Challenges of Privitisation in National Iranian Gas Industry

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Abstract

The IRAN gas industry is a critical part of the Iranians economy. The reform of network industries like gas industry represents one of the great structural transformation of energy sector and economy in the past. Network industries and other public services play a key role in the welfare of citizens as well as in economic growth and business development.

The 44 article of the constitution of Islamic Republic of Iran has created new environment in economy. This paper analyzed gas structure in IRAN and discuss about different challenges about privatization of gas industry in IRAN.

Key words: gas industry, restructuring, privatization

Introduction

The significance and importance of natural gas is well known by international communities. Natural gas in addition of being the main source of clean energy for the nations of the world, can be a critical endowment in countries which possess gas resources, for infrastructure development, economical advances, industrial expansion and a valuable source of income and currency. The International Energy Agency (IEA) which provides valuable research on ways to ensure reliable, affordable and clean energy, in its 2011 report on world energy outlook, highlights the key and vital role of natural gas in the world, each region and each country.

Iran's gas industry value chain in upstream is managed by the National Iranian Oil Company (NIOC) and downstream activities are managed by National Iranian Gas Company (NIGC) with limited coordination between these two.

NIGC at present is a major downstream gas company (corporate and 42 subsidiaries) with operation ranging from refining, transmission, limited storage and distribution to the needs of Iranian public and private sectors including households, power plants, industrial and commercial requirements. Iran has second largest gas reserves in the world, but in spite of this, has limited gas export just to 2 neighboring countries and so far have not played significant role in the international gas market.

In the meantime, according to the amendment of article 44 in regard to privatization and commercialization, NIGC and gas industry must go through a drastic organizational and structural change. Last but not least, Iran's economic development and growth and industrial expansion and higher employment requirement and demographic changes, requires a new enabler. The National Iranian Gas Company combined with Iran's vast gas reserve is the prime candidate to fulfill major portion of these challenging issues and national requirements.

NIGC is a highly complex and large organization. Its structure is shaped based on public and social agenda. NIGC with it`s mostly government dominated style of management, has become a formal, vertical and inflexible organization with limited ability to take full advantage of opportunities which exist at domestic and international markets.

Privatization experience in different countries including America and Britain indicating that different counsels should be adopted for the privatization of network industries up to privatization of these industries to successfully run.

In this article at first network industries will be introduced and then privatization of the gas industry and challenges will study in IRAN` gas company.

Network industries

Network industries are characterized by the delivery of products or services to final customers via ‘a network infrastructure’ linking upstream supply with downstream customers. The eight network industries are telecommunications, postal services, energy (electricity and natural gas), transport (urban, air and railways) and water. The network structure is typically rather costly to establish and embodies substantial fixed costs, implying lower average production costs for larger scale production. This is the main reason explaining the existence of natural monopolies in these industries. However, technological progress has reduced the extent of natural monopolies and has changed the nature of regulation in network industries. For example, as competition in these industries is introduced in an environment in which there exist large and often dominant incumbents, regulation is necessary in the early stages of liberalization to protect new entrants.

Network industries play a major role in society, both from an economic and a social perspective. To optimize this role a reform process was started a few decades ago. In many countries this process was accelerated during the 1990s. The reform basically consists of turning protected and vertically integrated national monopolies as far as possible into free markets that are open to international competition. The most important elements of reform are vertical separation of the integrated production chain; allowing entry in the segments where competition is feasible; and controlling and regulating the segments where a monopoly should remain. In many cases there also is privatization of the public companies that exercise the monopoly.

The concept of network industry

While engineers tend to define networks as a set of nodes and interconnecting lines between the nodes, economists prefer to focus on those features that might interfere with an efficient allocation of resources by an unregulated private sector. The various industries analyzed in the report are too disparate to be encompassed in a single paradigm. Yet most of them possess a couple of features that have in the past motivated the introduction of regulation in lieu of the standard antitrust oversight. They typically involve segments that exhibit substantial returns to scale and therefore are technologically natural monopolies. Returns to scale may involve an infrastructure whose unit cost sharply decreases with volume or whose operation requires an integrated management: an electricity transmission grid, mail collection, or a water or sewerage network. Technological considerations suggest that the infrastructure ought not be duplicated.

This in turn implies that customers and service providers must be given access to the infrastructure. Sometimes, returns to scale may also occur at the customer level as it may be inefficient to connect the customer to several companies. Such scale economies at the customer level may also create a need for interconnection if simultaneously there are network externalities among customers, that is, if a customer enjoys the service more when other customers also consume the same service. This brings us to a second feature present in some of the industries. Consumers may want to combine services supplied by several operators. A subscriber of a telecommunications operator generally wants to call subscribers of other operators and therefore use off-net termination services. A passenger of an airline, train or bus company may want to take a connecting flight, train or bus provided by a different company. A letter or a package may be shipped through several complementary postal services.

The existence of infrastructures and of network externalities raises the issue of compatibility and interconnection among non-affiliated operators.

Unbundling

As we mention before gas industry is a kind of network industry. In these industries unbundling is a key step for privatization. The separation of the competitive segments of the industry can take place to varying degrees and may concern both vertical and horizontal

unbundling of the gas chain. The mildest version of unbundling concerns the simple separation of accounts (accounting unbundling) of the former integrated utility. The strongest version of unbundling is ownership unbundling, which involves de-merging the different activities of the gas chain into separately owned companies. Legal unbundling implies that activities that were once integrated into the same firm are separated and assigned to new corporations whose shareholders are, however, the same as those who once controlled the former vertically integrated utility. Functional unbundling aims to keep management units completely separate within the same company.
Ownership unbundling is necessary to ensure that operation of essential facilities is truly non-discriminatory.

Restructuring process

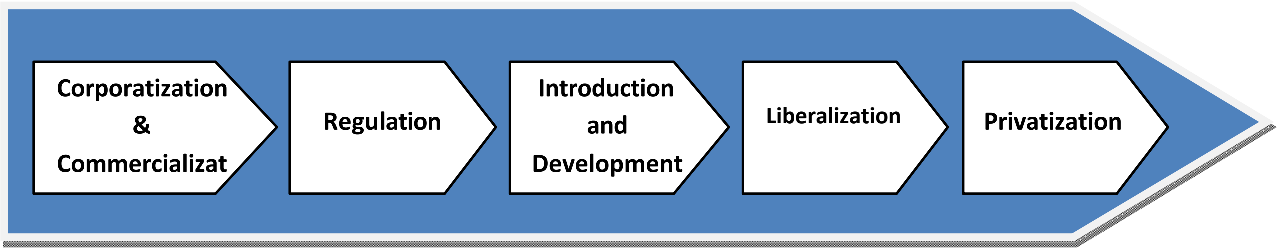
Restructuring process, is defined as a set of planned and the total of the planned and Consecutive actions , that an monopoly firm or industry which generally in public ownership will become an industry with Number of firms which face competition condition. These firms are usually private. Restructuring process will include a series of different measures that lack or faulty design content or poor performance condition cause disorder in expected results that policymakers follow them in restructuring process.
The ultimate goal most of policy restructuring is transfer of public ownership to private ownership. In this regard, different aspects of objects should be considered and different contraption like unbundling and regulations should be done.
Restructuring in all industries are difficult and complex but in networks industries these complexity due to necessity coordination of the total value chain as integrated system is much more. Successful experience of the past two decades in restructuring and privatization in different countries will prove that despite the complexity of networks industries ascertain to compete will be possible. This issue requires the combination and sequence of steps for restructuring. Unbundling, commercialization, development of competition and regulatory in most studies have been emphasized as a primary measures which should done before changing in ownership structure. Lie has been studied restructuring of energy industries such as electricity and natural gas and suggested three steps for it:

- Unbundling
- Development of competition in potentially competitive sectors of the industry
- Create a regulator for the regulation of natural monopolies areas

Lie mention that in network industries free access to physical transmission and distribution networks is essential. Entrance of new players to the competitive condition need equal access to transmission and distribution networks. Due to privatization literature a complete restructuring process comprises the following steps:

- Unbundling and Commercialization
- Regulation
- Competition Development
- Liberalization
- Privatization

In the chart below we can see the restructuring process.



The process of restructuring network industries

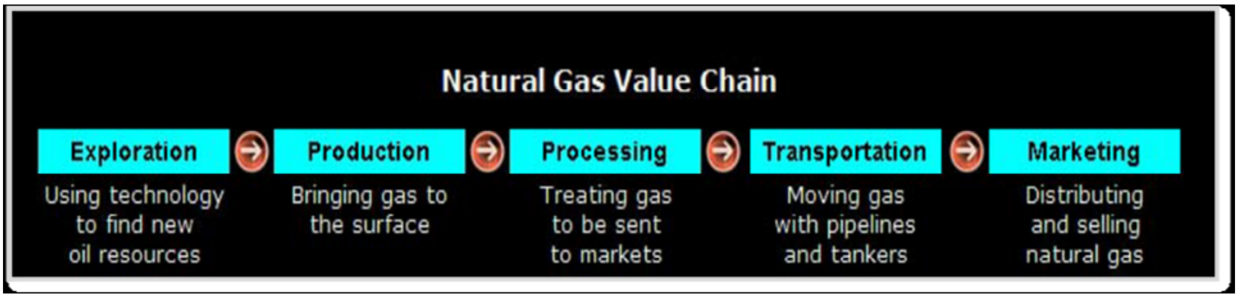
Disadvantages of restructuring before privatization

According to the Article 44 notification policy and the necessity of implementing this policy Privatization of National Iranian Gas Company in recent years, it was on of the most concern for policy and decision makers. But because of multiplicity of decision centers, lack of critic studies and complexity of networks industries has led privatization process do not have a right path. As we mention above for having a correct privatization all five steps must done. Privatization of the National Iranian Gas Company with the current conditions lead to these problems. Each of these issues could cause lots of problems.

- Risks of create a large private monopoly in a strategic industry
- Risk of loss of security of supply
- Risk of price increases and reflects the broad social
- Risk of lack of investment in Transmission network
- Risk of non-cooperation in the development and exploitation of gas fields

Gas value chain

Value chain shows set of macro processes of creating value for stakeholders and notice relationship between macro-processes. Value chain is important because it identify fields of activity in the gas industry and their relationship in order to create value. The chart below shows gas value chain.



Studies show main parts of gas value chain are:

- Exploration
- Development
- Generation and Accumulation
- Refining
- Transmission
- Storage
- Distribution
- Retail and trading

- Gas Market
- Consumption

Unbundling

There are four ways for Unbundling According to different aspects of the separation process. These four ways are:

- Organizational unbundling
- Value chain activities unbundling
- Geographical unbundling
- Technical unbundling

Unbundling and gas restructuring

Industry restructuring means making change in business model. The most important prerequisite of this change model is unbundling. The structure and sequences of unbundling is an important factor for performance of business model. In the most time all four type of unbundling done. First step in restructuring usually is organization unbundling. Technical unbundling, value chain unbundling and ownership unbundling are the next step of this process.

The advantages of unbundling are:

- Having more realistic prices
- Reduce cost of regulation
- Improvement in trading
- Giving services consistent with the preferences of consumers
- The benefits of competition in gas industries
- Better use of natural gas
- More efficient investment in gas industry

As we mention above unbundling is the most important part in restructuring process. These points has been found from in other`s countries experiences in restructuring in natural gas consumption. It has been mentioned as the key elements of success.

- Competitive services should be unbundle
- Retailers should be non-discriminatory access to transmission and distribution facilities
- All retailers should be able to buy gas, using transmission and storage capacity by having contract
- Distributors behave in the same with all retailers according to rules
- Information about gas balance is easily accessible
- Information about other retailers` prices are easily accessible

Business models in gas industry

A business model describes the structure under which an organization creates, delivers, and captures economic, social, or other forms of value. The process of business model design is part of business strategy. In theory and practice the term business model is used for a broad range of informal and formal descriptions to represent core aspects of a business, including purpose, offerings, strategies, infrastructure, organizational structures, trading practices, and operational processes and policies.

Business model in network industries such as natural gas industry, have more diversity and complexity compared to other industries. Business models for the gas industry is organized according to terms and conditions of each country. The general factors which make difference in business models are:

- Scale of integration in value chain activities
- Unbundling
- Number of competitors and companies in the industry and how to divide the work between them
- Convert gas to electricity before transmission or before distribution

Different type of gas business models due to variety of unbundling has created. Five common business model in the gas industry are:

- Vertical Integration Model
- Single Buyer Model
- Competition in production model and local distribution companies (LDC)
- Competition in production and retails outlets model with local distribution companies
- Competition in production and retails model with local transmitter and distributer

This model may be implemented in different countries, with few modifications or changes over time. Restructuring the gas industry is a preliminary step before privatization which makes change in business model. The experience of privatization in different countries shows a trend from vertical integration model to the more complex models based on unbundling. Therefore, identifying and designing appropriate business model is very important.

Appropriate business model for IRAN` gas industry

Select the desired business model of the gas industry is influenced by the surrounding circumstances and considerations of the industry. The conditions and considerations are as follows:

- IRAN` strategy about ownership of gas reserves
- Relationships with upstream and downstream gas industry
- Profundity of unbundling in the gas industry

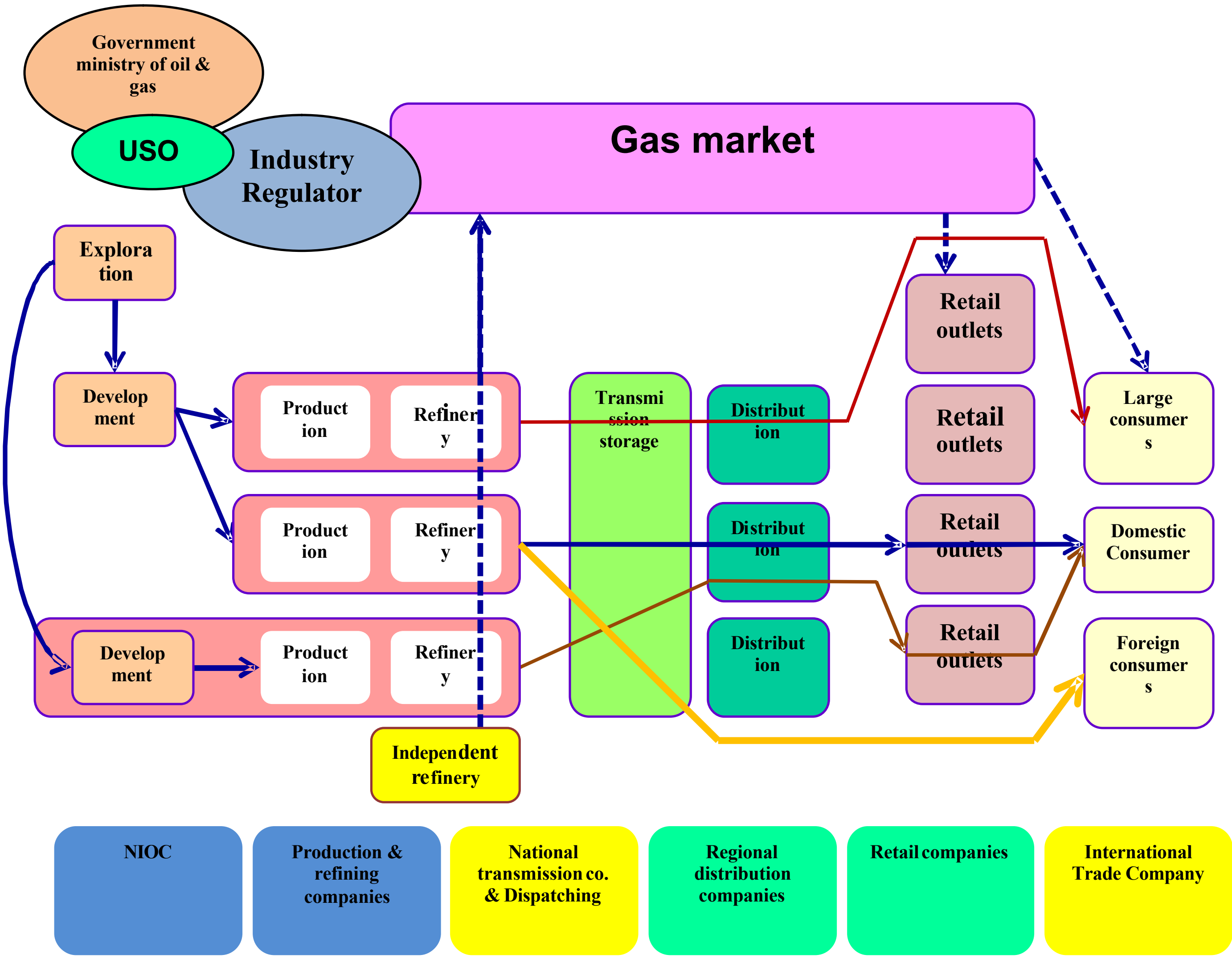
IRAN` strategy about ownership of gas reserves

According to Iranian law, the upstream sector can not be privatized but the relationship between gas production and refining should be considered.

There are many reasons that collection of gas production and refining industry, as seen in all parts of the world without exception, is integrated. Thus in desire business model Integration of production and refining of the reservoir is considered as a criterion, but due to the privatization of some refinery to non-governmental public institutions this criterion is ignored.

The selected model of Iran's gas industry

According to Iran's gas industry and laws and current condition competition in production and retails outlets with regional distribution companies (forth model) should be a appropriate model for National Iranian Gas Company. The chart below shows selected model.



Selected business model, competition in production and retail outlets with regional distributors

In selected model the gas industry players will be as follows:

- Government
- Industry regulator
- Gas Market
- National Iranian Oil Company
- Gas production and refining companies, subsidiaries of National Oil Company
- Private independent refineries
- National Dispatch Company
- Distribution Company
- Retails Company
- International Iranian Gas Trade
- Large Consumer
- USO

The way of trade and transaction in IRAN should formulate and perform by gas market as an institution. Dispatch Company is responsible for delivering gas to distributers and gas will deliver in the main ports to regional distribution companies who responsible deliver gas to final consumers. Transmission, dispatch and distributor companies receive tariff and practically do not enter the gas trade market. This is guarantee for third party access. The private refineries also with receiving tariff for refining from owners of storage and according to the contract with storage owners deliver pure gas to transmission network. According to model`s above:

- Downstream-upstream relationship and gas industry business model requirements:
- Coordination of upstream and downstream gas activities based on commercial based transaction.
- Business model based on competition of wholesale and retail with regional distributers.
- To establish independent production, refinery transmission, regional distribution and retail outlet companies.
- To establish operative gas market.
- To introduce and establish a regulatory body.
- Privatization and establishment of private ownership, retail outlet and regional distribution companies.
- Retail competition and opportunity for customers to choose from different gas companies

Regulation of Distribution Networks

In Iran, gas distribution is separated from gas transmission. In the former vertically integrated industry distribution was bundled with retail sale and there were local gas undertakings providing both services within municipal limits.

Fragmentation still remains a main handicap for this segment of the gas chain, preventing the full exploitation of scale economies that characterize the local distribution network and are usually extended beyond municipal limits. However due to mergers and acquisitions the number of active firms was reduced. Following the requirements imposed by the liberalization process, distribution has been separated from retail sale, with legal unbundling. Beyond vertical unbundling between distribution and gas retail sales, most utilities were also affected by horizontal unbundling from the administrative point of view, as they frequently provide also other local services like electricity and water distribution, public transport or waste collection. Horizontal unbundling was necessary to get separate accounts for gas distribution activities in order to improve tariff regulation.

Necessity of privatization

The main goal of privatization and deregulation in various sectors of the economy is, increase efficiency and optimal allocation of resources. According to economic theory Monopoly In comparison with the competitive situation Cause Reducing efficiency and resource allocation will not happened. According to microeconomic theory Competition is ideal conditions in against of monopoly. In fact when there is a competition condition in market balance of firm will equal with performance conditions because when firms want to maximize their profits that will be created efficiency in resource allocation and welfare of the community in this regard will get maximum.

In the free market economics system resource allocation is done by market. In this economic individuals and firms act for maximize their interest, without government intervention, price and amount of goods will determine according to supply and demand curve. The lack of government intervention in the market will create competition between different firms and will lead to resource allocation.In this system if a producer do not have enough efficiency. It means that if the producer can not reduce his cost, removed from the market by other competitors and more efficient producers Instead of him entered the market. In this system price is the main factor for coordination.

Liberalization and the introduction of competition in network industries have increased the role of competition authorities in these sectors. This does not mean that the regulation of network industries is unnecessary but rather that there is a need for a great coordination

between regulatory and competition authorities. The differences between competition authorities (CA) and regulatory agencies (RA) are not clear-cut. They are rather a question of degree along the following scales: sectoral scope of control (more sector-specific for RA), objectives (broader for RA), timing of oversight (*ex post* and lengthy for CA, *ex ante* and more rapid for RA), relationship with the industry (long-term relations and bigger influence of the industry for RA) and information requirements (specific expertise for RA). The division of responsibilities is therefore that competition and single market law provides the general framework within which regulation operates while the regulators, with their specific knowledge and more rapid and flexible procedures, are responsible for applying the sector-specific rules.
The respective roles of regulatory and competition authorities must also evolve over time with the degree of liberalization. A study carried out by the CEPR and the SNS (Bergman et al., 1998) suggests a styled evolution of the network industries in three phases. In a first step, when the liberalization process has not yet started, the regulation is mainly concerned with the prevention of monopoly abuse in retail markets by dominant incumbent firms. In a second step where the monopolies are broken up, regulatory activity increases. Regulatory authorities have to promote entry and prevent foreclosure. This implies that they will have to resolve problems of interconnection and access to the existing network infrastructures for new entrants. In this step, mechanisms are also put into place to preserve services of general interest and protect consumers. In a third step, when competition is more effective, the need for sector specific rules diminishes but conditions and pricing of access to networks will continue to involve both regulatory and competition authorities, which may also have a continuing role to play in guaranteeing the provision of services of general interest.

Privatization in National Iranian Gas Company

In the past five years there have been many plans or official privatization guidelines which were not based on the proven and successful privatization model, and consequently these attempts have not been successful so far. The main reason might be the fact that these plans have ignored the fundamental steps of privatization process and have concentrated just on legal aspect of ownership transfer to private sector.
NIGC management through government (The Ministry of Petroleum) guidelines now have a strong mandate to privatize some companies within the gas value chain and operate the remaining parts based on commercially managed principles.
Based on the existing literature on privatization, the following sequence of major activities is considered as a road map to a successful commercialization and privatization process:

a) Corporatization, commercialization.
b) To develop and prepare regulation, policies and guidelines.
c) Introduction and development of competition.
d) Liberalization including price fluctuations.
e) Privatization and actual transfer to private sector.

In the process of having correct and timely privatization, NIGC management has come to the conclusion for privatization to proceed successfully the following steps must be designed and be implemented within a reasonable time period:

1. Establishment of true strategic business units (SBU's), corporatization, commercialization and selection of proper business model.
2. Development and introduction of gas policies and regulations.
3. Development and introduction of competition within the gas industry.
4. Liberalization including gas prices.
5. Privatization and actual legal transfer to private sector.

As we mention above regulator body is an important institution for having a perfect privatization. The duty of gas regulators is to protect the interests of consumers, regulate competition between providers, and monitor social and environmental issues within the industry. The main principle behind utility regulation is to put the consumer first: this involves promoting healthy competition between providers to ensure fair prices, and also protecting consumers when things go wrong. This is all achieved by providing incentives for the providers to perform well; and, where necessary, administering discipline to ensure that the rights of consumers are upheld satisfactorily.

The latest decision about privatization in National Iranian Gas Company

As we review, policymakers in IRAN should provide Initial preparations for privatization. These measures include the following: acting according business model, Coordination with upstream, creating gas market and regulatory body.

Decisions about privatization of gas industry in Iran is being done without regard to the appropriate laws and legal. Experiences of privatization show that this progress is complex and need high accuracy.The latest decision in IRAN`s gas company want to privatise refineries and LDCs but essential infrastructures especially legal infrastructures do not ready and provide and it may cause lots of problems.

Conclusion

Experience of privatization in the gas industry in various countries show that gas industry as a type of network industries needed special obligation, law, and smart unbundling . If we do not care about the privatisation progress, privatization will not be successful at all. This step should design and Implementation.

1- Commercialization

- Unbundling is the first step. Unbundling in: organization, gas value chain, technical and geographical zones.
- Design and installation of measurement systems between different and interacting entities within selected gas industry business model.
- Separation of government activities from NIGC corporate governance and its operation. Financial transparency, legal and organizational relationship among government, Ministry of Petroleum, NIOC and NIGC.
- Implementation of corporate governance for subsidiaries.
- Design of NIGC major processes, new structure and collection of optimal portfolio based on gas industry business model.
- Re-engineering and re-introducing transmission and dispatching companies based on desired state requirements.
- Mission development and process re-engineering for subsidiary based on desired state.

2- Coordination with upstream (production) to increase gas supply

- Coordination to expedite current production fields given priority to common field with neighboring countries.
- Negotiate and actively involve to explore and to develop new production fields.
- Productivity improvement and reduction of waste in entire gas value chain activities.
- Gas import.

3- Developing the gas market foundation and operating rules based on selected business model

- Draft of new laws and regulation for gas industry based on new NIGC business model.
- Design and implementation of the gas market foundation and development of trade tools.
- Design and establishment of gas industry regulatory body.
- Motivating and establishing gas retail outlets.

- Design and establishment of Universal Service Obligation (USO) to be used by all interested parties.
- Design of financial tools for domestic gas market to control price fluctuations.

4- Privatization

- Portfolio preparation of subsidiaries by corporate according to desired state requirements.
- Financial evaluation and pricing the value of subsidiary companies.
- Design of a framework for actual transfer of companies to private sectors.
- Marketing and actual transfer of subsidiary ownership (stocks) by forming corporate governance.

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