



Special article

Pricing and Taxation in Oil and Gas Sector: A study with special reference to ONGC

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Overview of oil and gas industry

The Industrial Policy Resolution, 1954, laid the foundation of the Oil & Gas Industry in India and Petroleum Was given the status of the core sector industry. National Oil Companies Oil & Natural Gas Commission (ONGC), Indian Oil Corporation (IOC), and Oil India Ltd (OIL) were formed in the year 1954. Government owned Indian Refineries Ltd was set up in 1958. Later in 1964, Indian Refineries Ltd merged with Indian Oil Company Ltd. to form Indian Oil Corporation Ltd. The decade of 1960s saw the discovery of a number of oil & gas bearing structures by ONGC in Assam and Gujarat. The grand discovery of oil in significant quantities in Bombay High in February, 1974 started new era of oil exploration in offshore areas.

During 1970s and till mid 1980s a number of Oil & Gas bearing structures in Bassein, Tapti, Krishna-Godavari-Cauvery basins, Cachar (Assam), Nagaland, and Tripura were discovered by ONGC & OIL . By mid 80s India achieved a self-

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sufficiency level of 70% in petroleum products. In order to look after transportation, processing and marketing of natural gas and natural gas liquids, the government set up Gas Authority of India Ltd. (GAIL) in the year 1984. GAIL has been instrumental in the laying of a gas pipelines (HBJ pipeline) from Hazira in Gujarat to Jagdishpur in Uttar Pradesh, passing through Rajasthan and Madhya Pradesh. Post independence significant additions to the national refining capacity were made. The first decade post independence saw three coastal refineries being established by multinational oil companies operating in India including Burma Shell, and Esso Stanvac at Mumbai, and Caltex at Visakhapatnam. Currently there are 18 refineries in the country out of which 17 are the Public Sector, one in the private sector. The Public sector refineries are located at Guwahati, Barauni, Koyali, Haldia, Mathura, Digboi, Panipat, Vishakapatnam, Chennai, Nagapatinam, Kochi, Bongaigaon, Numaligarh, Mangalore, Tatipaka, and two refineries in Mumbai. The private sector refinery in Jamnagar, built by Reliance Petroleum Ltd. is the biggest oil refinery in Asia. By the end of 1980s, Oil production had begun to decline while there was a steady increase in domestic consumption. National oil production was able to meet only about 35% of the domestic requirement. The resource crunch in early 1990s aggravated the problems. Some of the then newly discovered fields (Gandhar, Heera Phase-II and III, Neelam, Ravva, Panna, Mukta, Tapti, Lakwa Phase-II, Geleki, Bombay High Final Development schemes etc. suffered due to lack of money at Government's disposal for investment in developmental activities. The Government was hence forced to go for the petroleum sector reforms which had become necessary to attract funds and technology from abroad into the domestic petroleum sector.

To meet the increasing demand for petroleum, India is investing heavily in oil fields abroad. Country's state owned Exploration companies have earn stakes in oil and gas fields in Russia, Sudan, Iraq, Libya, Egypt, Qatar, Ivory Coast, Australia, Vietnam and Myanmar. Oil and Gas Industry has a vital role to play in India's energy security and if India has to sustain its high economic growth.

The latest discovery of oil and gas blocks is in Rajasthan. The Barmer field of Rajasthan, in which production commence from August 2009, ONGC has 30% of participating interest. The KG-D6 gas field of RIL is also a major find of gas in the country.

Oil and Natural Gas – a Catalyst for Economic Growth

The Oil & Natural Gas sector affects the Economic Growth and development of a nation both directly and indirectly through its effect on the pace of growth of other sectors within an economy. Given we import about 80% of our requirement of Crude oil, the fluctuations in international prices have a strong influence on the domestic Oil and Natural Gas Sector making it vulnerable to a large number of external factors that directly or indirectly effect international Oil Supply and Prices.

Factors Influencing The Market For Crude Oil, Vap & Natural Gas

1. OPEC- output and supply.
2. Terrorism, Weather/storms, War and any other unforeseen geopolitical factors that causes supply disruptions.
3. Global demand particularly from emerging nations.
4. Dollar fluctuations.
5. DOE / API imports and stocks.
6. Refinery fires & funds buying.

Structure of oil and gas sector

The Oil and Petroleum sector is divided into two mutually dependent sectors, namely the Upstream and the Downstream Sectors respectively. **The Upstream sector** constitutes of ONGC, OIL and GAIL. ONGC and OIL are into Exploration and Production of Crude oil, Petroleum Products, Gas and Various other value added products like LPG, SKO, HSD, Motor spirit, Naphtha etc. GAIL is solely responsible for the transportation, processing and marketing of natural gas and natural gas liquids.

The Downstream sector comprises of the **Oil Marketing companies** popularly known as OMCs namely HPCL, BPCL, IOC (and their subsidiaries) and MRPL. These companies are into marketing and distribution of Petroleum and its products. Apart from this there are private players both in the upstream and downstream sector.

Oil and Natural Gas Commission (ONGC)

ONGC has single-handedly scripted India's hydrocarbon saga by:

- ❖ Establishing 6.89 billion tones of In-place hydrocarbon reserves with more than 300 discoveries of oil and gas; in fact, 6 out of the 7 producing basins have been discovered by ONGC: out of these In-place hydrocarbons in domestic acreages, Ultimate Reserves are 2.42 Billion Metric tons (BMT) of Oil plus Oil Equivalent Gas (O+OEG).
- ❖ Cumulatively produced 803 Million Metric Tons (MMT) of crude and 485 Billion Cubic Meters (BCM) of Natural Gas, from 111 fields.
- ❖ ONGC has bagged 120 of the 238 Blocks (more than 50%) awarded in the 8 rounds of bidding, under the New Exploration Licensing Policy (NELP) of the Indian Government. ONGC has bagged 17 out of 31 blocks awarded in NELP round VIII (14 as operator).
- ❖ ONGC's wholly-owned subsidiary ONGC Videsh Ltd. (OVL) is the biggest Indian multinational, with 40 Oil & Gas projects (9 of them producing) in 15 countries, i.e. Vietnam, Sudan, Russia, Iraq, Iran, Myanmar, Libya, Cuba, Colombia, Nigeria, Nigeria Sao Tome JDZ, Egypt, Brazil, Syria and Venezuela. OVL had invested around Rs 50,000 Crores (Approx 10 billion US dollars).

Review of Existing Literature

Hossain, S.M. (2003), using the modern theory of public economics as the point of departure, this paper outlines a basic principle for setting taxes and/or prices of commodities based on two key criteria, efficiency and equity. The paper shows that for petroleum products, the basic principle needs modification in the presence of various externalities and market imperfections in a setting where the instruments to address the externalities and imperfections are limited. Drawing from theoretical and empirical literature, the paper provides an operational framework and then illustrates how, for a country like Nigeria, the relevant taxes/subsidies to correct the externalities and to address equity and revenue considerations can be measured with a view to setting prices of petroleum products. However, the paper refrains from making any specific suggestion for policy reform in Nigeria. The framework outlined in the paper can be applied to the analysis of petroleum product taxes and prices in other developing countries¹.

Davis, J.M., Ossowski, R, and Fedelino, A. (Eds) (2003). This volume brings together papers that deal with a wide range of macroeconomic and fiscal issues in oil-producing countries, and aims at providing policy recommendations drawing on

theory and country experience. The scope of the essays reflects the significant operational involvement of the IMF with oil producers, particularly in terms of surveillance, program work, and technical assistance. This work has highlighted the difficult challenges that confront policymakers in these countries, and the possibilities in several areas for improved practice ².

Otto, J.M. (2000) in his paper presents information on the taxation of mines with a special emphasis on taxation policy in developing economies. It discusses the objectives of mining taxation and how tradeoffs may be made between different objectives such as the desire to attract investment, maximize government revenues, and enhance the developmental impact of mining. The major types of mining taxes are described from a policy perspective, and the timing of taxes and tax incentives is analyzed to illustrate their effect on government revenues and return on investment. Differences in tax treatment between foreign and domestic mining enterprises and between large and small-scale mining are examined. Major tax trends are identified, as is the relationship between taxes on mining and taxes on other economic sectors. The study draws, in part, upon a more extensive study undertaken by the author that was distributed globally by UNCTAD in 2000 ³.

Katz, M., Bartsch, U., Malothra, H. and Cuc, M. (2004). The paper discusses macroeconomic and oil sector policy, and governance issues in the six oil-producing countries--Angola, Cameroon, the Republic of Congo, Equatorial Guinea, Gabon, and Nigeria--as well as the newcomer Chad, which had started production by mid-2003. The main objectives are to (1) give an overview of the general policy issues in oil-producing countries, (2) describe actual practice in the countries, and (3) discuss African policymakers' perspectives and an agenda for further discussions ⁴.

Ahmad, E. and Mottu, E.A. (2002). Based on country experiences, the paper assesses policy options to assign oil revenues to subnational governments (SNGs). The literature recommends that oil revenues be centralized. Given political economy considerations, this paper suggests that a possible alternative is to assign stable oil-tax bases to oil-producing SNGs, supplementing these with predictable transfers from the center. Although commonly used, oil revenue-sharing arrangements are the least preferable solution, as they complicate macroeconomic management and do not provide stable financing. Revenue sharing also does not diffuse separatist tendencies, since oil-producing SNGs would still be better off by keeping their oil revenues in full ⁵.

Objectives of the Study

The study is divided into two parts: pricing & Taxation and under- recoveries...

- ❖ To understand the current pricing mechanism for Crude Oil, Natural Gas and Value Added Products followed by ONGC Ltd.
- ❖ To know the various types of taxes levied on crude oil & Natural Gas and Value Added Products.
- ❖ To discuss the subsidies given to OMCs by upstream companies with respect to controversies surrounding it and comment on the same.

Scope of the Study

- ❖ Oil and gas are the two important aspects of any economy so it is important to know how their prices are determined.
- ❖ How prices are regulated.
- ❖ How the oil sector manages the oil market through their various pricing mechanism.
- ❖ The study shows the various complexities while evaluating the prices of crude oil and natural gas.
- ❖ Apart from the oil and gas, the byproduct which is produced is of high economic value.
- ❖ The earnings of the crude producers could only go up if the subsidies are slashed and that can only happen if petro-product prices are increased.
- ❖ The various subsidy scheme of government.

Research Design

This study is based on Exploratory Research, which deals with understanding the aspects related to pricing, taxation at ONGC. This study is based on the secondary data collected from various sources. The first phase of this study consists of the general aspects of pricing of crude oil, natural gas and value added products and the second phase mentions the role of under- recoveries at ONGC which includes the various procedure followed by ONGC.

Data Collection Resources

The data collection for the study is basically **secondary** in nature. Formal interaction with the employees of ONGC has provided insight into role of PRICING AND UNDER- RECOVERIES at ONGC.

The Manuals, Reports and Journals of ONGC have been useful in providing information about procedures of PRICING AND UNDER- RECOVERIES AT ONGC. Employees also provided various details. Some tools and techniques used in the analysis include graphs, pie charts and tables. The source of information are the internal records of the company, rounds of discussions with various internal departments, data available on the internet and other sources like newspaper, magazines etc.

Analysis and Interpretation

The oil and Natural Gas Industry mainly produces products that can be classified in three categories namely

- ❖ Crude Oil,
- ❖ Natural Gas
- ❖ Value Added Products.

Crude Oil – An Introduction

Petroleum is found in Porous rock formations in the upper strata of the Earth's crust. Petroleum can also be found in oil sands (tar sands). Petroleum is usually found in association with natural gas, the latter being lighter is found capping the petroleum while saline water being heavier generally sinks beneath it.

Crude oil is also found in semi-solid form, mixed with sand and water, like Athabasca oil sands in Canada, where it is usually referred to as crude bitumen. These oil sands resources are referred to as non- conventional oil. Taking an estimate of availability only Canada and Venezuela contain an estimated 3.6 trillion barrels of bitumen and extra heavy oil, which is about twice the volume of the world's conventional oil.

The appearance of crude oil depends on its composition. It is usually black or dark brown and can also be yellowish and greenish.

Uses Of Petroleum:

Petroleum is the source of fuel oil and gasoline (petrol), used as important sources of "primary energy" Various chemical industries like fertilizers, pesticides, pharmaceuticals and plastics uses petroleum as a raw material. The percentage of total

consumption not used for the purpose of producing energy is converted into these materials.

Classification:

The petroleum industry generally classifies crude oil by the *geographic location* it is produced in (e.g. West Texas, Brent, or Oman), its *API gravity* (an oil industry measure of density), and by its *Sulfur content*.

1. API Gravity: Density of oil, heavy and light

Crude oil may be considered *light* if it has low density or *heavy* if it has high density;

2. Sulfur content: sweet and sour

Crude may be referred to as *sweet* if it contains relatively little sulfur or *sour* if it contains substantial amounts of sulfur.

3. Geographic location

It is important because it affects transportation costs to the refinery.

BENCHMARKING CRUDE OIL

Crude oil varies based on gravity and sulphur content; hence a marker is normally used for pricing. Different marker is used by different oil producer for pricing. For example OPEC collects pricing data on a basket of seven crude oils, to be used as markers. Non OPEC countries use other major crude oils as markers, which are traded on international exchanges. For instance, West Texas Intermediate (WTI) is used as a market fuel by United States. In Asian markets Dubai's Fateth is majorly used as a marker for oil. Another marker for oil majorly used is North Sea Brent crude. Apart from crude oil prices are affected by social and political factors, international conflicts, supply and demand condition, level of subsidies etc.

Crude oil markers, also known as **oil Benchmarks**, were first introduced in the mid 1980s. There are three primary benchmarks, WTI, Brent Blend, and Dubai. Other well known blends include the OPEC basket used by OPEC, Tapis Crude which is traded in Singapore, Bonny Light used in Nigeria and Mexico's Isthmus.

The Benchmark Fuels commonly used as pricing references throughout the world are:

- ❖ **West Texas Intermediate (WTI)**, a very high-quality, sweet, light oil delivered at Cushing, Oklahoma for North American oil

- ❖ **Brent Blend**, comprising 15 oils from fields in the Brent and Ninian systems in the East Shetland Basin of the North Sea. The oil is landed at Sullom Voe terminal in the Shetlands. Oil production from Europe, Africa and Middle Eastern oil flowing West tends to be priced off this oil, which forms a benchmark
- ❖ **Dubai-Oman**, used as benchmark for Middle East sour crude oil flowing to the Asia-Pacific region
- ❖ **Tapis** (from Malaysia, used as a reference for light Far East oil)
- ❖ **Minas** (from Indonesia, used as a reference for heavy Far East oil)
- ❖ **The OPEC Reference Basket**, a weighted average of oil blends from various OPEC (The Organization of the Petroleum Exporting Countries) countries

EXCHANGES DEALING IN CRUDE FUTURES

- ❖ New York Mercantile Exchange (NYMEX).
- ❖ International Petroleum Exchange of London (IPE).
- ❖ Tokyo Commodity Exchange (TOCOM).

METHODS OF TRANSPORTING CRUDE OIL

- ❖ Crude oil can be transferred by pipes that connect to a huge pipeline that goes straight to the refinery.
- ❖ It can also be transferred by using a tank truck that goes all the way to the refinery.
- ❖ The third method is to use tank truck/pipeline to a tanker ship and ship it across to the refiner

Table 1.1 SALES PATTERN AND TRANSPORTATION OF ONGC's CRUDE OIL

S.No.	Place	Refinery/Location	Transportation
1	MUMBAI OFFSHORE	I.O.C. – VADINAR	TANKER
		B.P.C.L. – MUMBAI	PIPELINE
		H.P.C.L. – MUMBAI	PIPELINE
		B.P.C.L. - KOCHI	TANKER
		C.P.C.L. - CHENNAI	TANKER
		H.P.C.L. – VISHAKHAPATNAM	TANKER
		M.R.P.L. - MANGLORE	TANKER
2.	ASSAAM	I.O.C. - GUWAHATI	PIPELINE
		I.O.C. - BONGAIGAON	PIPELINE
		N.R.L.	PIPELINE
3.	GUJRAT	I.O.C. - KOYALI	PIPELINE
4.	CAUVERY BASIN	C.P.C.L. - PANANGUDI	PIPELINE
5.	KRISHNA GODAVARY BASIN	H.P.C.L. - VISHAKHAPATNAM	TANKER

**CURRENT PRICING MECHANISM OF ONGC's CRUDE OIL
(Under deregulated Scenarios – Post Mar'02)**

As decided by Government in Nov'97 and as per Government notification in Mar'02, crude oil price become Market Determined from 01 Apr'02. Based on the above, ONGC signed Memorandum of understanding with IOC, BPCL, HPCL and MRPL for two years from Apr'02 to Mar _04. The crude oil is sold to these refineries on the basis of pricing principles stipulated in these MOUs. Though the MOUs have expired in Mar'04, ONGC continues to supply the crude based on the existing MOUs as agreement could not be reached between ONGC and refineries. The COSA (Crude Oil

Supply Agreement) for a longer period of at least 5 years with refineries is at final stage of discussion.

Based on the existing MOUs, all the crudes of ONGC, being sweet in nature, are benchmarked to **Nigerian sweet crude namely Bonny Light**. The Components of the Crude price received by ONGC are:

- ❖ Quality adjusted FOB price;
- ❖ 50% of Custom Duty (Offshore crude only)
- ❖ 50% of NCCD @ Rs.50/MT (Offshore crude only);
- ❖ Notional Ocean Freight – Offshore crude only;
- ❖ Octroi (applicable for Mumbai refineries of HPCL and BPCL only);
- ❖ Crude pipeline charges
 - for offshore crude supplied to BPCL and HPCL;
 - onshore crude except Assam; and
- ❖ Sales Tax (a) on actual basis in case of onshore crude except Assam; and (b) 50% in case of offshore crude.

(A) Free On Board (FOB) Price

Base Price: Base price per barrel of each grade of crude oil sold is average of the mean Bonny Light crude oil quotations (as published under spot crude assessment heading in Platt's Crude Oil marketing Spot assessment) for the entire month in which the custody transfer takes place

Adjustment for BS&W: Depending upon the basic sediments and water content of fuel adjustment is made. **(Discount is allowed if it exceeds a certain level say 0.2%)**

Premium and discount: It is worked out by calculating differential in Gross Product Worth(GPW) of indigenous crude oil & marker crude oil(bonny light) in \$/bbl. Four cut methods are used for calculating this differential. This premium or discount is added or deducted to the FOB price before adjustment of BS&W to obtain price of indigenous crude.

Therefore the **Quality Adjusted FOB price:-**

FOB PRICE = Monthly average of high – low Free international price of Nigerian Bonny Light +/- GPW Differential – BS&W (if any)

(B) Ocean Freight

Inward Freight: It is the Notional amount calculated by multiplying the World Scale Rate to AFRA (Average Freight Rate Assessment).

Outward Freight: It is the actual cost incurred by buyer in carrying the crude oil from ONGC Extraction Point to the Refinery gate.

Hence the;

NET FREIGHT = INWARD FREIGHT – OUTWARD FREIGHT

(C) Pipeline charges

According to rates declared on time to time basis.

(D) Custom Duty

At present 5% on crude oil w.e.f. 27 Feb 2010.

(E) Sales Tax/VAT or CST (as applicable)

VAT rate is 4% and presently CST rate is 2% w.e.f. 01 June 2008.

(F) Octroi

Local levy charged by Mumbai. Presently 3%.

Hence the Final Crude Pricing= A+B+C+D+E+F+G

The above calculated pricing will be in terms of \$/bbl. so in order to convert in terms of Indian Rupees ONGC has to refer to average **RBI reference rate of the corresponding month** is considered for conversion.

Taxes and duties on Crude Oil

Royalty on Crude Oil

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MoP&NG, vide resolution/ notifications issued by Government from time to time introducing the new scheme of royalty on crude oil.

The new scheme of royalty has following features in respect of payment of royalty on crude oil:

- ❖ Royalty is fixed on ad-valorem basis. From 01 Apr'02, the royalty on crude oil is to be paid at 20% and 10% of well head value for onshore fields and offshore fields (shallow water areas- upto 400 meter of water depth) respectively.
- ❖ In respect deep water areas (beyond 400 meter of water depth), the royalty is payable at half of the rates applicable for shallow water areas for first seven years.
- ❖ The well-head price for nominated blocks shall be determined by deducting Rs 1251/MT for onshore and Rs. 947/MT for offshore crude from the sale price of Crude oil.
- ❖ OID Cess and Education Cess thereon shall not form part of post well-head cost.
- ❖ Royalty for **nominated blocks** is calculated on —cum royalty□ basis, which is as follows:
Royalty amount = Wellhead Price * Royalty rate / 100+ Royalty rate
For heavier crude oils of 25 degree of API and less, the royalty rate is 2.5% lesser than the applicable rates for normal crude oils from onshore and offshore fields.
- ❖ For calculating well-head price of crude oil **for cases other than nominated blocks**, per unit rate of post well-head cost shall be determined based on actual post well-head expenditure reported in previous year's audited accounts. Royalty shall be computed on cum-royalty□ basis.

Royalty Amount= Well Head Price*Royalty Rate /100

Oil Industry Development Cess

Presently OID Cess of Rs. 2500 per MT is payable on crude oil received and accepted by the customer (acknowledged quantity).

Trend of Excise/OID Cess on Crude Oil:
Upto 12th April'02 @900/tonne

w.e.f. 01 Mar'03 @ 1800/tonne

w.e.f. 01 Mar 06 @2500/tonne

Sales Tax/VAT

Sales Tax/VAT is levied as a percentage of the invoice price. However since in case of crude oil the price is inclusive of all levies and hence the applicable VAT amount is to be calculated in the following manner:

Sales Tax/VAT amount= Total Sales Price* VAT rate/100+VAT rate

Since crude oil is —Declared Good — under Central Sales Tax Act, a uniform rate of 4% sales tax/VAT is applicable throughout India.

Natural Gas- An Introduction

Natural Gas (NG) is derived from methane during the drilling of crude oil wells and is one of the most clean, efficient and environment-friendly fuels. NG can either be transported in pipelines or liquefied and transported through specialized carriers as Liquefied Natural Gas (**LNG**). The calorific value range of NG is 9,000-9,500 kcal/cubic meter. In terms of thermal efficiency, ***one billion cubic meters (bcm) equals one million ton of oil equivalent (mmtoe)***. Currently, all the activities that relate to NG are under the control of public sector oil companies. ***ONGC and OIL explore and produce NG and GAIL is engaged in storage, transportation and distribution of NG.***

Pricing Of Natural Gas And Returns To Producers

Up to 1986, the price of NG was determined by the producers themselves, based on the thermal equivalence of substitute fuels and the opportunity cost to the consumer. The price of gas thus varied not only from customer to customer, but also for the same customer, if the gas was used for different purposes.

In 1986, a decision was taken that the prices of NG be fixed by the government and accordingly a fresh pricing structure was to be implemented w.e.f., January 30, 1987.

In 1988 the government set up a committee under the Chairmanship of Dr. Vijay L Kelkar, the then Chairman of Bureau of Industrial Costs & Prices, to examine the pricing of NG de novo. The report of the committee was considered by the Govt. and w.e.f., January 1, 1992, the prices of NG was fixed for a period of 4 years up to December 31, 1995.

Current System Followed For Pricing Of Natural Gas

Pricing methodology of APM gas

Producer price of APM gas produced by the national oil companies (NOCs viz., ONGC and OIL) is fixed by the Government time to time. Natural gas price for the APM gas had been static at Rs. 3200 per MCM (US\$ 1.79/MMBTU) for other than North-East and Rs. 1920 per MCM (US\$ 1.07mmbtu) for North- East region since July 2005 AS PER MoP& NG Gas price order dated 20.06.2005.

Government vide letter dated 31 May 2010, fixed the producer price of APM gas produced by NOCs at US\$4.2/MMBTU less royalty effective from 01 June 2010. For APM consumers, in whole of India except North Eastern states, the price would be same as producer price i.e. US\$ 4.2/MMBTU less royalty. For APM customers in North-East, consumers price would be 60% of the producer price i.e. US\$2.52/MMBTU. The difference of APM gas price in other than North East and in North East would be paid to ONGC through Government budget.

The said prices in US\$/MMBTU would be converted on monthly basis to Rs/MSCM (at NCV of 10000 Kcal/SCM) by multiplying with applicable monthly exchange rate and 39.68254 (a constant). The applicable monthly exchange rate would be the average RBI reference exchange rate of the month previous to the month during which supply of APM gas is made.

Marketing margin of Rs 200/MSCM (at NVC of 10000 Kcal/MMBTU) as fixed by MoP& NG would be charged from both APM and non- APM gas consumers by the company marketing the gas produced by NOCs. As such, ONGC shall charge marketing margin where they are directly selling gas to end consumers. In other cases, marketing margin would be charged by GAIL/ other marketers of ONGC gas.

Gas is also sold directly to small consumers (up to 50000 SCMD) at non-APM prices which are negotiated and fixed on case to case basis. As per Government letter dated 31May 2010, ONGC would have freedom to sell any production from new fields in its nominated blocks at non- APM rate decided by the Government.

MoP& NG, vide letter 28 June 2010 issued the guidelines for pricing and commercial utilization of non- APM gas produced by the NOCs from nominated blocks. A Gas Sales Agreement (GSA) has been signed between the company and GAIL on 07 July 2006, valid for a period of 15 years from the date of signing. Prices applicable for gas sales under the GSA would be as per Government orders. In the event of deregulation in the gas sector by the government of India for natural gas sold under GSA, the price of gas shall be linked to the market price of gas which shall be mutually discussed and fixed between the buyer and the seller.

As per the GSA, in the event the seller, in delivering seller's gas to the delivery point, incurs any transportation charges and/or cost related to the delivery of seller's gas to or after the delivery point on any gathering, transportation, processing, compression or pipeline system/facility not owned by seller, the costs and/or charges so incurred shall be added to the price payable by buyer to seller for the delivery of such seller's gas.

If any compression charges are incurred by seller on account of decline in field pressure, for delivery of gas, the same shall be paid by the buyer to the seller in addition to amount payable. However as per government recent directives, ONGC shall bear the cost of gas compression w.e.f. 01 June 2010. In addition the price of gas, buyer shall pay transportation charge in respect of gas supplies through pipeline owned, operated and maintained by the seller.

Pricing of Non-APM gas

Non-APM gas is directly sold to customers at different prices ranging from US\$ 3.5/Mmbtu to US\$ 4.75/Mmbtu.

Taxes and duties on Natural Gas

- **Royalty:** From the Oilfields (Regulation & Development) Act, royalty on natural gas for both onshore & offshore project including the NELP Blocks is payable at 10% of the well head value. However, for APM Gas, ONGC is paying royalty at 10% of sale price as per Govt. directive
- For Gas other than APM Gas, per unit rate of post well-head cost shall be determined based on actual post well-head expenditure reported in previous year's audited accounts. Royalty shall be computed on —ex-royalty basis.
- **OID Cess & NCCD:** Currently these taxes are not levied on Natural Gas
- **Sales Tax/ VAT:** Different states have different sales tax/VAT rate and the same is charged as applicable. The rate being as high as 20% in the state of Assam while as low as 4% in Tamil Nadu and West Bengal.
- **Central Sales Tax (CST):** As discussed above CST is levied when an interstate movement of good when sale of good takes place. The rate applicable presently is 2 %.
- **Octroi:** Octroi is the duty payable on bringing the goods into a state from another state. Octroi is applicable in few states and as per applicable. For example, in Mumbai Octroi on natural gas is charged at 3% of sales value excluding VAT.

Excise Duty (CENVAT): No excise duty is applicable on natural gas

Value Added Products – AN INTRODUCTION

Following Value Added products are manufactured by ONGC:

- Liquidified Petroleum Gas(LPG)
- Superior Kerosene Oil (SKO)
- Aviation Turbine Fuel(ATF)
- Naphtha

- Motor Spirit (MS)
- High Speed Diesel (HSD)

The pricing of LPG, SKO, ATF and Naphtha is done on the basis of **Import Parity Pricing (IPP)**, while pricing of MS and HSD is done on the basis of **Trade Parity Pricing (TPP)**.

Import Parity Pricing (Ipp)

Because we import a significant portion of our crude oil requirement, wholesale price of crude is determined according to world or import parity pricing. This price fluctuates based on global supply and demand and is quoted daily from Singapore. Import parity pricing is always quoted in \$US and it affects the price of both imported and local refined product.

Following are the components of Import Parity Pricing (IPP)

❖ Free on Board (FOB)

Free on Board Price represents the Base Price of the product based on the price of a benchmark fuel. Different Benchmarks are taken for different Value added product. The Following are the VAP and respective Benchmark:

- LPG- Price of Propane Butane at Arab Gulf Market
- SKO & ATF- Jet Kerosene's Price at Arab Gulf Market
- Naptha- Price of Naptha at Arab Gulf Market

Premium or Discount is than worked out by calculating differential in Gross Product Worth (GPW) of indigenous product & marker product. This premium or discount is added to the FOB price after adjustment of BS&W to obtain price of indigenous VAP.

❖ Ocean Freight

It takes into account the cost of transporting the VAP. There are two components of Ocean Freight:

- AFRA-Freight with respect to Vessel Size
- World Scale- Based on distance and charges from port to port.

❖ **Insurance**

The rate at which insurance is calculated is on the basis of the rate mentioned in the Contract with respective buyer. This is calculated at some percentage of the sum of FOB price after adjustment of Premium or discount and the Ocean Freight applicable. The sum total Gives us the CIF price i.e. Cost Insurance and Freight Price of the value added product.

❖ **Custom Duty**

Custom duty is charged as per the rate applicable and added to the CIF cost.

❖ **Ocean Loss**

This Component includes Ocean Loss, Port Charges etc and is calculated at a percentage of CIF price. This percentage is communicated externally on behalf of the industry.

Adding all these components gives us Refinery Transfer Price, popularly known as RTP.

IPP is used to arrive at Retail Trading Price i.e. the price at which OMCs buy Value added products like Naphtha, ATF, LPG and SKO from Upstream companies namely ONGC and OIL. As per present Industry practice, RTP of various VAPs is calculated for respective fractionators/ refineries by IOC and communicate to other companies.

From RTP, **Retail Selling Price** i.e. price at which the product is sold by the retailer to the final consumer is calculated using the following Method:

RETAIL SELLING PRICES (RSP)

Import Parity Price (ITP)

Add: Inland freight up to the market

Add: Marketing Costs

Add: Desired Return on Capital

Add: Excise Duty applicable

Add: Dealer's Commission

Add: VAT and other Levies applicable

This gives us the price at which the VAP is to be sold by OMCs to Final Consumers.

However the IPP method of pricing has following demerits:

- Prices of finished products and crude oil did not necessarily move in tandem
- Import parity did not take into account inter refinery differences in terms of product pattern, type of crude used, location and scale differences.
- The structure of West Asian product prices, which was the basis of determining prices in India, did not necessarily reflect the cost pattern and operations of Indian refineries.

Hence drawing from the above arguments domestic cost of production can be a more suitable factor for pricing of petroleum products.

TRADE PARITY PRICING METHOD (TPP)

TPP has following two components:

❖ **Import Parity Price (IPP)**

❖ **Export Parity Price(EPP)**

IPP is as discussed above .EPP is nothing but the Free On board Price. Trade Parity Price is the combination of IPP & EPP in the ratio 4:1,i.e If IPP is \$100/barrel and EPP is \$80/barrel than

$$\text{TPP} = 0.8 * \text{IPP} + 0.2 * \text{EPP}$$

$$\text{Or, } = 0.8 * 100 + 0.2 * 80$$

$$= \$96/\text{Barrel}$$

Trade Parity Pricing Method is employed to determine the price of **Motor Spirit & High Speed Diesel**.

INDIRECT TAXES LEVIED ON VARIOUS VALUE ADDED PRODUCTS MANUFACTURED AND SOLD IN INDIA

❖ **Central Sales Tax**

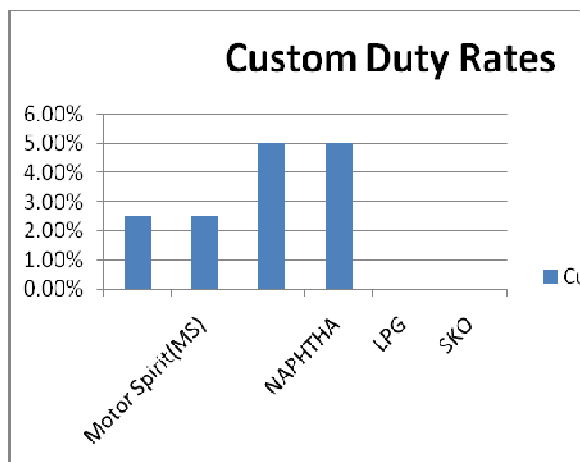
A rate of 2% for CST is applicable on LPG (both domestic and Non domestic), ATF, Naphtha and Sulphur.

❖ **Octroi Duty**

Octroi is the duty payable on bringing the goods into a state from another state. Octroi is applicable in few states and as per applicable. For example, in Mumbai Octroi on ATF is charged at 3% and 25% is charged as entry tax.

❖ **Custom Duty**

Product	Custom Rates	Duty
High Speed diesel(HSD)	2.5%	
Motor Spirit(MS)	2.5%	
Aviation Turbine Fuel(ATF)	5%	
NAPHTHA	5%	
LPG	NILL	
SKO	NIL	



❖ **Excise duty (CENVAT)**

It is applicable on some of the value added products while rest is exempted. On Petrol & Diesel excise duty is applicable at 6%, on Naphtha (Domestic sale) it is 16%, on LPG (Non Domestic) at 8% and on Sulphur; C2-C3 it is 16%.

Under – Recoveries

India imports 80% of its crude oil requirement and international oil prices play a decisive role in the domestic pricing of four sensitive petroleum products. The oil marketing companies (OMCs) viz. Indian Oil Corporation Ltd., Bharat Petroleum Corporation Ltd. And Hindustan Petroleum Corporation Ltd pays Trade Parity Price to refineries when they buy Petrol & Diesel and Import Parity Price for PDS Kerosene and domestic LPG. But since the Retail prices are modulated by the Government, they are generally lower. The difference between the required price based on Trade Parity & Import parity for respective products and actual selling price realizes by OMCs(excluding Taxes and dealers commission) represent the under recoveries of Oil companies.

The under-recoveries are different from actual profit and loss of the oil companies as per their published results. The later take into account other income streams like

dividend income, pie income, inventory charges, and profit from freely priced products and refining margins in the case of integrated companies.

To deal with under-recoveries, Government has devised the principle of —Equitable Burden Sharing□ in which the burden of under-recovery is shared by the Government through issue of oil bonds, the public sector upstream companies by the way of discount on the selling price, by the OMCs by absorbing a part of the under-recoveries and the consumer by the way of marginal price increase.

Regulated Pricing Mechanism-An Evaluation

However with respect to the four regulated products namely Motor Spirit (MS), High Speed Diesel (HSD), SKO and Domestic LPG the price at which they are sold in the market is regulated by the Government. These prices are regulated because of ensuring equality and keeping up the pace of development. MS and HSD are crucial for economic development while SKO and domestic LPG are used as domestic fuel and hence prices needs to be regulated. But despite the argument in favor of Subsidy on the four price sensitive products the fact remains that the extent of subsidy given by Government of India draws the domestic market prices below what exists domestically in other countries resorting to fuel subsidies to ensure stable prices. The market price for Automotive Diesel & Gasoline or Motor Spirit is both relatively lower than many other countries.

The following table gives a comparison between countries of the price of the two the products for May '08

NATION	MOTOR SPIRIT	AUTOMOTIVE DIESEL
FRANCE	38.47	46.99
GERMANY	37.55	47.05
UK	36.74	44.28

JAPAN	39.84	40.89
USA	37.11	43.52
INDIA	28.43	27.03

Now given that India imports around 70% of crude it process, USA imported about 43% while the figure was 69% for Western Europe. Along with in terms of import dependence, the local specific transportation cost for Indian refiners is analogous to that of their counterparts in North America, Europe; Japan etc still prices in India are least in comparison to these countries. Hence there is certainly a scope to increase the price so much so that it does not affect the underlined objective of ensuring economic growth.

Two important drawbacks of the currently followed Regulated Pricing Method

- ❖ Loss of precious foreign exchange due to inefficient use of fuel: Due to cross-subsidization, the market prices of key petroleum products are not reflective of the underlying economic value of the products leading to mass scale inefficiency in use of fuel and sub-optimal inter-fuel substitution. The growth of the industry is more skewed towards subsidized products, resulting in continuous inefficient use of precious foreign exchange.
- ❖ Little incentive for domestic industries to become internationally competitive by developing superior processes: Petroleum products are vital inputs to key industries and with the economy opening up for international competition, the user industries can become competitive only if the inputs are made available at competitive prices and not at prices fixed by the government which could be at variance with underlying international prices.

Fuel Subsidy in India

FUEL SUBSIDY IN INDIA- AN INTRODUCTION

In order to stabilize the fluctuations in oil prices Government of India provides subsidy to Oil Marketing Companies. India asks state refiners to sell petrol and diesel below cost in a bid to curb inflation. The government compensates them by issuing oil bonds and asking other state-owned firms to bear part of the cost. Subsidy payouts in the third quarter of last fiscal was Rs12, 660 crore, or \$72.70 a barrel. Upstream companies ONGC, Oil India Ltd and GAIL India Ltd give discounts on the crude oil and petroleum products they sell to retailers, sharing at least 33 per cent of the revenue loss on fuel sales to final consumers. India's largest oil producer, Oil and Natural Gas Corp. Ltd, or ONGC, imported a 43% decline in third quarter net profit of last fiscal after oil prices dropped from a record and the company paid subsidies to state-run refiners. Net income slumped to Rs 2,475 crore, or Rs11.57 a share, in the three months to December'08, from Rs4, 370 crore, or Rs20.42, a year earlier.

Fall in oil prices can be partially offset by currency exchange rates. If the average trading price of the rupee against the dollar declines then refiners pay for the crude oil they buy in dollars and a weaker rupee increases ONGC's revenue when converted into the local currency.

However State-run Oil and Natural Gas Corp (ONGC) is likely to be exempted from subsidizing domestic LPG and kerosene as the steep fall in global crude oil prices has eroded the gains of the company. With crude oil plummeting from USD 147 a barrel in July 2008 to under USD 40 per barrel in December 2008, ONGC has seen its fortunes decline as it sells the crude oil it produces at rates linked to internationally traded oil prices. But the issue needs to be addressed at the core.

FUEL SUBSIDY—AN EVALUATION

The foremost argument made in favor of fuel subsidy is that subsidies provide relief to that ever elusive —common□ man. A fuel subsidy has two different benefits. There is a direct benefit since the cost of petrol, transportation; lighting and energy are kept low. Then there is an indirect effect which prevents an associated rise in prices of all other goods due to a rise in transportation costs, power cost and input prices. At least for the direct effect, it has been shown that in many countries the benefit of the subsidy is highest for high income groups.

The other perceived benefit of fuel subsidy is price stability. The fluctuations in international oil markets are supposed to be dampened by the fuel subsidy. They absorb a part of oil shock fluctuation. **The first argument against fuel subsidy** is that since fuel is a pervasive input, it distorts prices throughout the economy. It can also make business less efficient since firms can make the same (or higher) profits as international competitors despite using less efficient (more expensive) capital (inputs). As businesses get used to the subsidy like our businesses have, they will never be able to compete in international markets.

Similarly, by not passing the prices through, the government is not allowing any change in energy consumption pattern. While it is true that fuel demand is inelastic in the short run, many studies have shown that in the long run oil demand is elastic. After the two oil shocks, businesses in industrialized countries opted for more efficient technologies. Similarly, we are not letting consumer search for other modes of transportation or lighting. For example, higher energy cost may induce consumers to opt for energy saver light bulbs despite the higher cost.

- ❖ Fuel subsidy also hampers the growth of private sector as they don't get a level playing field domestically and countries scarce resources are exported by these private players.
- ❖ The upstream companies have to sacrifice a sizable portion of their revenue in the form of subsidies, this has a direct bearing on the company's ambitious investment projects.
- ❖ Moreover the development of alternative sources of energy will also take place when fuel prices are allowed to attain their true market value.

FINANCING FUEL SUBSIDY IN INDIA

Subsidy Scheme of Government, 2002

- ❖ Subsidies on domestic LPG and PDS Kerosene to be met from Budgetary grants of MoP & NG.
- ❖ Amount of subsidy per selling unit to be equal to difference between Cost Price and Issue Price.
- ❖ Subsidy scheme to be phased out in 3-5 years as decided after mutual consent of MoP & NG and MoF.

Government Decision in Oct'03

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- ❖ On 30 Oct'03, MoP&G conveyed government decision that the under-recoveries of OMCs will be absorbed by-
 - ❖ Cross-subsidization through other retail products; and
 - ❖ Balance under-recoveries, after accounting of over-recoveries from other retail products, would be shared by Upstream sector and Downstream Sector (OMCs).
 - ❖ Contribution from ONGC and GAIL to come in terms of appropriate discounts on the prices of crude oil, LPG and SKO supplied by them to OMCs.
 - ❖ Revenues of State Governments in terms of royalty on crude oil not to be affected by discounts on ONGC's crude oil.

From 2004-05

- ❖ Government controlled RSP of MS and HSD also, which was supposed to be aligned to import parity principles with fortnightly revisions and decided upstream companies to share under-recoveries of MS and HSD also.
- ❖ From 2004-05, Oil India Limited (OIL) was also included in the sharing mechanism.

Fuel subsidy in India is financed through

- ❖ Issuing oil bonds by Government of India.
- ❖ Discounts by the Upstream companies to OMCs

The practice of issuing oil bonds is nothing but transferring the burden of current consumption on future generation. If fuel subsidy is financed by Government Budget then it has to compete with other developmental and Social expenditure. Moreover monetizing the budget deficit results in increase in money supply and hence inflation. But this will still be making sense if the resultant general price level increase is lower than the inflation resulting from the direct and indirect effects of oil price increase. Meeting the subsidy expense by the upstream companies has a bearing on their income and hence the development expenditure on exploring new fields or developing the existing ones.

The sharing of under-recoveries during past few years in India is as follows:

PARTICULARS	2005-06	2006-07	2007-08	2008-09
TOTAL UNDER RECOVERIES	40,000	49,389	77,123	1,03,292
OIL BONDS ISSUED BY GOVT TO OMC'S	11,500	24,121	35,290	71,292
SHARE BY UPSTREAM SECTOR	14,000	20,507	25,708	32,000
SHARE BY OMC'S	14,500	4,759	16,125	-
ONGC'S SHARE	11,957	17,024	22,001	28,226

Finally, fuel subsidies prevent development of alternate modes of transportation or energy. Most advanced economies (with the exception of US), tax gasoline more heavily and instead subsidize public transportation. For example, Norway has one of the highest gasoline prices in the world although it is a net exporter of oil. Subsidy reduces the incentives to explore alternatives. The fuel subsidy has become a political tool rather than an economic policy instrument to keep inflation low. The need is to depoliticize this issue and link oil prices to international oil prices with an independent body which makes decisions based on economic considerations.

But doing away with subsidy all at once is no option. It has to be done in a phased manner with targeted subsidy to provide relief to the vulnerable section of the society.

Findings

While evaluating the subsidy system one important finding is noted that more than 70% of our fuel requirements are imported so it makes sense to compare India's sales price with developed countries market as like India they also import a large portion of their crude requirement from distant location and hence the refinery prices include the ocean freight and associated costs of long distance crude movement.

For this purpose I have focused on treatment of earnings/profits of upstream E & P companies by the respective authorities. This has been done by taking the case in United Kingdom, Norway and China. An analysis is done with respect to china.

Like India a number of countries face similar tradeoff between high oil prices and economic growth. The case of another economy registering growth rates comparable to India's is China. The challenges faced by both China and India as a result of government subsidies on retail oil prices. Having now achieved the economic growth they had hoped to foster through subsidies, both countries face the dilemma of choosing between fuel shortages and higher fuel prices. History repeatedly shows that while the short effects of subsidies may be positive, the longer term results are not. And China, having elected to subsidize both its manufacturing and consumer sectors through commodity subsidies, now faces challenges across its economy.

Conclusion

The future of Petroleum sector in India has good potential but there is a need for targeted investment for exploring new fields and developing the existing ones. The world prices have had a history of fluctuations and this is expected to continue because of the multiple factors operating and affecting the market for petroleum products. It is important here to invest in more producing assets as well as in developing alternative sources of energy like bio fuel, wind power, solar power etc. There is also scope for increasing the level of administered prices to bring it at par with other economies. Also with increasing reliance on international trade and opening up of the economy it becomes important to retain the output of Private sector refineries within the country by making the domestic market competitive. More and more private sector participation in the exploration and refining sector will make the market more competitive and bring in the required expertise and investment.

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