in three parts: raw cost of gas (21.5%), fixed costs of transport, storage and distribution (32.3%) and a very high burden of taxes (45.4%).[62]

2.5.2 Third party access issues

The crucial issue in the way of liberalization plan is the partial unbundling of the ENI group. This will enable ENI group to operate in all segment of the gas with other companies thus maintaining an extremely high market share all over the market. This will ultimately give the incumbent a very strong advantage and makes the public policy implementation quite difficult. To solve this issue the most important structural measure that would be needed is the proprietary separation of the national transmission network and storage facilities from all other activities. Moreover it is also required that the shares of the ENI group in the international pipelines should be assigned to this new and independent company as well. Through these measures, all the national and international assets in transport activities would be separated from both the upstream provision of gas and the downstream retail supply to final customers. Moreover, the antitrust ceilings both in the sale and entry into the market will play strong role in the evolution of the gas industry.

The maximum contracted capacity, including national production and import, of ENI and the existing third parties (Enel, Edison, Dalmine, Plurigas and Energia) is sufficient to cover demand up to 2010. This supply capacity is calculated on the maximum annual supply provided in international contracts which is larger than the minimum capacity covered by take or pay obligations. The ENI minimum import supply is larger than the maximum injections of gas into the national network allowed by the antitrust ceilings (fourth row). Therefore, the dominant firm will not be able, from 2002 to 2010, to cover all its take or pay (t.o.p). obligations with sales in the Italian market. Moreover the existing third parties who contracted currently for provision of gas will be unable to meet

[62] General Energy Policy overview at http://www.iea.org/textbase/nppdf. last visited on 25-08-2006

the increasing demand thus left a portion of demand unmet as there is no supplier who has contracted provision of capacity.[63]

1.1 Effects of the antitrust ceilings (blns of m2)

	2002	2006	2010
Demand	**75.3**	**83.9**	**90.6**
Max. Contracted supply (ENI+T.P.)	**84.9**	**97.7**	**98.6***
ENI minimum supply (t.o.p)	**60.5**	**63.4**	**61.7**
Antitrust ceilings	**57.2**	**59.9**	**59.6**
ENI supply surplus	3.3	3.5	2.1
Residual Demand	18.1	24.0	31.0
Third parties contracted supply	12.0	19.3	19.2
"Free" residual demand	6.1	4.7	11.8
Innovative sales	6.5	5.3	5.3

These figures suggest that antitrust ceilings open a possibility of new entries in the national market, reducing the market share of the incumbent by an amount larger than the initial supply capacity of the existing competitors. However there are many different solutions which can be imagined.[64]

[63] Sally Van Sidan, Regulatory Reforms in electricity, Gas, Rail Road: The Gas Sector in Italy. At http://www.oecd.org last visited on 25-08-2006

[64] Michele- Polo-and Carlo Scarpa .The Liberalization of energy markets in Europe and Italy.(Rome, 2002). P-38

1. ENI might sell part of its long term take or pay contracts that correspond to a maximum supply larger than the minimum provision of capacity reported in the third row above. In this case, the new buyer would pay to the extractor the same prices originally contracted by ENI, with no additional margin. Moreover, the new gross provider would have no further link or relation with the ENI group, and would be therefore completely independent.
2. ENI might resell abroad part of its gas to other existing or new Italian operators that will import the gas into the national system; in this case the new buyers will close the supply gap generated by the antitrust constraints, as before, but presumably they will pay the gas at a higher price that includes also the ENI margin. Moreover, an important component of their cost would be determined and known by ENI that will act as a competitor in the final market. Finally, an ongoing relation would take place between ENI, as a gross gas provider, and the new entrants. Overall, the new buyers would be continuously in a mixed position of clients (upstream) and competitors (downstream) with ENI.
3. ENI might keep all its portfolio of long term contracts but try to sell its gas in other European markets. In this case the supply gap created in the Italian market by the antitrust ceilings would leave room to fresh new entrants with no direct link with the existing incumbent. This is potentially a first step towards the creation of a European market for gas. By entering foreign markets, in fact, ENI would gain market shares of other European firms that might find it attractive to enter the Italian market. Whether this scenario results in enhanced competition or simply in a coordinated reallocation of national markets among the largest incumbents is still an open question.

Some restrictions on ENI regarding the gas contracts exceeding the antitrust ceilings should be set. More precisely, the ENI group should be left free to choose between the first (sale of long term contracts with the extractor) and the third (sale of gas into other national markets), while the second alternative (sale of gas to national retail suppliers)

should be forbidden. No such measure, however, has been prescribed in the liberalization plan.

Antitrust ceilings produce further effects since the threshold on final demand (50%) is lower than that on gas provisions into the national network (from 75% in 2002 to 61% in 2010). Hence, a consistent share of the gas that the incumbent firm will enter into the national transport network will be sold to other operators active in the retail supply segment. The double relation with the incumbent firm, as clients and competitors gives the dominant firms an opportunity to impose lax competitive conditions. [65]

The three cases discussed above involve a reallocation of market shares in the international gross provision of gas, with ENI supply capacity in the national market being replaced by some new operator. Since the provision of gas would be delivered from abroad (Netherlands, Norway and Russia), a reallocation of international transmission capacity is needed as well.

Gas provisions from Norway and Netherlands reach Italy through two international pipelines, TENP from the Netherlands into Germany up to the Swiss border, which is owned with equal shares by ENI and Ruhrgas, the main German operator, and TRANSITGAS, that reaches Italy through Switzerland, owned by Swissgas (51%), ENI (46%) and Ruhrgas (3%).

Russian gas is delivered by the pipeline TAG, that passes through the Check Republic and Austria reaching Italy; the transport rights are owned by ENI (89%) and the Austrian OMV (11%).

It is therefore evident that the ENI group has a relevant control on the international pipelines towards Italy, together with the incumbent operators in important close foreign markets. Thus ENI would be in competition with other foreign gas provider. However ENI has an extra advantage over the rest of the competitor as it has transmission right which can be used for provision of gas, thus enabling ENI to charge some extra surplus from the buyers for provision of gas . In this circumstances selling gas, rather than long term contracts, to Italian operators becomes the more profitable solution. The third

[65] Sally Van Sidan, Regulatory Reforms in electricity, Gas, Rail Road: The Gas Sector in Italy. At http://www.oecd.org

scenario (selling the exceeding gas capacity on foreign markets) would still be an alternative, but the strong links with some European incumbents, e.g. Ruhrgas, suggest that this solution might be more in the spirit of a coordinated market reallocation across countries rather than of real competition.[66]

During 2001 ENI has sold to a group of Italian operators (Dalmine, Plurigas, Edison and Energia) significant provisions of gas taken from its Dutch and Norvegian third party operators. The contracted price clearly includes a margin over the original price paid to the extractors. Moreover, the annual supply is burdened by take or pay obligations and it is sufficient to cover up to 2006 the Italian demand for gas. This gas provision contracts were endowed with full priority transmission rights on the international pipelines that ensured the delivery of gas in any circumstance. Taken together, these elements make the entry of additional competitors in the final market very unlikely in the next years.

In this circumstances the anti trust ceiling will only result lost of competition for the new entrant as in the next years all the residual supply capacity created by the ceilings will be covered by a limited group of small operators, that will buy most of their gas from ENI, receiving it through international pipelines owned by ENI. The access to the international pipelines is therefore one of the crucial points that required to be considered for the development of competition in the Italian market. In the year between August 2001 and August 2002 the transmission capacity at the entry points from Northern and East Europe (Passo Gries and Tarvisio) was completely allocated, as well as that of the LNG terminal at Panigaglia, while the entry point from Northern Africa, Mazara del Vallo, had some unused capacity (15%). The Italian regulator (AEEG) has decided in 2001 incentives to new capacity investment also in liquefied natural gas terminals, giving the investors priority in the access to the realised facilities. The AEEG has devoted attention also in designing the access tariffs to the national transmission networks and storage facilities, in order to remove the bottlenecks to third party access. The predominant role of the ENI group in the transport and storage infrastructures, however, makes the implementation of these measures extremely difficult.

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[66] General Energy Policy overview at http://www.iea.org/textbase/nppdf. last visited on 25-08-2006

The second important issue in market development refers to the organization of the retail supply market. The Italian liberalization plan, as most of the other European reforms, has chosen a decentralized market organization. In other words, the retail suppliers buy gas from the extractors or from gross providers and resell it to the final customers. The contract relation upstream involves t.o.p. obligations on a certain amount of the contracted gas.[67]

Due to the decentralized market setting, the retail suppliers will have to cover t.o.p. obligations on a relevant part of their contracted capacity, and therefore will have strong incentives to avoid competing for the same customers, a commercial strategy that would expose to very low prices and high losses on t.o.p. payments. In this case if two firms with zero marginal cost compete for the same customer they will set very low equilibrium prices and will obtain revenues insufficient to cover their t.o.p. obligations. The most likely outcome in this case is market segmentation, in which the market shares left by the incumbent are covered by a small group of competitors, each serving a different segment of the market with no real competition.

Antitrust ceiling can not only be used as mean to avoid this outcome . Competitive equilibrium in the retail segment can occur only if the suppliers to the final customers have no take or pay obligation on purchase of gas.. This can be achieved if a wholesale gas market is organized, and such price is set which equate total demand and total supply, with the retail suppliers buying from the market with no take or pay (t.o.p) obligations and the gross providers selling "to the market" and covering their t.o.p. obligations.[68]

2.6. RESULTS INFERRED FROM INTERNATIONAL EXPERIENCE

Different countries have different forms of gas market. Each gas markets have to face different types of hurdles for development of competition in the market. For example in case of Brazil the companies carrying the business of distribution has territorial monopoly in the region therefore they can use their monopoly power to discriminate

[67] Michele- Polo-and Carlo Scarpa .The Liberalization of energy markets in Europe and Italy.(Rome, 2002).P-40

[68] Ibid p-45

among the consumers and develop verticalization strategies. Therefore a need is felt to regulate the framework. For that purpose the regulator introduced incentives for supply of low volume consumers so that the higher consumers will not face excessive risk that the market can generate to them. The Regulator also encouraged new entrants in the gas industry and also gave them the choice to enter in other industries. In the case of Mexico the gas market was characterized by insufficient production and lack of competition. In order to handle such situation gas laws were amended in order to allow the private investment in new transportation, distribution and storage projects. The regulator also focused on the problems of pricing, vertical integration, exclusivity and third party access. In Argentina, distribution companies are the exclusive suppliers of small consumers (those consuming less than 5000 m^3/day) while they compete with other suppliers for larger consumers. Thus the experience of the countries which are in the process of getting mature market shows that third party access is the only tool which the government should introduce in order to overcome the barriers created by the incumbent firms in the way of competitive market. It also shows that there are some factors which play important role in the introduction of third party access in the market among them are:(i) the degree of unbundling or separation of activities; (ii) the existence of restrictions on the vertical ownership of transmission and distribution companies; (iii) the adoption of tariffs reflecting costs for network segments of the industry; (iv) the regulatory regime; and (v) the degree of market opening.

These countries also learnt that in order to get a competitive market for gas industry the regulator should have the power to ensure that any spare capacity in a pipeline is to be offered on a nondiscriminatory basis to anyone who wishes to make use of that spare capacity to transport gas. The regulator should also have the power to provide interconnection between existing and other lines so that spare capacity is utilized.

In cases of dispute, the regulator fixes the transportation tariff to be charged.

Hence the role of regulator was made independent from the government, in order to achieve competitive environment in the industry.[69]

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[69] Gas Deregulation Report Global,2006 at http://www.researchandmarkets.com last visited on 23-08-2006

CHAPTER III

COMPETENCE OF OGRA IN REGULATING THIRD PARTY ACCESS

OGRA under the Ordinance has the power to ensure the availability of capacity in a pipeline on a nondiscriminatory basis so that it can be offered to interested party who wants to make use of it for transport of gas. It has also the power to provide interconnection between existing and other lines so that spare capacity is utilized and to solve the dispute between the interested party who is denied access and the incumbent. In addition to that OGRA has also to monitor the function of the agents and their compliance with the access principles and to approve prescribed tariff. [70] The incumbent companies are under obligation to furnish data regarding their available capacity and made it publicized so that it can be accessed by interested parties.

OGRA is striving to act as an independent regulator in order to establish a competitive market however due to the lapse of regulatory reforms in the sector and weak legislation on third party access, OGRA is not been able to produce the expected result.

3.1 Role of OGRA in the present set up

Establishment of the regulator is considered one of the key factors for the development of the competition in the sector. The regulator in order to be more effective in the process of regulating the gas sector; it has to be independent. The independence of the regulator can be achieved if it carries out the following regulatory functions (i) grants of licenses and enforcement of its conditions (ii) formulation of tariff regulations which cover prescribe and retail tariffs (iii) laying down conditions for network access (iv) grants of

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[70] Oil and Gas Regulatory Authority Ordinance, 2002

approval for network investment (v) laying down technical regulations for access (vi) and competence to resolve the disputes

Pakistan has made impressive progress in reforming and restructuring the gas sector. It has established a regulator in the sector and has started to reform the tariff structure and tried to make favorable solution for the problem of third party access. Inspite of all these steps it has been observed that the gas industry is still not economic oriented because the role of the regulator overlaps with the role of the government. Government shares the regulatory functions with OGRA. For example the regulator can not lay down regulations for prescribe and retail tariffs since retail tariff falls under the domain of the Government. Moreover for the establishment of third party regime it has to follow curtailment guidelines of the government similarly it has also to follow policy guidelines for the development of the network. Thus the Government directly or indirectly performs several functions which may result in conflict of interests with the regulator. Therefore it is necessary that the normative function should not be shared between the government and the Regulator. Government should consider issuing general policy guidelines as well as Ordinances/Acts only in relation to the process of restructuring during the transition period .However, once restructuring takes place, the normative function should be entrusted to OGRA exclusively. These guidelines should not be too detailed so as to resemble regulations that may later be changed and unnecessarily restrict the role of OGRA. Policy guidelines should refer mainly to principles and objectives, and should be sufficient to provide the framework for OGRA to issue regulations and other procedures.[71]

Government should also take necessary step for the unbundling of the TDS in order to create favorable grounds for the regulator to establish a third party regime in the sector. Since there are provisions in the OGRA Ordinance which empowers the regulator to establish a third party access system. Although access has not been defined in precise terms however conditions under which access is to be provided is defined in Section 6 (j)(i)(ii) of OGRA Ordinance. The plausible interpretation of the Ordinance is that

[71] Monem Farooqi, , WB criticises OGRA role in Regulating Petroleum Sector, (Lahore: 2004) at http://www.nation.com.pk/daily/doc 2004

OGRA intervenes in the approval process of the transaction making sure that space is available and the price of the transmission services compensates the provider of the services. The Ordinance also made it obligatory to declare the available capacity and inform the same to the Authority accordingly. The Regulatory Authority should ensure that the capacity is not being hoarded which is economic inefficiency. If access is denied to the interested party and he is not satisfied with the explanation of the incumbent, the interested party may always resort to the Regulatory authority for resolving the disputes.

Recently Government is determining the retail tariff for the end users and OGRA is entrusted with the power of determination of prescribed tariff. The prescribed Tariff include the gas price plus the combined pass through costs of the integrated transmission, Distribution and supply services, with no separation whatsoever of the costs of providing each of these services. OGRA is taking some steps to introduce the change in the current methodology. One of them is the notification of uniform system of accounts where TDS are required to allocate costs to their transmission and distribution activities separately. The period of implementation of that system was 1 July, 2005 however both the TDS have not taken any step so far in this regard.

OGRA and the government are performing their functions side by side inspite of that there is no fair and effective competition in the gas sector. Therefore the government should take further reforms in order to get a competitive market. Like it needs to empower OGRA to carry out all the regulatory functions including the determination of retail tariff in order to develop open, transparent and non discriminatory access regime.

3.2 Role of the Government and OGRA under Petroleum Policy 2001

According to the Policy Framework for Purchase of Gas under existing Petroleum Concession Agreements, GOP offers to purchase gas from new discoveries if there is sufficient domestic demand and no infrastructure constraints. The price at which the gas is sold is determined by the concession agreement (and it has varied over the years). The price of gas is related to that of oil; delivery of gas can be either at field or at pipeline system injection point; and the producer may arrange for the financing of the pipeline expansion. The producers will either deliver the gas to the party nominated by the GOP or in case of their refusal to nominate any party to construct and operate the pipeline or

reach an agreement with the designated buyer to do so.[72] The tariff of this pipeline will then be determined by the OGRA, who can also rule whether the pipeline shall be regulated or non-regulated. The market opening takes place by defining who the eligible customers of gas will be, and possibly the shippers of the gas. Nonetheless, the Petroleum Exploration & Production Policy (PEPP) may not fulfill the objective of market opening. The producers under the policy have the right to choose the government to buy gas at the policy price or the price provided in the concession agreement. The price of concession agreement also create a hurdle in the way of market opening since it does not reflect market conditions which could encourage the oil companies to resell their gas to GOP which will later resell it in bundled market, in this way the oil companies also avoid taking market.[73]

3.3 Competence of OGRA for regulating third party access under OGRA Ordinance, Rules and Regulations

Third party access provisions provided in the Rules and regulations are in line with the current practice. But present rules and regulations are conflictive and inadequate to render the expected result. Following is the analysis of the Rules and Regulations so far promulgated which provide some legal basis for the implementation of third party access.

(i) The OGRA Ordinance (2002) and TPA

The Ordinance provides that GOP under Section 21 will issue policy guidelines for access, which will not be inconsistent with the provisions of the Ordinance and the Authority shall comply with the policy guidelines and issue rules and regulations on the access conditions, and approve tariffs for transmission and distribution. However, the Ordinance does not define access in precise terms; rather it refers to the concepts of common carrier, third party access and common operator. It also does not define whether the transmission and distribution rates refer specifically to the transportation of gas from reception to delivery points in the pipeline system, or whether it includes or excludes the

[72] Petroleum Exploration and Production Policy (PEPP) 2001

[73] Petroleum Exploration and Production Policy (PEPP) 2001

merchant function. It would appear that the supply function will be carried out by the future distribution companies. OGRA is planning to commission a study pertaining to the development of third party access and common carrier regime shortly for that purpose it sent term of reference for all the consultants and specified the lines on which they have to provide assistance to the Authority.[74]

(ii) **The Licensing Rules (February 2002) and TPA**

The Licensing Rules also refer to common carriage and third party access. It is not clear in the rules that whether these terms refer to the same thing. The Licensing Rules Obligate the licensee to provide for a fee determined by the Authority, non-discriminatory third party access to its transmission or distribution facilities provided spare capacity not being used by it is available. This provision however does not mean that if demand exceeds capacity, the licensee would be under obligation to provide transportation services. The definition of third party access adopted in the Ordinance is similar to that in Argentina, which refers to nondiscriminatory access to capacity not contracted in the pipeline.

The Rules clearly specify that access will be regulated. The obligation of the pipelines to provide this service is subject to the financial test: additional capacity from an expansion does not yield the right of return. However, OGRA should also carry out an economic test of the expansion, since the incremental cost of expansion may be higher than that of other alternatives for transporting gas. In addition, the expansion and extension procedures should define whether the nondiscriminatory principle is fulfilled by awarding access through a methodology that allows prospective customers to compete for pipeline capacity that is available.

Access has been defined mainly in relation to the producers' rights to build and operate pipelines to move their gas from the gas fields into the markets. This has been a common feature in developing gas industries, where producers require a guaranteed to take gas for a long term in order to develop gas fields. Access in turn cannot be detached and

[74] Marc Heitner and Waqar Haider, *Pakistan Oil and Gas Sector Review.*(World Bank:2003) –P-7

analyzed separately from the gas sales and allocation mechanisms since producers are interested in the production and sale of gas at injection points in the transmission network or on consumer premises, the latter of which may also involve the distribution network.[75]

(iii) Tariff Rules and TPA

The Tariff Rules focus largely on the rate revision process and its procedures. A number of tariff-setting options have been stated in general terms (return on assets, return on equity,) which may provide flexibility to the Regulator. However, the few sub-rules on the criteria for evaluation of rates do not provide guidance for the separate pricing of transmission and distribution services. Separate economic pricing of transmission and distribution services is necessary to generate unbundled transactions and thus make third party access an effective tool for promoting alternatives services to consumers and producers.

As a first step toward introducing TPA during the transition, the current tariff study, is focusing to provide a methodology to calculate tariffs for firm (guaranteed supply and provision of service even if demand far exceeds supply at a given point of time) and interruptible services both for transportation and distribution; identify the eligible customers/shippers; and elaborate the corresponding model contracts for these services. The pricing of interruptible services has to reflect capacity constraints. In Pakistan, they should be much lower than firm service, because of curtailment of services in the winter season.[76]

The industry now in the process of privatization, the government intends to privatize the TDS companies in order to facilitate the process of unbundling. However the privatization process can not be effective unless separate pricing of each activity is to be made. OGRA for that purpose has commissioned a study to evaluate the tariff regime and to propose the improvement in the current tariff system. After careful evaluating the

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[75] Ibid –P-8

[76] Marc Heitner and Waqar Haider-. *Pakistan Oil and Gas Sector Review.*(Islamabad :2003) –P-82

various options given by the consultants (Economic consulting Associates (ECA) of UK) the Authority has developed a new tariff regime for regulated natural gas sector which is currently being reviewed by the Federal Government and other stakeholders and which will be finalized after the consultation with the consumers through public hearings

4. FINDINGS

The government has made several attempts to improve the situation of gas sector by accelerating investments in exploration and production field. Moreover, it has introduced the concept of third party access in its petroleum policy. OGRA also incorporated provisions for third party access in its Ordinance and obligated the licensees under the license document to furnish information to OGRA regarding available capacity on their system. However the present situation which prevails in the gas sector shows that the licensees have no sufficient capacity in their system in order to offer its access to third party. Moreover there two tariff systems which are applicable in the sector one is the retail tariff which is also known as end user tariff and is determined by the Government and the other is prescribed tariff that is determined by OGRA on revenue per unit sold to the consumer by excluding the GDS from the retail tariff. Since this tariff system reflect political and social considerations mainly in the first and second slabs of residential and the fertilizer plant therefore some consumers like power plants pay higher price for interruptible service. In the present situation it can be said that any regulatory provisions for third party access would be incompatible with the framework under which the TDS are presently operating. Hence it is required to convert a close access system into open access system keeping in view the international experience. The international experience shows third party access played a significant role in the introduction of the competition in their gas market. They introduce the concept of outside shipper which ships the gas from the TDS system for their own supply or for supplying others. The shipper can be a producer, a consumer, or an intermediary selling gas from/to other sellers/consumers. When the merchant function is removed from the TDS Company it becomes a carrier shipping gas only for third parties. The countries also realized that third party access also depends on many other factors like (i) the structure and organization of the industry: (ii)

the degree of unbundling or separation of activities; (iii) the existence of restrictions on the vertical ownership of transmission and distribution companies; (iv) the adoption of tariffs reflecting costs for network segments of the industry; (v) the regulatory regime; and (v) the degree of market opening.

In the light of above findings it can be said that OGRA being a regulator needs to take more efficient steps for introduction of third party access .It has to (i) ensure access conditions and pricing should be non –discriminatory and transparent.(ii) Tariff methodology should foster efficient industry practices. (iii) Rules and Regulations should redefined the access and should provide capacity allocation procedure when pipeline capacity is extended or expanded.(iv) the Authority has also to define the consumers in the regulations which can access the services. Moreover in order to introduce the concept of out side shipper it has to remove merchant functions from the incumbent TDS.

5. RECOMMENDATION FOR IMPELEMENTATION OF THIRD PARTY ACCESS

Third party access can not work in the present state of affairs in the industry. Producers supply the gas to the retail market by SNGPL and SSGCL. Even though large number of gas reservoirs discovered in the last decades however still the demand for gas has exceeded the supply. The government in the present setup buys the gas from the producers and reallocates it to the companies at their choice however there is no clarity with respect of pricing and conditions under which access is to be allowed. The end result of such state of affair is that large portion of gas is being sold under bundled transactions and none as unbundled transactions. In order to effectively implement third party access regime in Pakistan which is prerequisite for introduction of competition in the gas sector following is recommended.

Third party access regime

1 The definitions of third party access/open access and common carrier provided in the Ordinance need to be developed in detail. It is recommended that the definition of third

party access/open access as provided in the Licensing Rules be maintained throughout the documentation.

2 OGRA ought to issue regulations applicable to all access-related matters under the principles of nondiscrimination and transparency, particularly with respect to existing capacity, expansions, dispatching and balancing, and customer eligibility.

Government Policy Guideline

The roles of GOP and OGRA in relation to third party access should be re-examined. The Government so far has not issued any guideline or instruction to regulator in order to enable it to formulate rules and regulations accordingly. Therefore there is a need that the government should take some initiatives and issue policy guidelines to OGRA.OGRA as regulator then has to formulate its rules and regulations in the light of principles set in that policy.

Market opening –Supply side

The issue of Market opening –supply side can be resolved by adopting these recommendations : (i) facilitate the sale of dormant/marginal fields;(ii) The government may look into possibility of creating a mechanism for auction of additional gas (iii)introduce the concept of additional incentives in order to promote the activity of exploration and production in the country (iv) make arrangement for supply of additional gas through import of natural gas, LNG, CNG (v) prohibit resale of gas among gas suppliers.

Gas Pricing Policy

There are four gases which are competing in the gas industry i.e. imported and local natural gas, CNG, LPG, LNG therefore there is a need to revise the mechanism of pricing of all the four competing gases in order to remove price disparity among them as far as possible in order to achieve the long term strategic development objectives (ii) the government has also to eliminate the cross subsidization in the gas industry and commercial and industrial consumers should not be subject to higher prices then

domestic consumers(iii) The government should also take into consideration the type of service(interruptive or firm) the consumers are availing and the cost of distance the company has to bear inorder to supply gas to consumers before framing any pricing policy for the consumers (iii) New PEPP eliminated the right of first purchase for the GOP or the E&P company to market the gas and (iv) allow resale of gas at negotiated prices.

Unbundling

There is a stern need to separate T and D-S activities. Therefore OGRA should process with the accounting separation of T and D, making sure that the S function is included in the D business, Moreover OGRA should provide process of legal unbundling of TDS into T and D-S companies by furnishing road map in the license documents of the companies. It should also award separate licenses for the T and D-S functions and discuss the need to impose cross –ownership restriction at the time of privatization or after unbundling take place.

Tariff system

1. The actions required to solve the obstacle of tariff are (i) Tariff methodology needs to be cost reflective, transparent and comprehensive (ii) Gradual change of tariff structure for bundled services in accordance to tariff methodology (iii) Pass through rule should be established for price of gas and transportation cost (iv) Gradual removal of cross subsidies with GOP explicit subsidy financed by the Government budget (v) calculate T and D tariff for firm and interruptible services. The change in the tariff structure and the de-phasing of the subsidies should be announced before privatization and be reflected in the bidding terms as measures to be taken as part of the transition period.
2. Tariffs for transportation services through the transmission and distribution network should be elaborated, and referred to in the model contracts to allow for unbundled sales of services to large users.

Organization of Transactions

The present organization of transactions is an obstacles to the provision of an economic services and for achieving.competition therefore it is recommended that (a) to create unbundled interruptible and firm T/D services (b)consumption categories should be redefined according to the type of service (b) The government is in the process of privatization of TDS companies which can effectively be done if the distribution business is privatized and transmission business remain in the government sector through an intermediate entity owned by the government. By this arrangement many commitments of the GOP in the form of guarantee for payment and commitment to purchase gas from producers through nominated buyers will remain intact.

Market opening-demand side

The country is short of supply at this point of time therefore there is no demand side issue is likely to emerge in near future in Pakistan. Rather short of supply poses challenge to the all the policy makers and players in the market to ensure that gas is supplied at least to all the connected urban consumers.

Allocation of Contracts

The legal/technical process for the transfer of existing gas contracts from the integrated companies (with the producers' consent) to the future distribution companies should be examined. One of the options available to the government that it only privatized the function of distribution while the transmission function remains in the government domain through a separate entity which is owned by the government because through such an arrangement the guarantee of the president for payment on behalf of SNGPL and SSGCL will remain intact.

6. ROAD MAP FOR THE IMPLEMENTATION OF THIRD PARTY ACCESS

In the light of the recommendations mentioned above open access can be achieved by the following four stages:

Stage 1. Interim Access

Stage 2. Final Access

Stage 3. Operational Segregation

Stage 4. Full Retail Contestability

Each of the above stages has special characteristic with respect of its timing and limit of release of each class of consumers from the franchise supply arrangements. However these stages can not be obtained unless and until some activities have to be carried out by the GOP and OGRA. Among many other functions GOP has to promulgate relevant laws in order to establish third party access framework and to confers specific powers on OGRA. While OGRA needs to develop and issue regulatory principles on how it will exercise its powers and performs functions in relation to TPA and to issue regulations and make appropriate determinations especially with respect of tariff in order to ensure that appropriate practical arrangements are in place for the commencement of interim Access.

Stages of TPA

Stage 1. Interim Access

In the first stage a small number of market transactions will be conducted by narrow class of consumers. These consumers can either be corporate customers or direct customer contestable consumers will only be provided access to the system. These contestable consumers represent the largest corporate customers and direct costumers which are directly connected to transmission pipeline or the customers that purchase gas through Gas sale Purchase agreement entered into with a party other than GOP or a licensee. The contestable consumers may also include such customers that were not connected to the system on 30th June, 2005 and thus represent the first group of customers to become contestable after June 30, 2010 when the exclusivity of SNGPL and SSGCL will expire.

Stage 2. Final Access

Final access means that full features of TPA regime are available. Under this stage corporate and direct customers which are not included in the first stage and large and medium business customers will be given access through capacity trading mechanism.

Stage 3. Operational Segregation

Operational segregation would comprise the introduction of measures to provide for the transmission, distribution and supply segments of the licensees' businesses to operate on a distinct commercial basis. This can be achieved through introducing service agreements between these distinct segments of the business. Operational segregation will become effective only when general business consumers would be released. The release of these customers would depend the number of participation in the market and the success of developing multiple independent source of gas supply. It would also depend on the GOP policy to cross subsidization of gas delivery to various classes of customer. OGRA at the end of this stage would be provided an opportunity to review the performance of TPA regime against the GOP's objectives and modify accordingly if the Road map is not meeting the policy needs of the GOP concerning third party access.

Stage 4. Full Retail contestability

Full Retail Contestability could be seen to be the application of implementation arrangement to support the release of the final contestable customers i.e. residential and small business customers. OGRA at this stage could further review the outcome of FRC against GOP's pre-specified objectives.

Process

GOP has to issue policy guidelines which prescribe the framework in which OGRA has to exercise its powers and perform its functions in relation to third party access. It has also to lay down timeframe for the introduction of competition in the supply sector of the gas industry. In order to accomplish all these purposes GOP needs to specify the powers of OGRA to determine the details of each retail market opening (i.e. Tranche).

OGRA while dealing with each retail market opening has to determine the annual consumption threshold to define the smallest customer in each Tranche. Moreover it has to take care of interest of the licensees in order to preserve system security and safety.

OGRA can not establish these arrangements unless there is a legal framework which prevents the GOP from materially amending or re-making the relevant laws and Prevent OGRA from introducing subordinate legal and regulatory measures to achieve different outcomes to those envisaged by law.

Preparatory Work by the OGRA

OGRA in the light of the recommendations of World Bank must laid down regulatory principles on the basis of which it can sets its functions and exercise its powers.

TPA Implementation Process

Third party access implementation depends on the licenses issued by OGRA their amendments and regulations to the existing assets owners and to new market entrants. OGRA needs to consult the licensees before determining the arrangements applicable to the participants e.g. in term of meter standards and tariffs.

One of the effective step which OGRA can take for the implementation of TPA is to first introduce simple form of TPA under interim access and then to refine those initial arrangements and make them applicable to the final access. OGRA for that purpose has to amend the licenses in order to enable the licensees to refine their process accordingly Moreover it also required to revise the regulations at the final stage of access .

Legal Structure

License

It is provided in the Ordinance that no person can carry a regulated activity unless he obtained a license from OGRA under Section 23 of OGRA Ordinance. The persons whom licenses were issued are required to compile with all provisions of the Ordinance, the rules and the regulation and the determination made by the Authority. However if the person does not adhere to these provisions then the Authority is empowered to revoke his license.

Regulations

OGRA under the Ordinance is required to issue regulations on TPA, However before doing so it has to perform some key functions in order to develop criteria and processes for assessing the various matters to be proposed by licensees. The following regulations for implementation of TPA may be proposed by OGRA are as follows:

R1 :Separate Accounts for Industry Sectors

This regulation is considered to be a key regulation to support interim access. The separate accounts is required to be prescribed by regulation in order to ensure among other things that the rules cover all new entrants and the methodology for accounts is

consistent across the industry participants and any new entrant in the industry is expected to undertake it when he enters the industry.

The separate accounting Regulations is required to reviewed carefully before the commencement of second and third stages of access.

R2 Process for third parties to register Interest-Access

R3 Process for third parties to Register Interest-Trading

R4 Process for New License Application

The above mentioned three regulations are related to general processes. However among the three processes, The access application process and new licence application process are required to be in place for interim access, while the process of registering the interest-trading by the third parties only needs to be effectively implemented at the time of commencement of second stage of access regime .i.e. final access, However for the effective implementation of process for access for trading it is required that the other applications in terms of R2 and R4 should be reviewed.

R5 Curtailment

The Natural Gas Allocation and Management Policy,2005, provides the priority in supply of gas in the period of shortage of supply. Though in the new regime there would be no ground to amend the policy therefore it is suggested that this policy is treated as one of the regulations required to be issued by the OGRA. The curtailment priority is fundamental requirement which is required to be clarified before the commencement of Interim access, However, the existence of template arrangement is already in place therefore the curtailment mechanism is not an urgent issue for interim access. In the light of the above the regulation for curtailment once is made, it is recommended that it should be reviewed only on "as needed basis".

R6 Trading Regime

This regime only required to be in place for the commencement of final Access, however The TPA regime does not prevent the already buyer or user from trading its contracted capacity with another person provided that :

(i) The capacity contracted for with the pipeline company is not affected and the existing user is complying with the requirement and obligations under the contract and is paying the tariffs.

(ii) The pipeline company is notified in advance about the intended trade.

(iii) The pipeline company does not disagree to the trade taking place.

In relation to a trading regime:

(i) there should be first existence of contracted pipeline capacity rights and

(ii) any such right (including any ability to trade such rights)will relate to the capacity of transmission pipelines rather than the capacity of distribution pipelines.

R7 Nomination and Scheduling

R8 Balancing and Reconciliation

R9 Allocation of Gas between Suppliers at Reception and Delivery Points

The above mentioned regulations must come into play at the time of commencement of interim access because they represent critical matters to be resolved and addressed by the Regulation.

The mechanism that needs to be introduced during interim access should be in a simplified form However it needs to be refined at the time of final access in order to accommodate the greater volume of transactions and operational complexity to be associated with the further market opening at the stage 2 of access.

These matters are the responsibility of the pipelines companies and they have to determine it in addition to the overall balancing regime for a pipeline-because pipeline company is responsible for providing balancing gas to cover all contingencies.

The natural Gas allocation and Management Policy, 2005 does not provide for allocation in terms of the proposed Regulation at R9. Therefore Allocation agents will need to be appointed prior to interim access.

R.10 Transfer of Contestable End User Between Suppliers

This Regulation relate to the general process only and it does not require to be introduced at the interim access, However it has to be in place at the time of final access.

R11 Metering Standards

R12 Measurement, Specification/Quality Requirements

R13 Supply contracts

With the Exception of gas quality requirements, these regulations may be expressed in a "light handed" form for the purpose of interim access.

Gas quality requirement are required to be lightly prescribed so that an industry participant does not inject gas or arrange to have gas injected to the system from a new supply source that is of a poor quality such that it causes damage to the equipment, or otherwise affects the rights of other participants.

R.14 Tariffs

R.14 is needed to set out the requirements for T,D,S Tariffs

An interim form of Regulation will be required at a reasonable time prior to the commencement of interim access. This is to ensure that licensees are able to make appropriate representations and that OGRA is able to take into account those representations in determining tariffs for interim access. The arrangement for tariffs are critical matters which needs to be resolved prior to interim Access.

The arrangements for setting tariff for Interim Access depend on the followings:

(i) These arrangements will be established on the basis of the information to be obtained under R 1 Separate Accounts for Industry Sectors.

(ii) Service definitions, and pricing relativities will need to be determined for transmission tariffs in terms of the relationship between firm and interruptible services and the relationship between forward and backhaul pricing.

(i) **Pipeline Tariffs**

The existing pipelines are to be regulated under existing return on asset (RoA) arrangements as developed pursuant to section 7 of the OGRA Ordinance. While the for the new pipelines company and for the extension or expansion in the existing company; OGRA needs to establish incentive based arrangement for their pricing. This new costing structure could take the form of a WACC rate of return.

The initial cost of any new pipeline company incorporated into the regime can be added in the asset based of that company if it reflects the costs of efficient sourcing of relevant pipeline asset. Moreover review of the pipeline prices is to be taken every ten years

however, in the first ten years period there will be a fifth year review and adjustment of tariffs.

(ii) **Gas Supply**

Wellhead Pricing Formula

The wellhead pricing formula as given in the petroleum policy 2001 would apply as though prescribed by the regulations

Gas Purchase Price Formula

The current price formula is determined by the GOP, however it is recommended that in future gas purchase formula should be applied in detail until the commencement of initial stage of access, it is further recommended that at each stage of market opening the effect of the formula to be lessen to the extent that when the final stage of access reaches the formula effect will prorate to zero.

Bundled Retail Price Formula

In the present setup the GOP determines the retail prices for each category of consumers. These prices may differ from the prescribed prices determined by OGRA The retail prices now a days are higher than the prescribed prices, however such difference between the prices is consistent with OGRA Ordinance, because license under the Ordinance has to pay the GOP Gas Development Surcharge. The licensee pays the Surcharge under the following mechanism:

(i) a surcharge to the licensee in the event that retail prices are greater than the prescribed prices.

(ii) A payment to the licensee if the retail prices are less than the prescribed prices.

It is suggested that any GDS arrangement in the future should be made in such a way that it lessen the role of government in determining retail prices.

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