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Petroleum Pricing in India: Transition from APM to MDPM

Kaushik Ranjan Bandyopadhyay

1.1 Introduction

Economic growth is inextricably linked to energy. Energy is required for almost all economic activities. Petroleum, comprising of crude oil and refined petroleum products, is one of the prime sources of energy in the world. To a large degree, petroleum fuelled the rapid post-war economic growth achieved in the OECD (Organization for Economic Cooperation and Development) countries. A few decades earlier, petroleum began to erode coal's dominance as an energy source; by mid-century (1950s) it had taken over as the preferred fuel in these countries. By the 1970s, petroleum was powering transportation, supplying one-third of industrial sector power and roughly one-quarter of electricity generation in the OECD countries.¹ Petroleum has been playing an increasingly significant role behind the growth story of the non-OECD countries as well. Oil consumption in the developing and emerging non-OECD countries especially India and China now dominates global oil demand growth.

However, the central problem that nations worldwide have consistently been facing is that this crucial non-renewable energy resource is scarce and is concentrated in a few countries/regions of the world. The surplus production capacity of petroleum is largely concentrated in the Middle East and West Asia. This imbalance in distribution has serious implications on the growth as well as energy security of the countries that are not self-sufficient in terms of indigenous production of petroleum and are largely dependent on imports from the aforesaid regions to fuel their economies. The oil crisis of 1973-74 bears ample testimony to the severity of the problem underlying this imbalance in supply of oil.

Coming to India, although the petroleum industry of the country is one of the oldest,² India is one of the least-explored countries in the world. In 2005-06, the balance recoverable reserve of crude oil in India stood at 786 million tonne and the annual production of crude oil was only around 33 million tonnes. The annual demand in that year, however, was more than 130 million tonne, thereby calling for huge imports of crude. In fact, given the burgeoning growth in oil consumption attributable to the rapid growth of the Indian

¹ http://www.iea.org/textbase/nppdf/free/2007/oil_security.pdf, p.15.

² In India oil was discovered at Makum near Margherita in Assam in 1867 nine years after Col. Drake's discovery in Titusville (Pandian, 2005).

economy post-1991, coupled with supply-side constraints, such as insignificant domestic supply of crude (attributable to a stagnating domestic production), low reserve accretion and inadequate availability of appropriate substitutes, among other factors, made India emerge as a major net importer of oil.

India has persistently been depending on imported crude oil (primarily from the oil and petroleum exporting countries in the Middle East) to meet the lion's share of its requirement. The import dependence for crude and the consequent vulnerability of the country to oil price shocks has exacerbated over the recent past owing to rapid growth of the Indian economy post-1991 that has fuelled a rapid growth in oil consumption.

Given the paramount importance of petroleum for the Indian economy and its increasing import dependence on this front, domestic pricing of crude oil and petroleum products assumes enormous significance for the country. The pricing regime not only influences the cost of energy for the economy as a whole but also has significant implications on economic growth and welfare. A close look at the pricing regime in the petroleum sector in India reveals that for nearly two and half decades (from 1975 to 1997) the petroleum sector in the country was operating in a state of complete protection under Administered Pricing Mechanism (APM). It is only in 1998 that the sector embarked on a gradual transition to a regime of deregulation and open competition.

The pricing of crude and petroleum products in the country has been influenced by a multiplicity of politico-economic factors and (oft-contradictory) interests of various actors and interest groups involved in the matrix, such as the consumers, particularly the vulnerable sections; the producers; refiners; marketing companies; and the government. Till 1997-98 the domestic petroleum sector in India was operating under Administered Pricing Mechanism (APM) for refined petroleum products. The pricing mechanism was based on the concept of retention price, by which refiners were allowed to retain out of their sale proceeds - cost of crude, refining cost and a reasonable return on investment. The same mechanism was extended to marketing and distribution companies, which were compensated for operating costs along with an assured return. In addition to these, the price at which the

finished products were finally sold was set by the Government and was totally delinked from returns of oil companies. The APM played a significant role in insulating oil producers, refiners and marketing companies from global oil price fluctuations and fulfilled the socio-economic objectives of the government considerably but in the process failed to generate adequate incentives for investment in the sector and thus failed miserably to create a vibrant and globally competitive oil industry. With the ushering of liberalization and economic reforms in 1991 the policy makers increasingly began to feel that APM might no longer work successfully as it had in the past and the energy security of country would be at stake if a robust petroleum industry is not created. The reasons for the overriding concerns and serious rethinking by the government were many. Some of these are -

- **Sharp increase in demand for petroleum products and increasingly felt need for large investments:** The demand for petroleum products particularly in the second half of nineties had been increasing at a compound annual growth rate of about 6% but investments in the industry failed to keep pace with the demand resulting in large imports of crude and even finished products. Furthermore, crude oil production had been plateauing without discovery of new exploratory wells. The value of imports increased from less than US\$ 4 billion in 1990-91 to about US\$ 13 billion in 2000. Large imports simply exacerbated the crisis in macroeconomic management, especially the exchange rate and inflation and hence it was essential to bring down the imports to manageable levels. The policymakers felt that this would only be possible if the petroleum sector is fully liberalised to attract substantial foreign and domestic investments.
- **Difficulties in periodic adjustment of prices:** With the responsibility of fixing the prices of petroleum products, the government, driven by political prerogatives, simply kept on postponing the decision of hiking the prices that inevitably led to burgeoning oil pool deficit. The only long-term solution to this problem was that the government should get out of the responsibility of fixing prices leaving them to market forces.
- **Inefficient use of fuel and sub-optimal inter-fuel substitution:** Due to cross-subsidization, the market prices of key petroleum products like petrol, diesel, domestic LPG and Kerosene were not reflective of the underlying economic value of the products leading to large scale inefficiency in use of fuel and sub-optimal inter-fuel substitution.

- **Need to make available inputs to user industries at competitive prices:**

Petroleum products are vital inputs to key industries. With the opening up of the economy to international competition, the user industries could become competitive only if the inputs are made available at market determined competitive prices and not at prices fixed by the government.

- **Difficulty in administration of APM:** Administration of APM was becoming increasingly difficult with the partial opening up of the sector allowing private sector refineries.

Realising the need of the hour, the Union Cabinet approved the dismantling of the APM (administered pricing mechanism) for the petroleum sector on 20th November 1997. The dismantling was carried out in phases over four years, and was along the lines suggested by the Expert Technical Group (ETG), which had been appointed earlier to recommend on the process of dismantling. The ETG recommended complete dismantling of the APM in a phased manner over 4 to 5 years, beginning from 1 October 1997, and ushering in a market determined pricing mechanism. The dismantling primarily involved withdrawal of cost plus formula, abolition of retention prices and movement towards market driven prices, decanalisation of imports and exports, rationalization of import duties, reasonable tariff protection to encourage investment of a regulatory framework to oversee the functioning of and enforcing a competitive framework in the hydrocarbon sector. In the light of this brief backdrop, which churns out the context for further research and analysis, the chapter examines the evolution of APM along with its rationale, objectives and functioning and analyses the limitations which led to its dismantling. This would be followed by a detailed analysis of the pricing of crude and petroleum products in the post-APM scenario along with its implication for the upstream and downstream oil sector, the consumers and for the overall energy security and sustainability of the economy.

1.2 APM: Evolution, Rationale, Functioning and Limitations

1.2.1 Evolution of APM: Brief History

Up to 1939, there were no controls whatsoever on the pricing of petroleum products. Between 1939 and 1948, the oil companies themselves used to pool accounts for major products without any intervention by the government. However, since independence, the pricing of petroleum products in India has persistently witnessed several structural changes in policies. In 1948, an attempt was made to regulate prices through Valued Stock Account procedure. This was basically a cost plus formula based on import parity to which were added all elements of cost such as ocean freight up to Indian ports, insurance, ocean loss, remuneration, import duty and other levies and charges. The realization of oil companies under this procedure was restricted to the import parity price of finished goods plus excise duties/local taxes/ dealer margins and agreed marketing margins of each of the refineries. Any realization in excess of the normal was surrendered to the Government.

Given the huge outgo of foreign exchange on imports, the government from time to time appointed a number of committees to examine or re-examine petroleum pricing. The first such committee, headed by K.R. Damle, was constituted in the early sixties. The Committee examined the issue of foreign exchange conservation, particularly as the refining and product imports were in the hands of foreign oil companies and proposed incentives for the oil companies to increase gross profits by lowering their operating and other costs. It also recommended for reduction of discounts from the Free-On-Board (FOB) prices. Platt's Oil Gram was considered as the reference to fix the FOB prices. Furthermore, in view of the multiplicity of products and their usage, lubes and greases were kept out of the pricing formula, which had been essentially applied to bulk products. For lubes and greases the committee recommended a block control system under which a ceiling was fixed for blending charges, packaging and marketing costs and profit margins. Appendix 1 provides information on the major refined petroleum products and their usage.

As the validity of the ceilings recommended by the Damle committee was only till March 1965, the government had set up another committee under the chairmanship of T.N. Talukdar. The broad terms of reference of the Talukdar Committee were (i) the manner of determination of ex-refinery prices of products produced by the refiners, (ii) the manner of determination of landed prices in respect of similar products which may be imported, (iii) determination of marketing and distribution charges of the products, and (iv) determination of ceiling selling prices in respect of lubricants, oils and specialities.

The Talukdar committee essentially extended the concepts laid down by the Damle committee, i.e. prices were to be based on the principle of import parity with fixed formula of build-up up to the carriage, insurance and freight (CIF). The price formula was firm and had the twin advantages of being reasonable and encouraged the oil companies to enhance their profitability by lowering costs. Additionally, it had the potential of a lower cost basis for fixing margins in the future.

The recommendations of the Talukdar committee were retained till December 1965, when the government appointed a committee under the chairmanship of Shantilal Shah. The new committee was required to determine the landed cost of imported POL (petroleum, oils and lubricants), feasibility of making all refineries, including inland refineries, as pricing points, marketing and distribution charges, and profit on distribution and marketing operations product wise, and determination of dealer commissions for MS (motor spirit or petrol), HSD (high speed diesel oil), SKO (superior kerosene oil) and LDO (light diesel oil). The recommendations of this committee had been implemented for a period of three years starting from June 1970.

The Shantilal Shah committee, however, did not regard import parity to be a sound basis for fixing prices and recommended the discontinuance of the import parity principle on the following grounds.

- About 90% of the total demand for petroleum products was met by indigenous production and no major shortfall was anticipated.
- 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 indigenous cost of production that should ideally be the determining factor for pricing of petroleum products.

After the 1973 oil crisis the government constituted the oil price committee (OPC) under the chairmanship of S. Krishnaswamy in March 1974. The OPC recommended the discontinuation of the 'import parity' principle and instead suggested the Administered Pricing Mechanism (APM) for pricing of petroleum products. Based on these recommendations, the APM came into existence in December 16, 1977.

One of the important drawbacks of the import parity pricing was that the indigenous cost of production was totally overlooked while determining producer prices. This issue under the new mechanism was addressed through 'retention pricing', by which refiners were allowed to retain out of the sale proceeds, cost of crude, refining cost and a reasonable return on investment. The same mechanism of retention pricing was also extended to marketing and distribution companies. The Government of India was fixing the prices of finished products and the returns of oil companies were de-linked from the price at which the goods were finally sold. This process of fixation of prices of finished products by the government coupled with the retention mechanism for refiners, marketing and distribution companies was referred to as the Administered Pricing Mechanism or APM. The mechanism was implemented under the aegis of the Ministry of Petroleum & Natural Gas through its executive wing "Oil Co-ordination Committee" (OCC) with its secretariat at New Delhi.

1.2.2 Objectives of APM

The primary objectives of the APM were as follows:

- To optimize the utilization of refining and marketing infrastructure by treating the facilities of all the oil companies as common industry infrastructure, the access of

which would be available to all the oil companies by hospitality arrangements, thus eliminating wasteful duplication of investment.

- To make available all products at uniform ex-refinery prices so as to minimize cross-haulage of products and associated energy costs.
- To ensure continuous availability of crude to refiners by recognizing import needs wherever there are deficits in indigenous production.
- To ensure that the returns to oil companies are reasonable and in line with operational efficiencies and to see that sufficient resources are generated to enable industry to setup facilities to meet the growing needs.
- To ensure stable prices by insulating domestic market from the volatility of crude and product prices by making products available at subsidized rates for weaker sections of the society and priority sectors in the industry through cross-subsidization.

1.2.3 Salient Features and Build up of Prices under APM

The salient features of APM were:-

- The well head price of the indigenous crude oil was determined as the weighted average of cost of production of Oil and Natural Gas Corporation (ONGC) and Oil India Limited (OIL), which are government-owned companies involved in upstream activities i.e. exploration and production, plus 15 per cent post-tax return on capital employed to compensate for the operating expenses.
- Pricing of crude oil at a uniform FOB cost to all the refineries based on the pooled FOB price of indigenous and imported crude oil irrespective of whether they processed indigenous crude or imported crude. Other costs of bringing the crude oil to the refineries were reimbursed at actual. In the case of imported crude, ocean loss of oil at 0.5 percent on carriage and freight (C&F) cost of crude oil was allowed. In fine, refining companies were provided crude oil at a fixed price, which had no relation to domestic or world crude oil prices. Import of crude oil and petroleum was fully canalized through the government-owned Indian Oil Corporation (IOC) and controlled by the Empowered Standing Committee of the Government of India (GoI).

- Refining costs and return (refining margins) were also decided on retention basis. Every three years, the Government used to determine the standard refining cost and return on capital employed for each refinery. The standard refining cost plus return on capital employed when divided by the crude throughput gave the retention margin per tonne for that refinery. This used to remain constant for that refinery during the three year period. However, certain types of annual escalations were allowed over and above the retention margin.
- The retention price that was paid to refineries took into account the delivered cost of crude (the weighted average of the indigenous and imported crude price), refining cost and 12 percent post-tax return on the capital employed. This was then allocated to each product by a set of indices. The index of kerosene used to be considered as 1. The indices of other products were developed after taking into account factors like the then current and prospective demand and supply, ability of individual products to bear additional charges, their end use pattern etc.
- Product-wise uniform ex-refinery price was the weighted average of retention prices of all the refineries taken together for that product plus a uniform addition of Rs.25 per selling unit (expressed in kilo litre or metric tonne). This was the price at which the refineries used to transfer the product to a marketing unit (also referred to as refinery transfer price). The difference between the retention price and the ex-refinery price (or refinery transfer price) was surrendered to or claimed from the oil pool account.
- Marketing costs and return (marketing margins) was also decided on retention basis. For the distribution and marketing of refinery products, prices were fixed under a cost-plus formula, wherein marketing and distribution costs were fully compensated and a post tax return of 12 percent was guaranteed on investment. Marketing margins used to be averaged out to compute industry margins for inclusions in the selling price. The oil marketing public sector undertakings (PSUs) were permitted to sell petroleum products as restricted by a sales plan entitlement (SPE). A company exceeding its SPE had to surrender a portion of its marketing margin to a deficit company. Thus, the market shares of individual PSUs were controlled. The marketing margin used to be updated once in three years.

- The ex-storage point price consisted of ex-refinery price, excise duty, marketing margins, various surcharges built into the price to cover specific under-recoveries due to charging uniform consumer price irrespective of actual costs incurred plus an adjustment factor known as product price adjustment. Product-wise uniform ex-storage point price at the refinery point were arrived at by averaging the marketing margins. The product price adjustment (PPA) was designed to allocate subsidy or cross-subsidy and to ensure lower consumer prices for products used by the weaker and vulnerable sections of society. The price of a few products such as petrol, as already mentioned, was maintained at a higher level to compensate for the losses incurred from subsidizing kerosene, liquefied petroleum gas (LPG), and diesel. Under the APM regime, an increase in price implied a hike in PPA and thus had an impact only on the ex-storage point price and not on the ex-refinery price. Since retention prices used to remain unaltered there was no major effect on oil companies.
- At the distributors' level, the dealer's commission was more or less uniform and regulated by the government. The retail selling price of a product to the consumer includes in addition to industry average costs and profits, notional railway freight, retailing cost, various surcharges, and government levies. The refineries were the primary pricing points and demarcation of pricing zones were attached to these points. Irrespective of the company marketing the products and the locations, from which the products were actually supplied, the price of petroleum products at all primary pricing points were considered as uniform.

A flow chart illustrating the buildup of ex-refinery, ex-storage point and consumer retail price of petroleum products is given in Appendix 2.

As far as the consumer prices were concerned, socially sensitive domestic consumption products like kerosene, LPG and diesel used for agriculture and mass transportation were heavily subsidized. Furnace oil (FO), or naphtha used for fertilizer manufacturing were also subsidized. Subsidies were non-transparent as they were financed not by direct budgetary support but by cross subsidization. In fact the prices of petrol, ATF (aviation turbine fuel), and fuels like furnace oil, diesel oil and naphtha used in the industry other than fertilizer

manufacturing were kept much higher than their cost of production to balance the under recoveries on subsidized products.

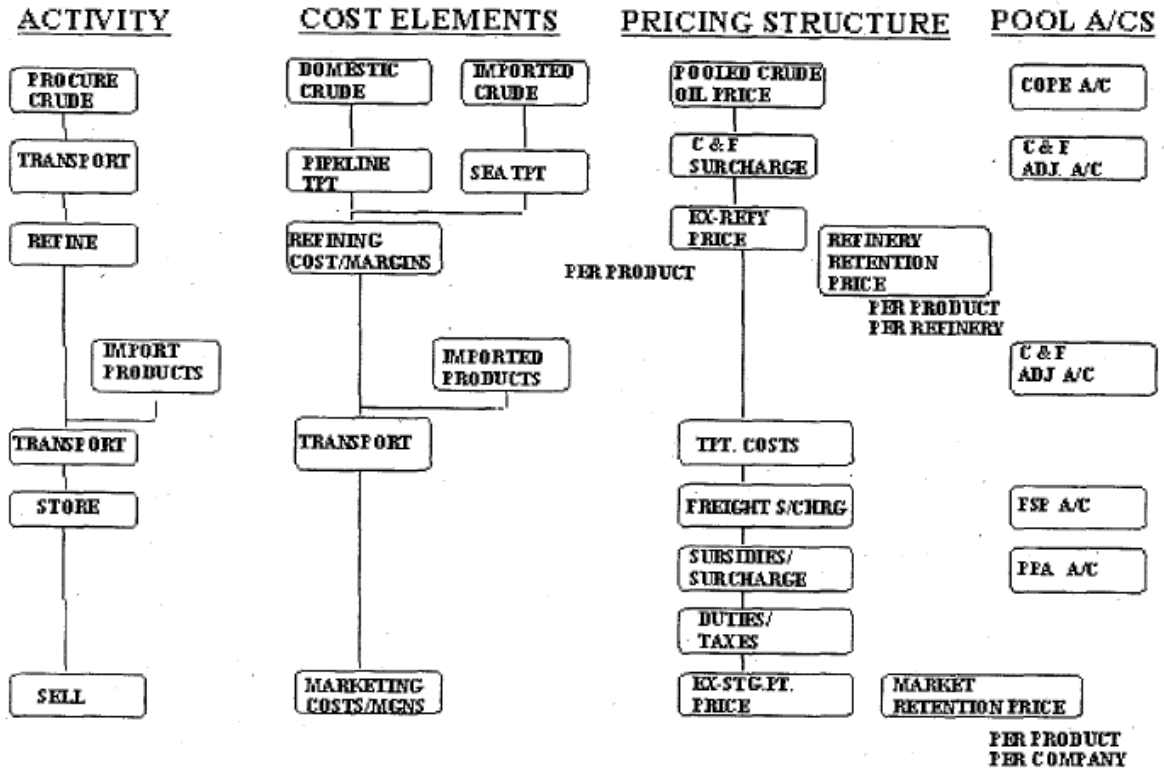
The entire APM was operated through an oil pool account (OPA) maintained by Oil Coordination committee (OCC), wherein inflows and outflows of the pool account were to be kept in balance to provide uniform and stable prices throughout the country. Companies either used to surrender or withdraw from the OPA. Weekly settlements were made in the oil pool account. Inflows to the oil pool account were from collection of surcharges on sale of petroleum products, while outflows were aimed at meeting shortfalls in various elements of standard cost of production. Though the number of pool accounts was more than fifty, the major pool accounts in which the oil companies used to adjust their claims and surrenders were:

- ❖ **Crude oil price equalization account (COPE)**
- ❖ **Cost and freight (C&F) adjustment account**
- ❖ **Freight surcharge pool (FSP) account**
- ❖ **Producer price adjustment (PPA) account**

Fig. 1.1 indicates the major OPAs and the stages and cost elements in the price build-up process which they correspond to. A deficit would generally arise in OPA under APM if –

- Domestic crude oil production fell so that the country would have to import more crude at much higher prices;
- International prices rose, thus increasing both crude and finished products import bills;
- The rupee depreciated against the dollar, leading to an increase in the import bill in rupee terms;
- Supply from domestic refineries lagged demand, leading to an increase in import of finished products;

Fig. 4.1: APM Structure and Pool Accounts³



1.2.4. Limitations of APM

On the positive side APM primarily helped in

- an orderly growth of the oil industry
- continuous availability of products to consumers at fairly stable prices
- insulation of marketing companies, refineries and oil producers from international price fluctuations and protection of their market shares.
- achievement of socio-economic objectives of the government to a large extent

³ Extracted from the inaugural address by Dr. R. K. Pachauri in the round table discussion on 'Deregulation of Downstream Oil Sector & its Impacts', organized by Tata Energy Research Institute (TERI), New Delhi on 27th March, 1998.

However, in spite of the penalties and rewards, which were built into the system, the cost-plus formula under APM failed miserably to create a globally competitive oil industry and had instead created oligopolies by guaranteeing profitability through retention prices. Some of the concerns that were raised against APM and its adverse fallouts are:

- The APM regime could not generate adequate financial resources for investment in the upstream and downstream sectors. As investors always prefer free market setup with minimum government interference in investment and operating decisions, they were usually reluctant to commit large funds in the petroleum sector under the regime as any decision of the government could potentially influence the profitability and market shares irrespective of the efficiency with which a company operates.
- As reimbursements exceeded the surrenders by the oil companies to the pool accounts due to non-revision of the retail prices of petroleum products (charged to consumers) in line with the cost of production, these accounts started showing deficit that made PSUs unviable with accumulated outstanding balances.
- The prices of politically sensitive products did not reflect their true economic cost. Subsidies and cross-subsidies led to large distortion in consumer prices and encouraged adulteration and diversion. The low price of diesel encouraged a significant shift from petrol to diesel driven cars. Furthermore, a large quantity of kerosene got diverted for use in diesel engines and power plants. In general, the pricing of subsidized petroleum refined products much below their economic value led to inefficient, wasteful use of those products resulting in sub-optimal inter-fuel substitution.
- Political compulsions often dictated prices. The administration of pricing system in petroleum sector was thus inflexible to changes in global crude prices. In a country where more than 50% of the demand is met through import of crude oil, such inflexibility could result in hazardous consequences. As a consequence, the pool deficit, as on March 1996 was more than Rs. 50 billion and as on March 2000 it geared up to Rs. 63 billion. The situation became untenable and could not be allowed to continue for long.

- Since an assured return was provided on capital employed, there was no guarantee that the facilities put up by the oil companies were being used in the most efficient and productive manner. Since all investments and costs were reimbursed, there was no incentive to make profitable investment decisions. The APM thus provided little incentive for cost minimization, technological upgradation and improved productivity. In fact, the refineries used to have an inherent fear that any attempt to increase crude throughput could result in an exhibition of improved standards that could effectively turn out to be a penalty for being more productive. SPE (Sales Plan Entitlement) scheme had stifled market competition and the marketing companies were being used as mere distribution channels. Thus APM failed to create a consumer-friendly and internationally competitive vibrant petroleum industry.
- In the upstream sector APM failed to generate sufficient incentives (since price of crude oil paid to the producers was lower than international price) to invest in risky ventures to develop oil and gas reserves.
- As long as the players were PSUs, the government would control investments and costs, but with the entry of private players in the market, adequate monitoring system would be required to examine whether the private refiners had been deriving undue benefits out of the cost-plus mechanism and would essentially involve substantial additional cost which might eventually be borne by the consumers. Furthermore, the entry of large number of private players in the market would make it increasingly onerous to administer the APM and ensure a level playing field to public players. In order to secure oil supplies for meeting future demand it therefore became imperative to move towards a Market Determined Price Mechanism (MDPM) through price deregulation which would allow the refineries to stipulate refinery gate price of petroleum products that would compete with prices of imported products.

1.3 The Dismantling of the APM

In the light of these concerns that were raised against the APM regime, the government finally announced the complete dismantling of the APM on 21st November 1997⁴ which was to be carried out in a phased manner over the period 1998-2001, beginning 1st April 1998. The highlights of this policy of dismantling are as follows:

- **Cost plus formula withdrawn:** The cost-plus formula would be withdrawn for indigenous crude producers (ONGC and OIL). The oil products would be given 75 percent and 77.5 percent of the weighted average FOB price of actual imports for 1998-99 and 1999-00 respectively. This would gradually be increased to 100 percent by 2002.
- **Retention pricing abolished:** The system of retention pricing would be abolished for all (existing and new) refineries from 1st April 1998 and the pricing of petroleum products at the refinery gate prices of the controlled products viz. petrol, diesel, kerosene, ATF, and LPG would continue to be controlled during the transition period. Some subsidy on LPG would be retained and borne by the oil companies while subsidy on kerosene would be borne by the fiscal budget. The prices of the decontrolled petroleum products namely naphtha, furnace oil, LSHS, LDO(light diesel oil), paraffin wax and bitumen, would be market driven and suitably adjusted to reflect the prevailing market conditions.
- **Decanalisation⁵ of imports and exports:** Imports and exports of all petroleum products, except crude, natural gas liquids (NGL), ATF, petrol and diesel would be decanalised during the transition period. However, sourcing and import of crude would be allowed to joint and private sector refineries under actual user licensing policy.

⁴ Resolution No.P-200112/29/97-PP, 21st November 1997, MOPNG, New Delhi,p.1-6

⁵ Decanalisation means removal of quantitative restrictions.

1.4 Transition to Market Determined Pricing Mechanism

The Government in November 1994 had set up an industry study group under the chairmanship of Mr. U. Sundararajan, the then Chairman and Managing Director, BPCL (Bharat Petroleum Corporation Limited) to prepare the blueprint of the deregulation and tariff reform that was required in the oil sector and provide a framework for the development of Market Determined Pricing Mechanism (MDPM). The Committee, while expressing its concern for a possible burgeoning increase in consumption of petroleum products in future and limited existing indigenous production and refining capacity to meet that expected increase, came out with some broad recommendations which are as follows:

- Recovery of oil from existing fields should be enhanced; exploration efforts should be accelerated to find new fields and acquire equity capital abroad.
- Additional refining capacities and marketing infrastructure should be created
- Port facilities and pipeline capacities should be augmented
- Foreign and domestic investments should be promoted in the hydrocarbon sector
- Efficient use of oil should be promoted

To achieve these broad objectives, the Committee suggested that the entire oil sector (upstream, downstream and marketing) should be completely opened up through the following steps;

- Introduction of market determined pricing mechanism (MDPM)
- Removing all restrictions on imports and exports
- Removing restrictions on sourcing and type of crude and product pattern
- Allowing oil companies to decide on development of infrastructure, mode of transportation, the selection of marketing areas, appointment of dealers/distributors, the amount of commission payable to intermediaries and the sales volume, purely on commercial considerations

- Ensuring fair competition by setting up a regulatory body to control the market in a transparent manner. Pipelines that are natural monopolies should be treated as utilities and the common energy carrier principle should be adopted
- Setting up of an oil commodity exchange to provide an institutional market for exchange of crude and petroleum products at market related prices
- The hydrocarbon sector should be totally de-regulated at one go
 - by evolving suitable tariff structure to promote investment in the sector without diluting the revenues of the government
 - by removing subsidies; wherever products need to be subsidized, Central and State Governments should directly disburse subsidies and oil companies should be permitted to sell all products at market related rates

The report of this study group provided essential inputs for the Strategic Planning Group on Restructuring of the Indian oil industry (known as 'R' Group) headed by Dr. Vijay Kelkar, the then Secretary, Ministry of Petroleum and Natural Gas. The 'R' Group submitted its report in September, 1996, underscoring on dismantling of APM for the following primary reasons:

- Cost-plus compensation did not provide adequate incentive for cost reduction leading to inefficiencies
- Absence of internally competitive petroleum sector
- The entry of private sector would inflate the costs under cost-plus formula which the consumers would have to bear
- Wide distortion in consumer prices on account of subsidies and cross-subsidies
- Adverse impact on oil companies due to huge deficits in Oil Pool Accounts as price revisions were untimely

Appendix 1.3 contains some sector-wise recommendations by the R-Group. The entire sector-specific reforms, as suggested by the 'R'-Group, was to be carried out in phases.

By end-August 1997, as a result of explosive growth of deficit in the Oil Pool Account (on account of burgeoning subsidies on a number of products), the oil companies (particularly Indian Oil Corporation, which was the canalizing agency for oil imports), were faced with a severe liquidity crunch and on September 1, 1997 in a 'Comprehensive Package to end Oil Pool Deficit'⁶, the Government announced a modest increase in the ex-storage price of high-speed diesel (HSD) by Rs. 1.80 per litre, of liquid petroleum gas(LPG) by Rs 15 per cylinder, and of petrol by Rs 1.00 per litre to resist any further increase in Oil Pool Deficit. However, the price of kerosene was not revised. The Government also announced its decision to provide petroleum products such as fuel oil, low sulphur heavy stock (LSHS), naphtha to industrial users and bitumen at import parity prices. Subsidy on fertilizer inputs was decided to be funded directly from the budget. Furthermore, in order to enhance credit of oil companies the government also announced its decision to issue oil bonds worth Rs 18,200 crore to the oil companies on July, 1997 (an estimated amount of deficit on the pool account as of June 30, 1997).

While it was announced that this transaction would remain outside the budget (thus leaving fiscal deficit unaffected), the Government decided to provide immediate liquidity to the oil companies by making Rs. 5000 crore of these oil bonds (worth Rs 18,200 crore) eligible as collateral for loans.

In order to shift to Market Determined Pricing Mechanism (MDPM) the Government decided to resort to soft landing approach through careful phasing-in in line with the recommendation of the Expert Technical Group (which was appointed to examine the impact on various sectors at different levels of duty structure in case of dismantling of APM)⁷ and did not de-regulate the prices of crude and petroleum products at one go (as suggested by the Sundararajan Committee). The reason for resorting to soft-landing approach was attributed to higher adjustment cost that would have arisen due to large

⁶ Box 7.3, Economic Survey 1997-98.

⁷ The Expert Technical Group was appointed by Government of India vide its order No. P-20029/21/95-PP dated June 25 1996 with the following primary objectives: a) re-examination of the notion of retention mechanism in the oil sector; b) examination of the feasibility of introduction of notional import-parity concepts for pricing of crude oil and petroleum products in the country in order to promote competitiveness and cost-effectiveness in the petroleum sector ; c) examination of the impact on various sectors at different levels of duty structure in case of dismantling of APM; and d) any other allied matters.

increases in relative prices of subsidized petroleum products for one-time shift to MDPM. In other words, the phase-in period could be visualized as a period of gradual reconciliation of apparent short-term conflicts that would have arisen among the interests of three groups of economic agents: the consumers or end-users of petroleum products, the oil producers and refiners and the government itself.⁸

The Government of India, Ministry of Petroleum and Natural Gas vide order No. P-20012/29/97-PP dated 21 November 1997⁹ decided the details of the phasing of dismantling programme of APM and the corresponding duty structure for the terminal year i.e. 2001-02 after considering the recommendation of the Expert Technical Group (ETG). The details of the phased dismantling process are given in Appendix 1.4. Some of the salient features of the phased dismantling, which came into effect from 1.4.1998 are as follows:

- **Crude Prices:** Cost-plus formula would be withdrawn for indigenous crude oil producers and the prices that the oil producers are going to receive would be increased to international levels in a phased manner by paying pre-announced increasing percentage of weighted average FOB (Free On Board) price of actual imports of crude oil during the transition period.
- **Refinery-gate prices¹⁰ :** The system of retention pricing would be abolished for all (existing and new refineries) and the pricing of petroleum products at the refinery gate level would move towards import parity with the exception of the refinery gate prices of controlled products viz. petrol, diesel, kerosene, LPG and ATF. The prices

⁸ As far as the consumers are concerned, the dismantling of APM and linking the domestic price determination of petroleum products with international market price at one go would immediately lead to a substantial increase in prices of subsidized petroleum products like kerosene (primarily used for lighting and cooking by rural households). As for the refiners, the gradual phasing-in would also not have adverse impact on supply-response because of the lead time needed for setting up necessary infrastructure which is essential to increase supply of petroleum products and enhance energy security. Furthermore, an immediate shift would also have implications in terms of government revenue which it earns from the sector (like customs duty, excise duty and other central and state levies).

⁹ MoPNG Resolution NO.P-20012/29/97-PP dated 21 November 1997 (appeared in The Gazette of India, Extraordinary, Part-1-Section1, New Delhi, Monday, 24 November 1997).

¹⁰ The refinery gate prices of products are the prices at which the marketing division of an oil company or an oil marketing company purchases the product from refining division or a refinery. It is also called the ex-refinery price or the refinery transfer price.

of these controlled products would be fixed at 'adjusted import parity' prices for the existing refineries during the transition period. All other products would be sold by the refineries at market driven prices.

- **Consumer Prices:** The consumer prices of major petroleum products would be moved to market-driven prices. Price of diesel would be fixed on the principle of import parity upto ex-storage point level with immediate effect, and prices of other major products, viz. LPG, ATF, kerosene and petrol, would be moved towards principle of import parity in a phased manner and prices of paraffin-wax, bitumen, naphtha, FO (fuel oil) and LSHS would be decontrolled.
- **Servicing the Oil Bonds:** The transition period would be utilized for servicing and amortising the oil bonds worth around Rs. 18,200 crores, which would be issued by the Government to the oil companies.
- **OCC with enhanced autonomous powers:** The price of crude and petroleum products during the transition period would be fixed by OCC (Oil Coordination Committee) with enhanced autonomous power.
- **Decanalisation of Imports and Exports:** The imports and exports of all petroleum products, except crude (slop crude and crude condensate), NGL, ATF, petrol and diesel would be decanalised during the transition period. However, sourcing and import of crude would be allowed to joint and private sector refineries under actual user licensing policy.
- **Rationalisation of Duties on Crude and Petroleum Products:** The duties on crude (customs duties) and petroleum products (customs and excise) would be rationalized in a phased manner.
- **Encouraging Investment:** The investment in the refinery sector would be encouraged by providing reasonable tariff protection and making marketing rights for transportation fuels viz. petrol, diesel and ATF conditional on owning and operating refineries with an investment of at least Rs. 2000 crores or oil exploration and production companies producing at least 3 million tonnes of crude oil annually.
- **Cost-plus Formula withdrawn:** The cost-plus formula for shipping of crude oil would be withdrawn and the rates would move towards market related rates

- **Freight Subsidy:** Freight subsidy on supplies to far flung areas would be met through fiscal budget and
- **Establishment of regulatory framework:** Establishment of a regulatory framework for overseeing the functioning of and enforcing competitive framework in the hydrocarbon sector.

As a follow-up of the aforesaid decision on decontrolling the price of petroleum products, the Government decontrolled the pricing of Aviation Turbine Fuel (ATF) with effect from 1 April 2001¹¹ and finally decided to completely dismantle the APM in the hydrocarbon sector with effect from 1 April 2002.¹²

1.5 . Post-APM Scenario

1.5.1 Crude

*Pricing*¹³

As mentioned before and as shown in Appendix 1.4 with effect from 1 April 1998 the crude oil producers had been paid a pre-announced phased increase in percentage (75% for 1998-99, 77.5% for 1999-2000, 80% for 2000-01 and 82.5 % for 2001-02) of the international FOB prices on a year to year basis.¹⁴

In the post-APM period effective from 1 April 2002 the prices of indigenous crude oil are being determined on the basis of the Crude Oil Sales Agreement (COSA) between the producers and the refineries by benchmarking various indigenous crude oils to equivalent international crude oils.¹⁵

¹¹ Gazette Notification Ref. 20018/2/2000-PP dated 30 March 2001.

¹² Gazette Notification Ref. P-20029/22/2001-PP dated 28 March 2002.

¹³ This section draws largely on Chapter 1 of GoI (2005).

¹⁴ These payments were subject to a floor of Rs 1,991/MT (metric tonne) and a ceiling of Rs 5,570/MT (Rs. 6,470/MT for March, 2002).

¹⁵ For imported crude oil the pricing is based on the actual cost incurred by various refineries while importing the same and comprises items like FOB cost, freight to India, ocean loss, customs duty, port charges etc. Moreover since there are nearly 100 grades of crude oil produced in the world and all are

The import parity price of crude oil produced by ONGC, the largest crude oil producer in India, consists of the following components:-

1. FOB prices of the respective marker crudes¹⁶ adjusted for Gross Product Worth¹⁷ (in US \$/ barrel¹⁸)
2. Ocean Freight (Average Freight Rate Assessment for VLCCs¹⁹)
3. Insurance
4. Customs Duty
5. Ocean Loss
6. NCCD²⁰ @ Rs 50/T (applicable from 1 March 2003)
7. Port dues (Wharfage, Port Charges, Landing Charges, Bank Charges etc.)
8. Octroi (applicable for Mumbai refineries of HPCL and BPCL only)

The crude oil produced by Oil India Limited (OIL), another crude oil producer, has however been bench marked to Nigerian Bonny Light²¹ due to similarity in quality. OIL receives the

not necessarily actively traded the methodology of pricing of crude oil is based on “Reference” or “Marker” crude oil that is actively traded in a particular region. For instance, for US and North America, WTI (Western Texas Intermediate) is used as a marker, for Central, Eastern and Middle Eastern countries Brent or Dubai crude are usually used as markers. Brent crude is generally considered as a global marker. While pricing any imported crude a premium or discount over the ‘Marker’ due to quality and locational differences is usually taken into consideration.

¹⁶ For ONGC-Assam the linked marker crude is average of Nigerian Bonny Light and Quo Iboe, for ONGC-North Gujarat it is Arab Heavy. For ONGC-South Gujarat, Bombay High and ONGC-South the linked marker crude is average of Nigerian Bonny Light and Quo Iboe. Bonny and Quo Iboe are the names of two of the ports of Nigeria. See also footnote 19.

¹⁷ Gross Product Worth (GPW) is the weighted average value of the refined products obtained from a barrel of crude oil at the refinery gate. It is calculated by multiplying the prevailing spot price for each product by its percentage share in the product yield of a typical barrel. GPW is used to indicate the difference in quality between indigenous crude and similar international crude.

¹⁸ Unit of volume for crude oil and petroleum products. One barrel equals 42 US gallons or 35 UK (imperial) gallons, or approximately 159 litres or 9,702 cubic inches (5.6 cubic feet); 6.29 barrels equal one cubic meter and (on average) 7.33 barrels weigh one metric ton (1000 kilograms). One barrel of crude equals 5604 cubic-feet of natural gas, 1.45 barrels of liquefied natural gas (LNG), or about one barrel of gas oil.

¹⁹ VLCC means Very Large Crude Carrier

²⁰ NCCD or National Calamity Contingent Duty is a form of excise duty which has been imposed on Crude Petroleum Oil as per Section 136 (1) of the Finance Act, 2001 and is calculated on the net quantity of Crude Petroleum Oil received in the refinery or gross quantity produced and supplied from the oil field to the refinery.

²¹ Bonny Light oil is a high grade of Nigerian crude oil with high API gravity (low specific gravity), produced in the Niger Delta basin and named after the prolific region around the city of Bonny. The very low sulphur content of Bonny Light crude makes it a highly desired grade for its low corrosiveness to refinery infrastructure and the lower environmental impact of its by-products in

monthly average of the high and low FOB price of Nigerian Bonny Light (as per Platts Oilgram²²) adjusted for GPW and discounted for Base Sediment and Water (BS&W).²³ In addition, OIL receives 50 per cent of pipeline transportation charges in respect of crude oil sales to all refineries except NRL²⁴ (Numaligarh Refineries Limited) in Assam, if the FOB price of crude oil exceeds US \$21 per bbl. In case the crude oil price falls below US\$21 per bbl, OIL receives sales tax in addition to adjusted FOB price plus 50 per cent of pipeline transportation charges, as stated above. However, since 1 April 2002, the FOB price has consistently remained above US \$21 per barrel.²⁵

Taxes and Duties

Cess: Cess is levied on indigenous crude oil by the Central Government and collected under Section 15 of the Oil Industry Development Act (OIDA), 1974. The Act came into force following successive and steep increases in the international prices of crude oil and petroleum products since early 1973, when the need of progressive self-reliance on petroleum and petroleum based industry raw materials assumed great significance. Accordingly, Oil Industry Development Board (OIDB) was set up in January, 1975 under OIDA to provide financial assistance for the development of oil industry.

The rate of cess for the period March, 2003 to February, 2006 remained at Rs. 1800 per tonne on crude oil produced in the country as compared to Rs. 900 per tonne till February, 2002. However, as a measure under the Union Budget 2006-07, cess on petroleum crude oil had been increased from Rs1,800 per tonne to Rs 2,500 per tonne and is currently existing at

refinery effluent. Other grades of Nigerian crude oil are Qua Ibo crude oil, Brass River crude oil, and Forcados crude oil.

²² Platts, a division of The McGraw-Hill Companies, is a leading global provider of energy and metals information. Platts Oilgram Price Report is a daily report that covers market changes, market fundamentals and factors driving prices. Platts Oilgram Price Report also brings a vast array of Platts international prices for crude and products, netback tables, and market critical data. For more details see: <http://www.platts.com>.

²³ Base sediment and water (BS&W) basically implies water and other extraneous material present in crude oil.

²⁴ Numaligarh Refinery Limited (NRL) was set up at Numaligarh in the district of Golaghat (Assam) in accordance with the provisions made in the historic Assam Accord signed on 15th August 1985 and has been conceived as a vehicle for speedy industrial and economic development of the region.

²⁵ It deserves to be underscored here that the import parity price of crude discussed above is distinct from the actual cost of production of crude that includes operating cost, recouped cost (comprising of depreciation, depletion and amortization), statutory levies (royalty, cess, NCCD, sales tax, octroi etc.) and normative return on capital employed

the same level. However under the New Exploration Licensing Policy (NELP)²⁶ cess has been abolished in order to encourage Exploration and Production activities in India. All investors venturing in Exploration and Production (E&P) activities in India under NELP including National Oil Companies both Public and Private and Multinational Companies are provided level playing field and no cess is payable on production from areas licensed/leased under NELP.

The proceeds of cess are first credited to the Consolidated Fund of India and a certain sum of money as deemed fit by the central government, are made available to the OI&D after appropriation by the Parliament.

Table 1.1 shows the collection of revenue from Oil Development Cess from 2000-01 to 2007-08.

Table 1.1: Realisation of Oil Development Cess from Crude Oil

Year	Cess (in Rs.crore)
1990-91	2757
1999-00	3243
2000-01	2728
2001-02	2731
2002-03	4501
2003-04	5134
2004-05	5248
2005-06	5007
2006-07	7034
2007-08	6866

Source: Petroleum Statistics at a Glance < available at www.mopng.nic.in>

²⁶ The New Exploration Licensing Policy (NELP) was formulated in 1997-98 to provide a level playing field to the private investors by giving the same fiscal and contractual terms as applicable to National Oil Companies (NOCs) for offered exploration acreages (offshore and onshore).

Royalty

Royalty is levied by State Governments on crude extracted from their respective jurisdictions. Royalty in respect of mineral oil is payable under the provisions of Section 6(A) of the Oilfields (Regulation and Development) Act, 1948 and the Petroleum and Natural Gas Rules, 1959. According to these provisions, rate of royalty shall not exceed 20% of the sale price at the oil fields or oil well-head. Furthermore, the rate of royalty shall not be enhanced more than once during any period of three years. Appendix 1.5 shows the revisions in the rate of royalty since 1990. From Appendix 1.5 it could be observed that over the larger part of the nineties royalties used to be collected at specific rates However since April, 1998 the royalty got revised to ad-valorem rate of 20 percent of the well head price. Table 1.2 below shows the collection of Royalty from crude oil by the Indian Government.

Table 1.2: Contribution of Royalty from Crude Oil to the Consolidated Fund of the Government

Year	Royalty (in Rs.billion)
2000-01	22.72
2002-03	30.67
2003-04	31.74
2004-05	42.71
2005-06	50.67
2006-07	58.57

Source: Petroleum Statistics at a Glance < available at mopng.nic.in>

Customs Duty

Customs Duty is a central duty, consisting of basic customs duty and additional customs duty, also known as countervailing duty or CVD, which is equivalent to the excise duty on the same product produced domestically. As crude is an input to refineries, no excise duties are chargeable on crude.

Appendix 1.6 shows the revision of customs duty on crude over the years and table 1.3 below shows the realization of customs duty on crude oil over the years.

Other Taxes and Levies on Crude

Other taxes or levies imposed on the movement of crude in some states include recoverable and irrecoverable taxes. The recoverable taxes include VAT (Value Added Tax) and the irrecoverable taxes include entry tax or octroi levied on the movement of crude in some states and faced by the refineries. Tables 1.4 and 1.5 below show the entry/octroi tax and VAT or sales tax respectively faced by the refineries across the states. Till May 2008, 24 states had VAT levied on the sale of crude. However, due to spiraling crude prices, from July 2008 onwards all the states have removed the levy (with the exception of Andhra Pradesh and Maharashtra).

Table 1.3: Year-wise Realisation of Customs Duties on Crude (in Rs. crore)

Year	Customs Duties
1990-91	3145
1999-00	6257
2001-02	4818
2002-03	6820
2003-04	7491
2004-05	9761
2005-06	7158
2006-07	7583
2007-08	9001

Source: Petroleum Statistics at a Glance < available at mopng.nic.in>

Table 1.4: Rate of State-wise Irrecoverable Taxes on Crude (in percent)

State	Irrecoverable Tax
Maharashtra	2.00 (BMC* Octroi)
Uttar Pradesh	4.00 (Entry Tax)
Haryana	4.00 (Local Area Development Tax)
Karnataka	1.00 (Entry Tax)
Bihar	2.00 (Entry Tax)

* Bombay Metropolitan Corporation

Source: Petroleum Planning and Analysis Cell (PPAC), MoPNG

Table 1.5: Rate of State-wise Recoverable Sales Tax (VAT) on Crude (in percent)

State	VAT (as of 01.04.08)	VAT (updated as of 01.07.08)
Andhra Pradesh	4	4
Arunachal Pradesh	12.5	
Assam	4	
Bihar	4	
Chattishgarh	4	
Delhi	4	
Goa	20	
Gujarat	4	
Haryana	4	
Himachal Pradesh	4	
Jharkhand	4	
Karnataka	4	
Kerala	4	
Madhya Pradesh	4	
Maharashtra	4(WML*)	4 (WML*)
Manipur	4	
Mizoram	4	
Nagaland	4	
Orissa	12.5	
Tamilnadu	4	
Uttar Pradesh	4	
Uttaranchal	4	
West Bengal	4	

*WML-Within Municipality Limits

Source: Petroleum Planning and Analysis Cell (PPAC), MoPNG

The refineries that face the irrecoverable taxes are Bharat Petroleum and Hindustan Petroleum of Mumbai in Maharashtra, Indian Oil in Mathura, Uttar Pradesh; Indian Oil in Panipat, Haryana; Mangalore Refineries in Karnataka; and Indian Oil in Barauni, Bihar.

1.5.2 Petroleum Products

1.5.2.1 *Pricing*

Crude Oil, both indigenous and imported are refined into various petroleum products viz. petrol (motor spirit), naphtha, light diesel (light distillates), aviation fuel, kerosene, high speed diesel (middle distillates), furnace oil, bitumen, waxes, etc. (heavy distillates). Appendix 1.1 shows the products by end-use.

The pricing of refined petroleum products have gone through various phases beginning from Valued Stock Accounting System (explained briefly before) and import parity pricing and then to retention pricing under APM. The petroleum industry has now been deregulated with the intention of shifting to market determined pricing mechanism. However, in practice, the deregulation process has only been partially implemented due to the restriction on pricing imposed by the Government in order to shield the Indian consumers from price rise especially since 2004.

As has been already indicated before, although the process of deregulation of the petroleum product prices began in 1998, five sensitive products namely petrol, diesel, domestic LPG, PDS, Kerosene and ATF (aviation turbine fuel) continued as controlled commodities. In the post-APM era beginning from 1.4.2002, oil marketing companies were allowed to sell their products at market-determined prices (based on the notion of import parity from April 2002 to May 2006 and from June 5, 2006 onwards on the basis of trade parity) for petrol and diesel (except PDS kerosene and domestic LPG which continued to be subsidized) after prior consultations with the Ministry of Petroleum and Natural Gas (MoPNG). The subsidy schemes pertaining to the post-APM era beginning April 1, 2002 are described in details in section 1.5.2.3 devoted subsidies. But before one gets into a discussion of subsidies and taxes on petroleum products in the post-APM era, it is essential to understand the notion of

import parity pricing and trade parity pricing of petroleum products and the rationale behind these pricing mechanisms.

Import Parity Pricing

The oil marketing companies have two sources for obtaining petroleum products, viz. imports and/or procurement from domestic refineries.

Import-parity price of the petroleum products basically means the price that the actual importer would pay for the imported product. The pricing of petroleum products on 'import parity' basis at refinery gate is basically aimed at bringing parity in the cost of product procurement from various sources. The various notional components of the import parity price of the petroleum products are:

- FOB price as quoted in Arab Gulf Market and as reported in Platts and Argus
- Premium / discount as published in Platts or Argus
- Ocean freight from mid-port in the Arab Gulf to Indian ports
- Insurance
- Exchange rate
- Custom Duty
- Ocean Loss
- Wharfage and Port Charges

The retail selling prices of petroleum products from April 2002 to May 2006 were based on this notional price at which these products would have been imported into the country i.e. notional landed cost and not on the basis of actual ex-refinery price of these products. Table 1.6 below illustrates the methodology of calculating the notional landed cost of petrol and diesel on the basis of the principle of import parity.

Other components in the price-buildup over and above the landed cost or import parity price till the ex-storage point selling price for petrol and diesel are:

- 1) **Cost of Marketing** covers compensation for the following elements:

- a) Marketing related infrastructure handling and maintenance cost excluding depreciation
 - b) Salaries and wages of employees in the operating locations
- 2) **Marketing Margins** comprise return on net fixed assets, employed in the marketing of petrol and diesel. This element is meant to provide for future investment on or replacement of infrastructure for storage, handling and marketing of petrol or diesel. The marketing margin had, however, been frozen at the level applicable during March 2002, the last month under APM.
- 3) **Return on working capital** The working capital requirement is generally considered as 20 days cost of sales excluding depreciation. The interest on working capital is usually considered as the prevailing Prime Lending Rate (PLR)²⁷ of State Bank of India (SBI). The return on working capital is thus computed as working capital multiplied by the SBI PLR.
- 4) **Stock Loss:** The various factors that contribute to the product loss during handling operations at various terminals and depots are – evaporation due to volatile nature of products; leakage/spillage; human error due to gauging operation or improper calibration of delivery equipments; pilferage of products. All these are considered under stock loss.
- 5) **Retail Pump Outlet (RPO) Charges** include oil marketing companies' operating costs and return on investments pertaining only to retail pump outlets. There has been no revision in the rate since April 2002.

²⁷ A short-term interest rate quoted by a commercial bank is an indication of the rate being charged on loans to its best commercial customers. Even though banks frequently charge more and sometimes less than the quoted prime rate, it is a benchmark against which other rates are measured and often keyed.

Table 1.6: Methodology of calculating the landed cost of petrol/diesel on import parity basis

S.No.	Cost Component	Unit	Basis of Computation
1	FOB Value	\$/barrel	Average of mean of high and low quotes of Platts Asia Pacific Arab Gulf (APAG) and Petroleum Argus Asia Pacific Products Report for Arab Gulf market during the “pricing period”.
2.	Premium/Discount	\$/barrel	Monthly average of spot premium/discounts for the same period as FOB as published in Argus/Platts for motor spirit (MS) or high speed diesel (HSD)
3.	Ocean Freight (Converted by using conversion factor 7.90 bbl per MT)	\$/barrel	World Scale freight rates from Bahrain (Sitra) to the designated Indian ports adjusted by AFRA (Average Freight Rate Assessment) for MR (Medium Range) vessel size. The designated ports for MS/HSD are Jamnagar, Mumbai, Kochi and non-refinery ports are Kandla and Paradeep. Additional AFRA of 50 points is added for Haldia port in view of higher crude freight cost due to port constraints.
4.	C&F Price	\$/KL	Total of 1 to 3 above (Converted to KL using conversion factor of 6.2898 bbl per KL)
5.	Insurance	\$/KL	Actual applicable tariff rates set by GIC (General Insurance Corporation)
6.	CIF Price	\$/KL	Total of 4 and 5 above
7.	Exchange Rate	Rs/\$	Monthly average (for the same period as FOB) of the available RBI reference rates during the pricing period
8.	CIF Price	Rs/KL	Converted to Indian rupees
9.	Customs Duty	Rs/KL	As applicable. Assessable value for calculation of customs duty would include the CIF price and landing charges at 1% in line with the customs rules.
10.	Ocean Loss	Rs/KL	As permitted under the APM
11.	Wharfage, Port Charges, Landing Charges, Bank Charges etc.	Rs/KL	Dues applicable for the port based on the official tariff rates of the respective ports or nearest government port, in case of a private port, whichever is lower. Bank charges at the prevailing rates as assessed by SBI.
12.	Landed Cost (Import Parity Price)	Rs/KL	Total of 8 to 11 above

Source: Zutshi (2005) and Gazette Notification Ref. P-20029/18/2001-PP dated 28 January 2003

- 6) **Freight:** Freight equalisation was a feature of the APM period. However even in the post-APM era oil marketing companies recover weighted average cost of transportation on import parity basis i.e. from the nearest port to storage depot on an equalized basis for all locations in the country²⁸. Inclusion of equalized freight ensures that the impact of high transportation costs for inland location or far-flung areas are contained.
- 7) **Domestic Logistic Adjustment Factor (DLAF)** Depending upon the availability of product at the refineries and the markets attached to those refineries for the purpose of pricing, petrol or diesel would likely be moved from other refineries to meet the requirement of the customers. Such movements would lead to additional logistic cost to the oil companies. This comes under DLAF. In practice, however, this rate has also been frozen at the level applicable since April 2002.
- 8) **Terminalling Charges:** Terminalling charges are considered for compensation to refineries towards providing facilities for marketing activities in price build up of petrol and diesel from the time when administered price was withdrawn. These charges also remained frozen since that time.
- 9) **RPO Surcharge:** Some of the dealers who procure supplies from marketing companies make payments by demand drafts. Commission paid to dealers does not take this element into account as it is assumed that those payments have been made by cheque. As the dealers incur charges for making these demand drafts, the additional cost incurred by them is compensated by reimbursing them and including this element in the retail selling price. These charges were included in the price buildup even during APM.

²⁸ For smaller non-refinery ports like Goa import parity price are fixed based on coastal freight from the nearest port refinery. Refinery gate prices at inland refineries, viz. Mathura, Panipat, Barauni and Koyali are fixed based on 75% of rail freight from the nearest refinery/non-refinery port. Refinery gate prices for North East refineries are at par with import parity price for Haldia refinery (Zutshi, 2005).

10) **Delivery Charges Under-recovery:** This is included in price build up of both petrol and diesel towards under realization in transportation charges from the oil companies' storage depot to the dealers' retail outlets.

Appendix 1.7 illustrates the various elements of costs in the price build up as explained above by using value for each of these components in the ex-storage price of petrol and as of November 2006.

It needs to be noted that the basic ex-storage selling price was uniform at all refinery locations throughout the country and as per the existing arrangement between oil marketing companies and refineries this basic price at refinery level on import parity basis used to be revised on fortnightly basis from 2002 till 2004 depending upon the prevailing international prices.

The retail selling price of petrol/diesel for the consumer in the post-APM era on the basis of import parity is arrived at from ex-storage point selling price by adding delivery charges from storage depot to retail pump outlets (considered as the notional rail freight of the APM period), state specific sales tax/VAT plus irrecoverable levies, excise duty, education cess and dealer commission to the ex-storage point selling prices (see table 1.7 below).

Table 1.7: Build-up from Ex-storage Point Selling Price to Retail Selling Price

Ex-Storage Point Price	Common at all Refineries
Freight	Notional Rail Freight pertaining to APM period
State Specific Cost	At rates applicable for respective states
Sales tax/VAT	At rates applicable for respective states
Dealer commission	Retail and wholesale as decided by state governments
Selling Price at Location	Total of Above

As ex-storage point selling price is uniform throughout the country the variation in retail selling price at different locations is attributed to distance of the RPO from refineries, rate of sales taxes and other recoverable or irrecoverable local levies.

In case of PDS kerosene and domestic LPG the government had decided that the subsidies on these products would be specified on a flat rate basis for each depot/bottling plant and would be met from the fiscal budget. Appendices 1.8 and 1.9 show the price build-up till ex-storage point selling price or cost price at depot on the basis of import parity for PDS kerosene and domestic LPG respectively. The items corresponding to serial no. 1 to 12 indicates the components that are required to be taken account of to arrive at the landed cost or import parity price or refinery transfer price and are same as in case of petrol and diesel.

1.5.2.2 Major Changes in Prices of Petroleum Products in Post-APM Era: A Chronological Examination

Initially from 1 April 2002 till about the end of December, 2003, the companies used to set the prices of petrol and diesel every fortnight and they were doing so because the crude market and the petroleum market were relatively stable. But during that period, any hike in retail selling price of PDS Kerosene and domestic LPG had been spared by oil marketing companies. Appendix 1.10 shows the major revisions that had been undertaken with respect to the retail selling prices of petrol, diesel, domestic LPG and PDS kerosene between April 2002 and December 2003. As evident from Appendix 1.10, between April 1 2002 and January 1 2004, there were 23 price revisions that had been carried out on the prices on petrol and diesel. Out of those revisions 8 were price-cuts and 15 were price increases and the overall impact was to raise the retail selling price of petrol by 27 percent and that of diesel by 31 percent over the period considering Delhi as a benchmark for India (see table 1.8). Table 1.8 shows the retail selling prices of petrol, diesel, PDS kerosene and domestic LPG in Rs/litre and also in cents per litre. It could be seen from the table that there is a difference of just 7 to 9 % in the rate of growth in the prices when expressed in Indian currency or in cents. During the same period the price of crude petroleum (Brent and Indian Basket of Crude²⁹) had risen by 24 per cent and prices of petrol and diesel between 19 and

²⁹ Brent is a type of sweet crude which comes from the Ninian Basin, UK and is usually considered as the world marker for crude. The Indian basket of crude comprises two kinds of crude oil: Oman-Dubai sour grade crude comprising nearly 58 per cent out of total imports and Brent sweet crude comprising nearly 42 per cent out of total imports. Weighted average price of both types of oil means the price of India's crude basket. The weights assigned may vary from year to year depending on the proportion of imports of each type of crude in the total import basket.

Table 1.8 Domestic Selling Prices of Refined Petroleum Products

	Mar02	Dec-03	Change
Domestic Retail prices	Rs per Litre		
Motor Spirit	26.54	33.70	27%
High Speed Diesel	16.59	21.73	31%
PDS Kerosene	8.98	9.01	0.3%
Domestic Retail Prices**	US cents per Litre		
Motor Spirit	54.42	73.95	36%
High Speed Diesel	34.02	47.68	40%
PDS Kerosene	18.41	19.77	7.4%
LPG (domestic)	Per 14.2 Kg cylinder		
Rupees	240.45	240.45	0.0%
US cents	493.03	527.42	6.9%

Source: GoI (2008)

Note: **Average exchange rate (INR per US\$): 48.77 for March 2002; 45.57 for December 2003

Table 1.9: Changes in International Prices of Crude Oil and Refined Petroleum Products
(March 2002 to December 2003)

Items	Mar 2002	Dec 2003	Percentage Change
	US \$ per barrel	US \$ per barrel	
Crude Oil			
Indian Basket	23.31	28.97	24.28
Brent	22.64	29.44	30.04
Motor Spirit (Petrol)			
New York Harbour	29.31	37.17	26.82
US Gulf Coast	29.99	35.83	19.47
Amsterdam	25.52	33.78	32.37
Singapore	27.97	39.32	40.58
High Speed Diesel			
New York Harbour	27.07	37.5	38.53
US Gulf Coast	26.41	35.77	35.44
Amsterdam	25.52	33.78	32.37
Singapore	27.97	39.32	40.58
ATF/Kerosene			
New York Harbour	27.23	38.53	41.50
Amsterdam	27.07	37.37	38.05
Singapore	25.29	39.61	56.62
LPG/Propane			
US Mont Bellevue Texas	15.96	26.38	65.29
North West Europe-Amsterdam/Rotterdam	15.88	25.03	57.62

Source: GoI (2008)

41 per cent (see table 1.9). This, in a way, indicates that the changes in retail selling prices of petrol and diesel in India (Delhi) during this period have more or less been in line with the changes in international prices. The regime of central and state taxes remained broadly unchanged during this period. The retail selling prices of both PDS Kerosene and domestic LPG also remained virtually unchanged during this period.

In 2004, the oil prices started rising in the international market. Although the oil marketing companies were granted freedom to fix retail selling prices on fortnightly basis, the prices used to be revised after informal clearance from MoPNG and there was no price revision of petrol and diesel during the period 1 January to 15 June 2004 although the ruling prices in the international market were abnormally high during this period. Same was the case with PDS kerosene and domestic LPG. But with effect from 16 June 2004 finally moderate increases to the extent of Rs. 2 per litre on petrol and Re 1 per litre on diesel were made coupled with excise duty changes. Retail selling price of domestic LPG too was raised by Rs. 20 but PDS kerosene was again spared of any hike.

Government worked out a new methodology with effect from 1 August 2004 allowing OMCs limited freedom to revise the price of petrol/diesel within a price band. The concept of price band was based on the principles of rolling average prices of these products in the international markets. Accordingly, oil companies were permitted to carry out autonomous adjustments in prices within a band of +/- 10% of the mean of rolling average CIF prices of preceding 12 months and preceding quarter, i.e. three months. In case of breach of this band, the OMCs had to approach the Ministry of Finance (MoF) through Ministry of Petroleum and Natural Gas (MoPNG) to modulate the excise duty rates so that the spiraling prices prevailing in the international markets do not cause undue hardships to the consumers. However, consequent to further rise in the international prices the price band approach had to be given up.

In fact the year 2004-05 witnessed unprecedented high oil prices in the international market. As compared to the average Indian basket crude price of US\$ 27.98/ barrel during 2003-04, the average price during 2004-05 was US \$39.22/barrel. During February and March 2005,

these prices geared up to US \$ 42.58/barrel and US \$ 49.27/barrel respectively. To contain the impact of increase in international prices of petroleum products on domestic prices, the Government reduced excise duty on petrol from 30% to 26% and on diesel from 14% to 11% with effect from 16 June 2004. The excise duty was further reduced on petrol from 26% to 23% and on diesel from 11% to 8% with effect from 19 August 2004. The Government also reduced customs duty on petrol and diesel from 20% to 15% with effect from 19 August 2004. In addition to the aforesaid changes in duties on petrol and diesel, the excise duty on LPG (Domestic) was reduced from 16 per cent to 8 per cent with effect from 16 June 2004 and the excise duty on PDS Kerosene was reduced from 16 per cent to 12 per cent with effect from 19 August 2004.

However, the international prices went up further during the month of October, 2004. With the under-recoveries³⁰ on petrol and diesel estimated at around Rs. 3000 crores for the period April to October 2004, further increases were announced with effect from 5 November 2004. Retail selling price of petrol was fixed in line with the import parity price. The retail price of petrol was further revised downwards in line with international prices with effect from 16 November 2004. However, the increase in the diesel retail price was pegged at 50% of the level of increase required on the basis of import parity and no further increase was made in the diesel price on 16 November 2004.

The retail selling price of LPG (Packed Domestic) was revised by the OMCs with effect from 16 June, 2004 and again on 5 November, 2004 by Rs. 20 per cylinder each time, in view of the abnormally high prices of crude oil and petroleum products in the international market. But the retail selling price of PDS kerosene remained untouched since April, 2002.

³⁰ In the oil sector, under-recoveries and losses are often used interchangeably. This is not correct as they are two distinct concepts. Refining of crude oil is a process industry where crude oil constitutes around 90% of the total cost. Since value added is relatively small, determination of individual product-wise prices becomes problematic. The oil marketing companies (OMCs) were initially sourcing their products from the refineries on import parity basis which then became their cost price. The difference between the cost price and the realized price represented the under-recoveries of the OMCs. The under-recoveries so computed are different from the actual profits and losses of the oil companies as per their published results. The latter takes into account other income streams like dividend income, pipeline income, inventory changes, and profits from freely priced products and refining margins in the case of integrated companies. The issue has been explained in greater details in the latter section on financial repercussions of dismantling on the oil companies.

In the Budget 2005-06, however, the following changes had been announced with effect from 1 March 2005:-

Table 1.10: Changes made in Customs and Excise Duties under Union Budget 2005-06

Item	Pre-revised (as on 28.2.2005)	Revised (as on 1.3.2005)
Customs tariff		
Crude Oil	10%	5%
Petrol	15%	10%
Diesel	15%	10%
Kerosene	5%	NIL
LPG	5%	NIL
Others	20%	10%
Excise Tariffs		
Petrol	23%+Rs.7.50/Ltr.	8%+Rs.13/Ltr.
Diesel	8%+Rs.1.50 /Ltr.	8%+Rs.3.25/Ltr.
PDS Kerosene	12%	NIL
Domestic LPG	8%	NIL

Source: indiabudget.nic.in

With the customs and excise tariffs revised in the above lines, the road cess increased by Rs. 0.50 from Rs. 1.50, and as the international prices of crude and petroleum products geared high up, the prices of petroleum products were revised again on 21 June 2005 by the Government, with a hike of Rs. 2.50/Litre for petrol and Rs. 2.00/Litre for diesel in Delhi. Although the prices of petrol and diesel were increased further by Rs 3.00/litre and Rs 2.00/litre at Delhi on 7 September 2005, the selling price of PDS Kerosene continued to remain at the level as it was on 1 April 2002.

On account of these little or almost no revisions in the prices of petrol and diesel, and persistent non-revision of PDS kerosene and domestic LPG prices, the profitability of oil companies got eroded in 2004/05 and 2005/06. In 2005/06 the financial position of the PSU

oil refining and marketing companies became all the more worse and they would have made huge losses had there not been any transfers from upstream companies and subsidies from the Government to compensate for that. The oil companies reported their financial distress in terms of “under recoveries” with respect to the import parity formula that has been in use ever since the end of the APM regime. A separate section has been devoted latter to a discussion on financial repercussions for the oil companies in the post-APM era between 2003 and 2008 on account of asymmetric price adjustment between international crude oil prices and domestic prices of sensitive petroleum products in the light of the more recent report of the High Powered Committee on Financial Position of Oil Companies which came out in June 2008 (see GoI, 2008).

In view of the rapidly deteriorating financial position of the oil companies and with the objective of conserving petroleum products and establishing a transparent mechanism for autonomous adjustment of prices by the oil companies, the Government on 26th October 2005 set up a committee under the chairmanship of C. Rangarajan to examine various aspects of pricing and taxation of petroleum products with a view to stabilizing or rationalizing their prices. The committee identified following three areas for detailed study in order to meet the objectives set out in the terms of reference:

- Alternative models for pricing of petroleum products;
- Taxes and duties on crude oil and petroleum products;
- Subsidies on PDS kerosene and domestic LPG.

Box 1.1 provides the key recommendations made by the committee (see GoI, 2006) relating to pricing of petrol, diesel, kerosene and LPG.

Prior to the Rangarajan’s Committee the Parliamentary Standing Committee on Petroleum and Natural Gas analysed and deliberated on oil pricing in much greater details. The committee’s sixth (GoI, 2005) and tenth (GoI, 2006 a1) reports contain a number of far-reaching recommendations related to the pricing of both crude oil and petroleum products. Some of the major recommendations of the Committee are given in Box 1.2

Box 1.1

Major Recommendations of Rangarajan Committee on Pricing and Taxation of Petroleum Products

- i. Shift to a trade parity pricing formula for determining refinery gate as well as retail prices. The weights recommended for import and export parity prices are 80 and 20 respectively. These prices would also be port-specific.
- ii. Government should keep away from price determination and allow flexibility to oil companies in fixing the retail price under the proposed formula. This would encourage a competitive market to the advantage of the consumers.
- iii. The details of the pricing methodology should be placed in the public domain for the sake of transparency.
- iv. The concept of freight equalization should no longer be adopted. In the case of remote, inaccessible areas, by way of an exception, the government should devise a special approach to soften the impact of the cost of freight in an explicit manner.
- v. While the customs duties on crude might be retained at 5 per cent, the duty on petrol and diesel should be reduced to 7.5 per cent so as to reduce the ERP to about 20 per cent from the existing 40 per cent. Also, customs duty on industrial products other than petrol and diesel might be retained at 10 per cent “in order to protect domestic producers who pay sales tax as compared to direct importers”. However, customs duties on the industrial products should also be reduced to 7.5 per cent if any additional duty is introduced to neutralise the incidence of state level taxes.
- vi. Excise duties on petrol and diesel (inclusive of road cess) should be restructured from the present mix of specific and ad-valorem to a pure specific levy and calibrating the levies at Rs. 5.00 per litre for diesel and Rs. 14.75 per litre for petrol. Education cess would be on top of this.
- vii. The states should be persuaded to adopt a uniform policy on sales tax on petroleum products in order to minimize distortions in pricing.

This set of recommendations, as underscored by the committee, should be implemented as an integrated package as the committee expressed concerns that selective implementation might create more distortions.

The set of recommendations relating to pricing of domestic LPG and PDS kerosene, includes, among others:

- i. Restrict subsidized kerosene to BPL families only;
- ii. Raise the price of domestic LPG at one go by Rs. 75/cylinder; the price should thereafter be gradually adjusted towards the market price.
- iii. Discontinue the practice of asking ONGC/GAIL/OIL to provide upstream assistance, but instead collecting their contribution by raising the OIBD cess to Rs. 4,800/MT; and
- iv. Government to meet the balance cost of subsidy from the budget.

This set of recommendations should also be implemented as an integrated package as the committee emphasized that partial implementation would not yield sustainable results.

Box 1.2

Some Major Recommendations of Parliamentary Standing Committee on Petroleum and Natural Gas

- i. The method of adding notional costs such as ocean freight, insurance, customs duty, ocean loss, port dues, etc, to the FOB price of the respective marker crude in the international market in arriving at the import price of domestic crude is creating unnecessary distortions in pricing and providing a high rent to the refiners and should be done away with. The price should be pegged at the FOB price to encourage competition.
- ii. The cess collected on crude should be used exclusively for the purpose for which it has been created. A price stabilization fund should be created from it to cushion the market volatility and provide price stability for the consumer.
- iii. The states should be persuaded to switch back from ad valorem to a specific rate of royalty on crude.
- iv. The present basis for fixing the refinery-gate price on the basis of import parity should be done away with. Even if the import parity basis were to be retained, it should be pegged at the FOB price, without adding any notional costs such as ocean freight, insurance, etc.
- v. There should be a ceiling on the refinery margins earned by the refining companies.
- vi. Excise duties should be at specific rates, not on an ad valorem basis.
- vii. There should be no duty differential between crude oil and petroleum products (see footnote 28 for an explanation on why the duty differential provides undue rent to refiners).

While the Parliamentary Committee's recommendations were more comprehensive as they brought under their ambit both the pricing of crude and petroleum products, Rangarajan Committee recommendations dealt only with product pricing. However, on comparing the recommendations of the two committees it becomes clear that both these committees were in favour of moving away from the import parity principle and in adoption of specific rates of excise duties on products instead of ad-valorem duties. Rangarajan's report also recommended some reduction in the customs duty differential between crude and products. This, as the report underscored, would be instrumental in reducing the refinery margin to a considerable extent. The recommended measure is quite in concordance with what the Parliamentary Committee had also proposed, even though the latter underscored on complete

elimination of the differential. However, the concept of “trade parity”³¹, as proposed by Rangarajan’s Committee, was of an innovative nature to oil pricing in the Indian context.

The government accepted trade parity pricing in principle for refinery gate as well as retail pricing and proposed to review and update the trade parity price every year depending on the relative weight of exports and imports. The new pricing mechanism came into effect from June 16, 2006. The government also reduced the customs duty differential between crude and products by reducing the custom duties on petrol and diesel to 7.5 percent from 10 percent and retaining that of crude at 5 percent. The Government further decided to share the burden of not making full adjustment in domestic retail prices due to high oil prices through the principle of equitable burden sharing by proposing to bear Rs 28,300 crore in the form of oil bonds during 2006-07. Regarding the provision of full flexibility to oil companies in determining domestic prices of sensitive petroleum products, however, the government expressed concern especially in view of the volatile international scenario with frequent oil spikes. The government also accepted in principle the need to restrict kerosene subsidy to BPL families.

The government, however, did not accept the recommendations on complete de-subsidisation of LPG, adoption of specific rates of excise duty on products and doing away with freight rate equalisation. Regarding domestic LPG, the government contended that subsidy should be phased out gradually or at least substantially reduced. The government however expressed concerns that strong political consensus would be needed for implementing the same.

³¹ Import parity price reflects the price in the domestic market as if the products are actually imported. This is the price that would have been applicable had there been no domestic refining capacity. In a situation in which there is adequate domestic refining capacity, the import parity price could be viewed as an indicative ceiling for the domestic prices in a competitive environment. When there is a protective customs duty differential for products, it implied an effective rate of protection (ERP) that allowed an element of rent for the domestic refiners. Export parity pricing could be an alternative way to price the products. Using the same logic as for import parity, it would imply the price at which a domestic exporter would be able to export the products in a competitive market, after obtaining the same by refining imported crude in a domestic refinery. If import parity could be viewed as a ceiling, export parity could be viewed as the floor for pricing products. Trade parity pricing is the weighted average of import and export parity prices in the ratio of imports and exports in respect of a given product. In trade parity, pricing is thus lower than the import parity to the extent of the freight cost, customs duty and other tax or duty (see GoI, 2006 for details).

The report of the Rangarajan Committee also pointed out that contrary to most of the developed countries large disparity existed between excise duties of petrol and diesel. The contrarian trend in Indian economy led to inefficient substitution of one fuel for another and hence the disparity was urgently needed to be rectified.

Regarding the aforesaid disparity the MoPNG, however, contended that taxes on transportation fuels – petrol, diesel and ATF was needed to be realigned keeping in mind the ability of the consumers to shoulder the burden. In fact from the excise duties as of 1 August 2006 (as shown in table 1.11) it could be observed that the policy was seemingly favouring airline travelers who perhaps could afford higher taxation in contrast to people who travel by buses in public transport or on rail. However, in the subsequent Union Budget for 2007-08 the government reduced the ad valorem component of the excise duty on both petrol and diesel from 8 to 6 percent.

Table 1.11 : Excise Duties on Petrol, Diesel as of 1 August, 2006

Transportation Fuel	Excise Duty³²	Consumers
Petrol	Rs.13/Ltr + 8 percent (Rs 15.18/litre)	Mainly owners of two wheelers and cars
Diesel	Rs.3.25/Ltr. + 8 percent (Rs 5.20/litre)	Trucks, public transport, railways and farmers
ATF	8 percent (Rs 2.66/litre)	Airline travelers

Source: GoI (2006b)

If one considers the variation in crude and refined petroleum product prices from January 2004 to June 2008, then it could be observed that prices of Indian basket of crude have increased by 348 per cent while that of UK Brent increased by nearly 344 per cent. During the same period the prices of refined petroleum products at important global hubs increased

³² Excise duty as on 1.8.2006, includes education cess.

by 257 to 284 per cent for gasoline (petrol or motor spirit), by 333 to 364 per cent for HSD and by 339 to 370 per cent for kerosene or jet fuel. The price increase of propane (LPG) was around 190 to 200 per cent (see table 1.12 for details). Contrary to that, during the same period the retail selling prices of petrol (motor spirit) in Delhi (considering Delhi as a benchmark) was increased by just 50 percent from Rs. 33.70 to Rs. 50.56 per litre, while the price of diesel (HSD) was increased by 60 percent from Rs. 21.73 to Rs. 34.80 per litre. While the price of PDS Kerosene remained virtually unaltered during this period the price of domestic LPG was raised by just 44 percent through introduction of four charges over the period from Rs 261.60 per cylinder (weight 14 kg) to Rs. 346.30 per cylinder (see table 1.13 for details). In fact over the time span beginning from January 2004 and ending in June 2008

**Table 1.12: Change in Crude oil and Price of Refined Petroleum Products
(December 2003 to June 2008)**

	Dec-03	June-08	Change
Crude Oil	US \$ per barrel		
Indian Basket	28.97	129.72	348%
UK Brent	29.81	132.32	344%
Petro Products	US \$ per barrel		
Motor Spirit			
New York Harbour	37.17	138.27	272%
US Gulf Coast	35.83	137.92	285%
Amsterdam	33.78	129.73	284%
Singapore	39.32	140.46	257%
High Speed Diesel			
New York Harbour	37.50	162.26	333%
US Gulf coast	35.77	160.52	349%
Amsterdam	35.76	164.73	361%
Singapore	35.07	162.88	364%
A T F / Kerosene			
New York Harbour	38.53	162.73	339%
Amsterdam	37.37	166.41	365%
Singapore	39.61	164.85	370%
LPG/Propane			
US Mont Bellevue Texas	26.38	76.15	189%
North West Europe Amsterdam/Rotterdam	25.03	74.89	199%

Source: PPAC, GoI (2008)

the domestic prices of automotive fuels (petrol and diesel) had been changed twelve times consisting of an increase for ten times and reduction on only two occasions. In addition to these changes, prices in Delhi were changed on three occasions (hiked twice and reduced for once) due to changes in VAT rates, introduction of pollution cess on HSD and revision in dealer commission rates on petrol and diesel respectively (see Appendix 1.11 for details). Over the aforementioned period the Indian rupee vis a vis US dollar appreciated by nearly 6.6 percent (from 45.57 INR per US\$ for December 2003 to 42.76 INR per US\$ for June 2008).

Table 1.13: Domestic Selling Prices of Refined Petroleum Products (December 2003 and June 2008) and Percentage Change

	December 2003	June 2008	Change
Domestic Retail prices*	Rs per litre		
Motor Spirit	33.70	50.56	50%
High Speed Diesel	21.73	34.80	60%
PDS Kerosene	9.01	9.09	0.9%
Domestic Retail Prices**	US cents per Litre		
Motor Spirit	73.95	118.24	60%
High Speed Diesel	47.68	81.38	71%
PDS Kerosene	19.77	21.26	7.5%
LPG (domestic)*^	Per 14.2 Kg cylinder		
Rupees	240.45	304.70	27%
US cents	527.42	723.31	37%

Notes:

* At Delhi – last column subsequent to revisions on June 4, 2008.

** Average exchange rate (INR per US\$): 45.57 for December 2003 and 42.76 for June 2008.

^ Selling price of LPG cylinder at Delhi with effect from June 4, 2008 is inclusive of Rs 40 per cylinder provided by the Delhi State government. This is, the domestic selling prices of LPG cylinder in other parts of the count –have gone up by 43(in rupees) and 52 per cent (in US dollars) between December 2003 and June 2008 in other parts of the country.

Source: GoI (2008)

In order to take account of the variation in exchange rate and make the comparison at par with the variation in international price of refined petroleum products the retail selling prices

of Indian refined petroleum products in Indian rupee have also been converted to US dollar (cents) and is shown separately in table 1.13.

In comparison to the prices in Rs/litre the variation in the price has been observed as only 6 to 10 percent higher when converted to US cents per litre.

1.5. Post-APM Subsidy on Petroleum Products: A Discussion

Immediately after dismantling of APM, the MoPNG approved the following subsidy schemes which were to be met from the budgetary grants of the ministry

1. PDS Kerosene and Domestic LPG Subsidy Scheme: This subsidy scheme came into effect from 1 April 2002.³³ The subsidy under this scheme was provided on the sales undertaken by participating companies (IOC, HPC, BPC and IBP)³⁴ of kerosene under PDS and LPG cylinders for domestic use throughout the country. The quantity of PDS kerosene on which subsidy was allowed for each state was limited to the allocations made by MoPNG subject to actual quantities sold.

The amount of subsidy per unit sold as of April, 2002 was calculated as the difference between the cost price and the issue price³⁵ per selling unit and was computed ex-depot for PDS kerosene and ex-bottling plant for domestic LPG. Furthermore, it was decided that the subsidy per selling unit for any depot or bottling plant effective from 1 April 2002 would be frozen and would remain unchanged for the financial year 2002-03. The subsidy admissible under this scheme for 2003-04 was decided at 2/3rd level of the rates prevailing during 2002-03 and the subsidy admissible for the subsequent years i.e. 2004-05, 2005-06 and 2006-07 was allowed at 1/3rd level of the rates of subsidy for 2002-03.

The cost price of PDS Kerosene for any depot and that of domestic LPG cylinder for any bottling plant as of 1 April, 2002, was calculated on import-parity basis as per the methodology given in Appendices 1.8 and 1.9. The Government further decided that

³³ Gazette Notification Ref. P-20029/18/2001-PP dated 28 January 2003.

³⁴ IOC-Indian Oil Corporation Ltd., HPC-Hindusthan Petroleum Corporation Ltd., BPC-Bharat Petroleum Corporation Ltd., IBP- Indo-Burma Petroleum Ltd.

³⁵ The issue price implies the invoice price of the product ex-depot/bottling plant excluding state surcharge, excise duty, sales tax, local levies and delivery charges.

afterwards any changes in the cost price would be passed on to the consumer price (retail selling price).³⁶

Table 1.14: Average Rate of Subsidy allowed from Fiscal Budget in Post-APM Period

Years	PDS Kerosene (Rs./ Litre)	Domestic LPG (Rs./ Cylinder)
2002-03	2.45	67.75
2003-04	1.65	45.18
2004-05 onwards	0.82	22.58

Source: PPAC

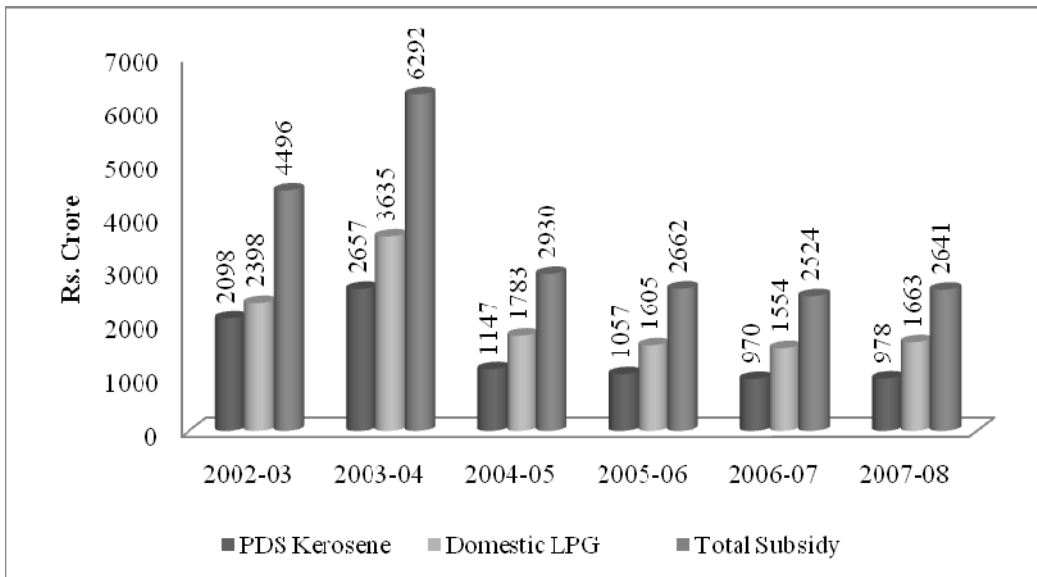
In accordance with the phased programme of elimination of subsidies the flat average rate of subsidy for 2002-03 and 2003-04 worked out as Rs. 67.75 and Rs. 45.18 per cylinder respectively on domestic LPG and Rs. 2.45 and 1.65 per litre respectively on PDS kerosene. From 2004-05 onwards the average rate of subsidy allowed was Re. 0.82 on PDS Kerosene and Rs. 22.58 on Domestic LPG respectively (see table 1.14 above).

The government subsidy was released to the public sector oil marketing companies on a monthly basis after verifying their claims. Fig. 1.2 shows the total subsidy allowed on PDS Kerosene and Domestic LPG from Fiscal Budget from 2002-03 till 2007-08. As the governmental subsidy provisions were minimal and as the government did not allow the revision of retail selling prices of PDS kerosene and domestic LPG in consonance with the rise in international crude and petroleum product prices especially after 2004, the public sector oil marketing companies (OMCs) had been shouldering a large part of

³⁶ Under the scheme wide notification dated 28 January 2003, the MoPNG proposed that participating companies would be allowed to make changes or revisions in the issue price of PDS Kerosene and domestic LPG on their own on account of the following changes in cost price:

- i) Any variation in the cost price vis a vis the cost price effective 1 April 2002, due to changes in the product price in the international market, ocean freights and inland freights will be given effect to by the participating companies, on monthly basis.
 - ii) Any change in the rate of duty of customs shall be given effect to from the date of such change.
 - iii) Changes in the marketing margins (storage/distribution cost and return on investments) would be made on yearly basis and passed on in the consumer prices at the beginning of the financial year.
- Any elements, other than above (amongst the elements given in Appendices 4.8 and 4.9) which might be allowed by the MoPNG. (Gazette Notification Ref. P-20029/18/2001-PP dated 28 January 2003)

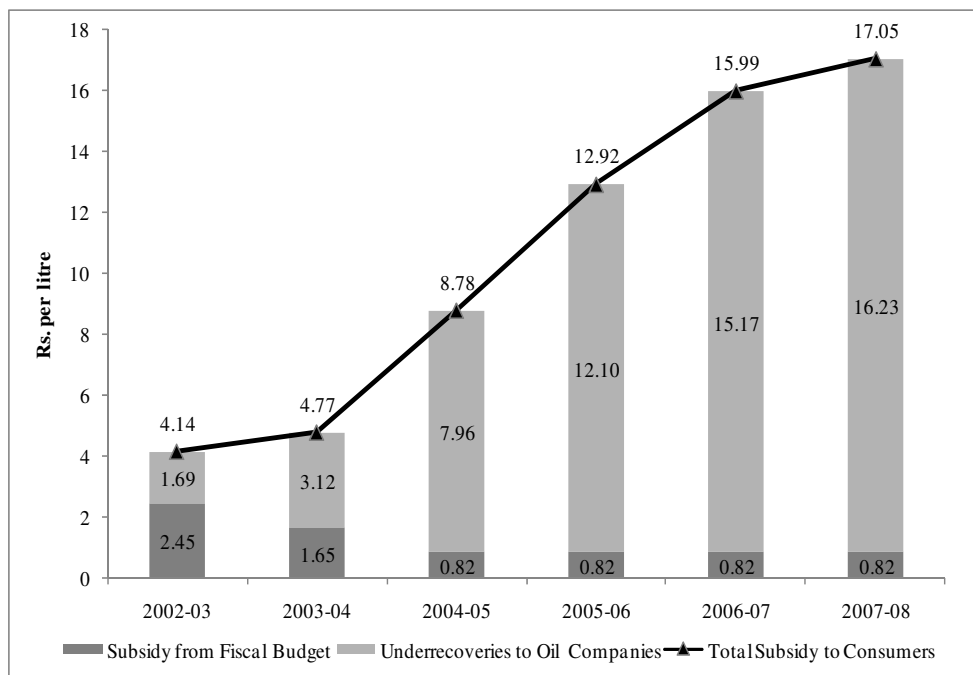
Fig.1.2: Subsidy Allowed from Fiscal Budget on PDS Kerosene and Domestic LPG



Source: PPAC

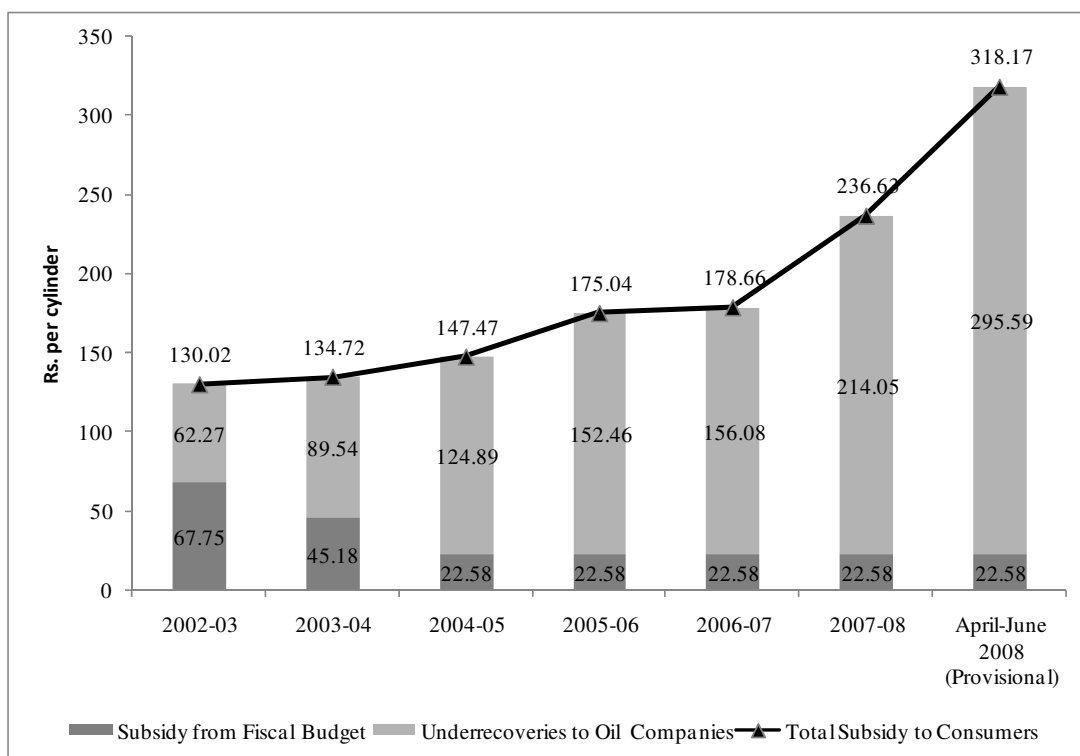
the subsidy by not passing the full increase in the international prices to the domestic consumer. They had been doing that by selling the products at prices much less than the import parity prices thereby incurring substantial under-recoveries. Additionally, the upstream oil majors namely ONGC and OIL; and Gas Authority of India Ltd. (GAIL) have also been sharing this subsidy in the form of special discounts to PSU oil companies engaged in the business of marketing of products. Fig.s 1.3 and 1.4 shows the subsidy on kerosene per litre and on LPG per cylinder and their breakup respectively.

Fig.1.3: Subsidy to the Consumers per Litre on PDS Kerosene and Breakup



Source: PPAC

Fig.1.4: Subsidy to the Consumers per Cylinder on Domestic LPG and Breakup



Source: PPAC

2. Freight Subsidy (for Far Flung Areas) Scheme, 2002: This subsidy scheme also came into effect from 1 April 2002.³⁷ Under Administered Pricing Mechanism this subsidy was met from Oil Pool Account and during post APM period, the subsidy had been given from the fiscal budget. The same four companies, as in the case of 'PDS Kerosene and Domestic LPG Subsidy Scheme' (namely IOC, HPC, BPC and IBP) were allowed to participate in this scheme. The freight subsidy on supplies or sales of PDS Kerosene and domestic LPG in the far-flung areas³⁸ covered a part of the freight cost in the eligible areas upto the wholesale dealer location in the case of PDS Kerosene and upto the LPG distributor location, including the extension counters, in the case of domestic LPG. The entitlement of subsidy under the scheme from 1 April, 2002 has been limited to the freight subsidy available in the eligible areas as on 31 March, 2002 in respect of the transportation cost for the distance:

- i) from the bottling plant/depot upto LPG distributor/extension counter/wholesale dealer in the far flung area (for the North East)
- ii) from the nearest tap-off point or railhead to the bottling plant or depot and further upto LPG distributor/extension counter/wholesale dealer in the far flung area (for other far-flung areas)

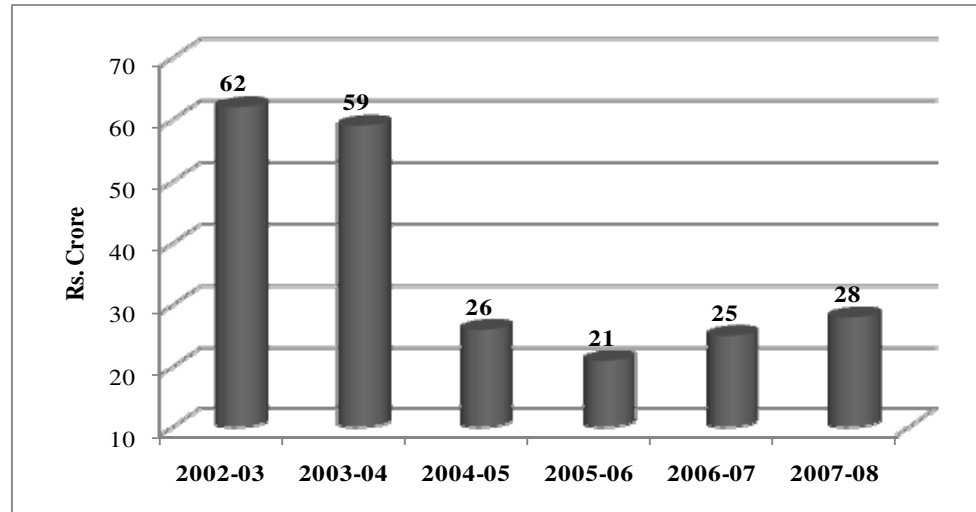
It was decided that the freight subsidy effective 1 April 2002 should be frozen and remain unchanged for the financial year 2002-03. The subsidy admissible under this scheme for 2003-04 was at 2/3rd level of rates allowed during 2002-03 and the subsidy admissible for 2004-05, 2005-06 and 2006-07 was at one-third level of the rates of subsidy for 2002-03. Fig. 1.5 below shows the total far flung freight subsidy allowed from the fiscal budget from 2002-03 till 2007-08.

³⁷ Gazette Notification Ref. P-20029/18/2001-PP dated 28 January 2003.

³⁸ The 'far-flung' areas as specified by the scheme (vide Gazette Notification Ref. P-20029/18/2001-PP dated 28 January 2003) were

- i) North Eastern States including Sikkim, except the districts in which Digboi, Guwahati, Bongaigaon and Numaligarh refineries are located.
- ii) The States of Jammu&Kashmir excluding districts of Jammu and Kathwa, Himachal Pradesh, Uttaranchal excluding districts of Haridwar and Udhamasing Nagar;
- iii) Andaman & Nicobar Islands;
- iv) Lakshwadweep Islands

Fig. 1.5: Total Far Flung Freight Subsidy allowed from Fiscal Budget on PDS Kerosene and Domestic LPG



Source: PPAC

3. The Irrecoverable Taxes Compensation Scheme, 2002³⁹: Under this scheme the oil companies had been compensated for irrecoverable state taxes to facilitate smooth transition from administered pricing regime to the market determined pricing regime. Irrecoverable state taxes include:

- a) A tax levied on entry of crude oil in a local area including octroi.
- b) A tax levied on the sales turnover of an oil company marketing petroleum product(s) declared by law to be irrecoverable as tax.
- c) Central sales tax (CST) or purchase tax levied on inter-company sales of petroleum products for moving the products inter-state

Under this scheme compensation was supposed to be provided for items a) and c) which had been levied immediately prior to the commencement of the scheme. For the refinery or refinery dispatch the entry tax on crude oil ranged from 2 to 4 percent and octroi was around 2.25 percent. For products the CST/purchase tax was applicable at the rate of 4 percent. The compensation under the scheme was confined

³⁹ Gazette Notification ref P- 20029/18/2001-PP dated 16 January 2003.

to under-recoveries arising from the aforesaid irrecoverable taxes (payable on petrol, diesel, PDS kerosene and domestic LPG and on crude oil) at tax rates not exceeding the rates given above. The scheme came into effect from 1 April, 2002 and was applicable for the financial year 2002-03 only.

4. **ATF Sales Tax Compensation Scheme⁴⁰**: This scheme was applicable from 1 April, 2002 to 22 November, 2002. Under this scheme, oil companies had been compensated in lieu of the sales tax under-recoveries on account of ATF sales to foreign airlines.

Despite the mounting burden of subsidy on the Government and the rising under-recovery of the public sector oil companies the government decided to extend the subsidy on domestic LPG and kerosene till 2010 starting from March 2007 for the larger interest of the consumers and agreed to retain the subsidy of Rs. 22.80 per domestic LPG cylinder and Re. 0.83 per litre of kerosene till March 2010.⁴¹

Box 1.3 below contains the recommendation of various committees that have been formed from time to time to deliberate on pricing and subsidy on kerosene and domestic LPG in the post APM era. Appendices 1.12 and 1.13 goes into a detailed analysis of the trend and pattern of PDS Kerosene and LPG consumption and the extent of diversion in order to gauge how much of the subsidy under PDS Kerosene and Domestic LPG Subsidy Scheme is actually getting utilized for the intended purpose.

⁴⁰ Gazette Notification ref. P-20029/18/2001-PP dated 31 March 2003.

⁴¹ K.K. Shankar, 'Govt. extends kerosene, LPG subsidy till 2010', The Indian Express, October 12, 2007.

Box 1.3
Recommendation of Various Government Committees on Pricing of and Subsidy on LPG and Kerosene in the post APM era

In view of the overwhelming evidence that the policy of giving kerosene at subsidized prices under the PDS to all consumers regardless of their economic status is resulting in waste, leakage, adulteration and inefficiency the **Rangarajan Committee** (GoI, 2006) recommended restricting subsidized kerosene to BPL families. The report further stated that ‘in computing the quantum of subsidy entitlement of states on PDS kerosene, it is appropriate to use the estimates of BPL households of the Planning Commission as it will imply uniform criteria and estimation methodology across states’. The subsidy entitlement as calculated could be passed on to the states at an aggregate level ‘allowing the states flexibility to fine-tune their own subsidy schemes’. The report, however, underscored that ‘the only fool proof mechanism for preventing leakages and diversion is to move towards a system of a single price at the point of retail sale for all consumers with the subsidy being passed on to BPL consumers through alternate mechanisms like cash transfers to eligible beneficiaries through coupons or bank transfers or delivery of subsidy through smart debit cards.’

The report considered the subsidy regime in domestic LPG as ‘most egregious and distortionary of all the subsidies in the oil sector’. In view of the fact that BPL households constitute just a meager proportion (considered as 10 percent in the report) of the total domestic LPG consumers, the report strongly objected to providing such huge subsidy of an order of nearly 11,000 crores (as of 2005-06) to non-poor segment of the society. Hence, it recommended a one-time upward adjustment in the price of domestic LPG by Rs.75/cylinder. This, as the report calculated, would reduce the annual burden of subsidy by nearly Rs.4,500 crores. The report further underscored on the necessity to gradually increase the price of domestic LPG so that the retail price adjusts completely to the market level eliminating the subsidy altogether.

.....continued

Box 1.3 continued.....

Prior to this the **Parliamentary Standing Committee on Petroleum and Natural Gas in its Sixth and Tenth Report** (GoI, 2005 and GoI, 2006a1), while reiterating the need to continue the subsidy on PDS kerosene and domestic LPG, recommended for an improved delivery mechanism, targeted at real beneficiaries, leaving no room for misappropriation or misuse. The Committee held the view that the net of subsidy sharing was required to be widened by including all the refineries (both public and private sectors) in the country, considering the gains made by them within the existing system of pricing. The committee had also expressed its desire that a part of the oil development cess that had been collected on crude oil might also be utilised to provide subsidy on kerosene and LPG.

The **Report of the Working Group on Petroleum and Natural Gas for the Eleventh Plan** (GoI, 2006c) underscored that the domestic LPG subsidy did not serve the vast multitudes living below the poverty line but a burgeoning urban middle class. The report contended that the price difference between the domestic LPG and non-domestic LPG (bulk or packed) had been a cause of diversion of domestic LPG for non-domestic use, like hotels, restaurants, and automotive sector. The subsidy on kerosene was also equally ineffective on account of its biggest use for the adulteration of diesel. In effect, not only had government been subsidising those who need it least, the major burden of this subsidy had been shouldered by the state-owned oil companies. In line with the recommendations of the Rangarajan Committee this report also underscored on complete elimination of subsidies on domestic LPG.

The recent report submitted in September 2008 by the **High Powered Committee on Financial Position of the Oil Companies** (GoI, 2008) under the chairmanship of B.K.Chaturvedi, Member, Planning Commission, recommended that in urban and semi-urban areas, BPL families who need kerosene should be issued smart cards or receive the funds via cash transfer through the banking or postal system for purchase of present ration card entitlement of kerosene. The actual sale of the product should be done at market prices and on unrestricted basis. Consequently, the allocations of kerosene made to states should be reduced. The distribution system also needs to be modernized. This scheme should be subsequently extended to rural areas with the exception of the tribal and remote regions of the country where the prevailing system should continue.

For domestic LPG, the report recommended that the entitlement to subsidized supply should be reduced to 6 refills in a year. In the subsequent year this should be further reduced to 4 refills and in the next two years to 2 and nil respectively. Households should be encouraged to subscribe to the piped city gas network wherever available. However, LPG subsidy for BPL families should, as in the case of kerosene, be eventually provided directly through smart cards or cash transfer mechanism.

In view of the observations made by various committees, as indicated in Box 1.3, the Government has proposed and undertaken some remedial measures regarding the implementation of subsidy on LPG and Kerosene which are captured in Appendix 1.14

1.5.2.4 Financial Repercussions of Pricing of Petroleum Products in Post-APM Era on Oil Companies⁴²

As has already been pointed out earlier, there has been a sharp and spiraling increase in international crude oil and petroleum products prices coupled with considerable volatility since the end of 2003, the year immediately after the dismantling of APM. The crude oil price of Indian basket geared up from about \$23 per barrel in March 2002 to \$147 per barrel in June 2008. Another trend which had been noticed in the international market is that the prices of some sensitive petroleum products have been moving faster and with greater volatility than the prices of crude, depending on seasonal and regional demands for these products globally. The picture of international crude and petroleum product prices and the asymmetry in adjustment of domestic retail selling prices of sensitive petroleum products in the post-APM era has already been portrayed before.

The impact of this large and continuous increase in the world price of crude oil has been substantive and diverse on the finances of the oil companies. The upstream (i.e. crude oil exploration and production) companies, namely ONGC and OIL, gained substantially out of this price rise as they were receiving import parity prices for the crude which did not reflect the true cost of production. Furthermore, as mentioned before, by considering the potential impact that the price increase would have on common man and economically vulnerable sections of the society, the government did not allow any increase in the domestic retail selling prices of sensitive petroleum products in concordance with the movement of international prices. The decision to put on hold the necessary price revision took its heavy toll on public sector refining-cum-oil marketing companies namely, Indian Oil Corporation

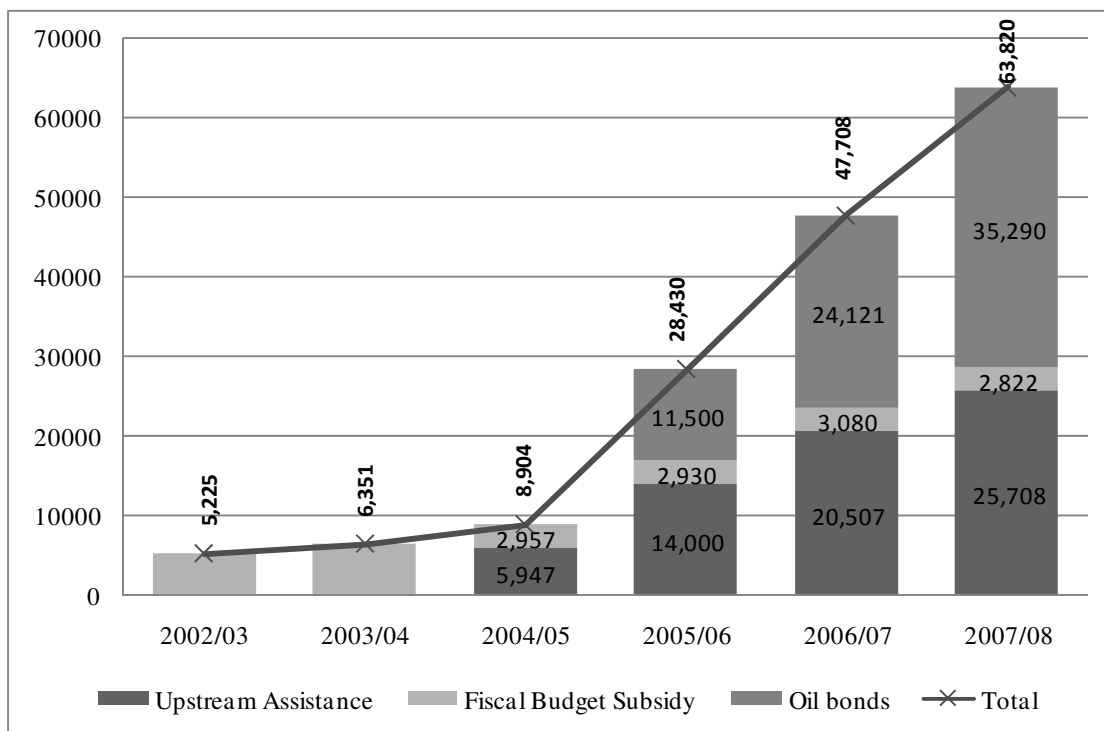
⁴² This section draws heavily on the Report of the High Powered Committee on Financial Position of Oil Companies (GoI, 2008).

(IOC), Hindustan Petroleum Corporation (HPCL), Bharat Petroleum Corporation (BPCL) and Indo-Burma Petroleum Ltd. (IBP), which suffered substantial losses to the extent that they failed to pass on the increase in costs to the customers due to non-revisions in retail selling prices. The standalone public sector refiners namely CPCL (Chennai Petroleum Corporation Ltd.), MRPL (Mangalore Refinery and Petrochemical Ltd), KRL (Kochi Refinery Ltd.) and BRPL (Bongaigaon Refinery and Petrochemicals Ltd.) gained to the extent that they could export at international prices or charge the OMCs prices based on international petroleum product prices and also depending on their cost-competitiveness in the global context. The private sector refiners namely Reliance and Essar Oil (with ultra-modern refineries), which are also relatively cost-competitive globally, gained largely on the same count.

In view of the above situation and under the directions of the government, the public sector exploration and production (E&P) companies have passed on sizable discounts to the OMCs by supplying crude oil at prices that were significantly lower than the prevailing international price. Furthermore, the stand-alone refiners in both the public and private sectors also offered considerable concessions. Government has also been providing subsidies from the Union Budget on account of PDS kerosene and domestic LPG since 2002/03 and since 2005/06 they have been providing Oil Bonds to the OMCs.

The total financial support extended by upstream companies, budgetary subsidy and oil bonds amounts to Rs. 28,430 crore in 2005-06, Rs. 47,708 crore in 2006-07 and Rs. 63,820 crore in 2007-08. This was just the external financial support provided to the OMCs and precludes the forgone profits of the refiner-cum-OMC companies. Fig.1.6 below exhibits details of the external financial support provided to the OMCs since 2002-03.

Fig. 1.6: External Financial Assistance Extended to Refiner-cum- OMC (in Rs. Crore)



Data Source: GoI (2008)

Although the rise in crude oil prices were not fully passed on to the customers in the form of increased retail selling prices and consequently led to stagnation and even erosion of profits of the oil companies, their overall turnover (sales revenue) multiplied between 2002-03 and 2007-08. Table 1.16 below provides a snapshot of the total turnover for the entire oil industry. The Profit Before Tax (PBT) numbers for the OMCs and for the upstream oil companies have been reported in table 1.17 and include the external assistance (as shown in fig. 1.6). Thus, if the external financial assistance to the OMC is taken out, the aggregate profits of the public sector units (PSU) in the oil industry in 2005-06 and 2006-07 would turn out to be considerably lower than that in 2003-04 and 2004-05.

Table 1.16 Total Turnover of Oil Companies

Rs

		crore					
		2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
A	Upstream Oil Companies						
	ONGC	34,691	32,510	46,710	48,201	56,904	60,137
	GAIL	10,642	11,296	12,927	14,875	16,546	18,580
	OIL	2,897	3,143	3,916	5,550	5,389	6,082
	Sub-total of A	48,230	46,949	63,553	68,627	78,839	84,799
B	Refiners Plus OMC						
	IOC	119,884	130,203	150,729	183,172	220,779	247,479
	BPCL	47,584	52,983	63,343	82,935	102,408	121,684
	HPCL	54,259	57,511	65,218	76,920	96,918	121,684
	IBP	8,947	10,650	13,51	15,666	na	na
	Sub total of B	230,674	251,347	292,804	358,693	420,105	481,262
C	Standalone Refiners (PSU)						
	MRPL	8,059	12,612	20,693	28,243	32,208	37,339
	CPCL	8,630	9,476	16,296	25,409	29,349	32,889
	BRPL	2,059	3,196	4,990	6,289	6,426	6,645
	KRL	10,616	11,716	15,440	NA	NA	NA
	Sub-total of C	29,361	37,000	57,419	59,941	67,983	76,873
D	New Private Sector						
	Reliance *	34,409	41,606	51,700	71,117	85,977	101,482
	Essar oil			1,045	637	474	
	Sub total of D	34,409	41,606	52,745	71,754	86,451	101,482
E	Grand Total	342,674	376,903	466,522	559,014	653,379	744,417

Note:* Gross Turnover is from segment information for Reliance Industries, which pertains to petroleum refining and includes production and marketing operations

Source: GoI (2008)

Furthermore, had there been no external financial assistance, the PSU refiners and OMCs would have reported substantial operating losses. The cash profits or losses of the PSU refiners-cum-OMCs in the absence of the external financial assistance are reported separately in table 1.18. Cash profits/losses shown in the table have been calculated as the PBT plus depreciation (but after accounting for interest payment). Fig. 1.7 juxtaposes in two adjacent panels the ‘under-recoveries’ as reported by the OMCs and the cash losses which the OMCs would have incurred in absence of external assistance. It could be observed from fig.1.7 that total reported under-recoveries of OMCs on four sensitive products exceeds their total cash losses by nearly Rs.22,000 to 23,000 crore.

Table 1.17: Profit before Tax (PBT) of Oil Companies

Rs crore

		2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
A	Upstream Oil Companies						
	ONGC	16,124	13,609	19,666	21,837	23,670	25,235
	GAIL	2,518	2,814	2,871	3,277	2,860	3,855
	OIL	1,341	1,482	1,623	2,674	2,483	2,713
	Sub-total of A	19,983	17,905	24,160	27,788	29,013	31,803
B	Refiners Plus OMC						
	IOC	8,414	9,691	5,955	6,706	10,485	10,080
	BPCL	1,994	2,636	1,356	407	2,768	2,597
	HPCL	2,412	2,980	1,641	285	1,967	1,109
	IBP	141	333	83	32		
	Sub-total of B	12,960	15,640	9,035	7,430	15,220	13,786
C	Standalone Refiners (PSU)						
	MRPL	-653	575	1,461	623	1,089	1,733
	CPCL	488	572	934	723	881	1,722
	BRPL	308	440	677	267	276	449
	KRL	697	910	1,193			
	Sub-total of C	840	2,497	4,265	1,614	2,245	3,904
D	New Private Sector						
	Reliance	2,344	3,500	5,521	5,916	7,723	10,373
	Essar Oil			14	-92	-55	
	Sub-total of D	2,344	3,500	5,535	5,824	7,668	10,373
E	Grand Total	36,127	39,541	42,994	42,656	54,146	59,866

Source: GoI (2008)

Table 1.18: Cash Profits (+) / Losses (-) of PSU refiners-cum-marketing companies (without external financial assistance)

Rs crore

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
IOC	6,039	6,906	3,255	-6,796	-14,235	-22,075
BPCL	1,125	1,636	223	-5,085	-6,569	-10,858
BPCL	1,478	1,865	490	-5,122	-6,961	-12,276
Sub-total of above	8,641	10,406	3,968	-17,003	-27,765	-45,209

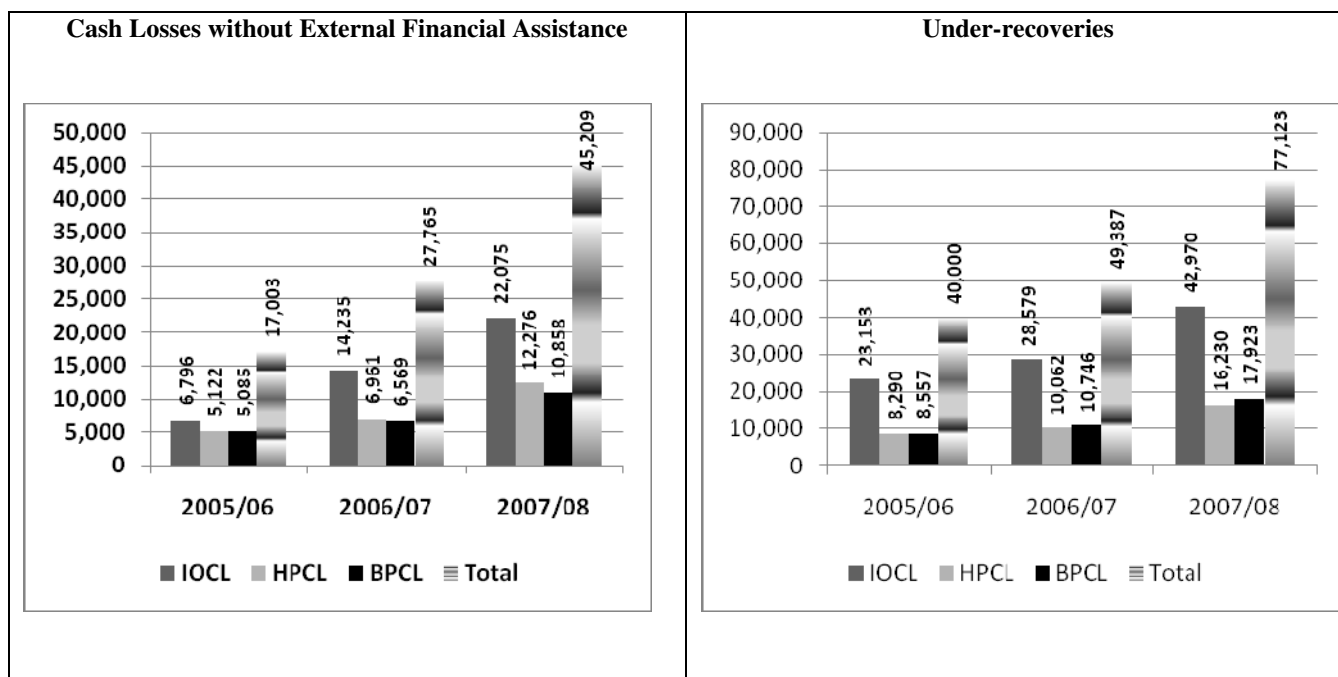
Source: GoI (2008)

In order to explain this deficit it needs to be mentioned at this juncture that besides four sensitive items, namely petrol, diesel, PDS kerosene and domestic LPG, the PSU refiners-cum-oil marketing companies also produce other products on which the Central Government did not impose any price-control. It could thus be expected that the companies had passed on to the consumers (mostly industrial) of these uncontrolled products the full effect of the rise in crude oil prices and thereby generated financial surplus. The PBT or cash profit/loss performance includes the financial surplus (profits) from the manufacture and sale of these

items. It also needs to be underscored that other than the surplus generated from freely priced products, actual profits and losses of the oil companies additionally take into account other income streams like dividend income, pipeline income, inventory changes, and refining margins in the case of integrated companies (GoI, 2006).

The Report of the High Powered Committee on Financial Position of Oil Companies (GoI, 2008) emphasised that the gap between cash losses and under-recovery (as shown in fig.1.7) could be partly explained by the presence of this financial surpluses generated from business volumes of the OMCs related to other products (having no price control) in the figure for cash losses.

Fig. 1.7 Cash Losses and Under-recoveries by OMCs (Rs Crore)



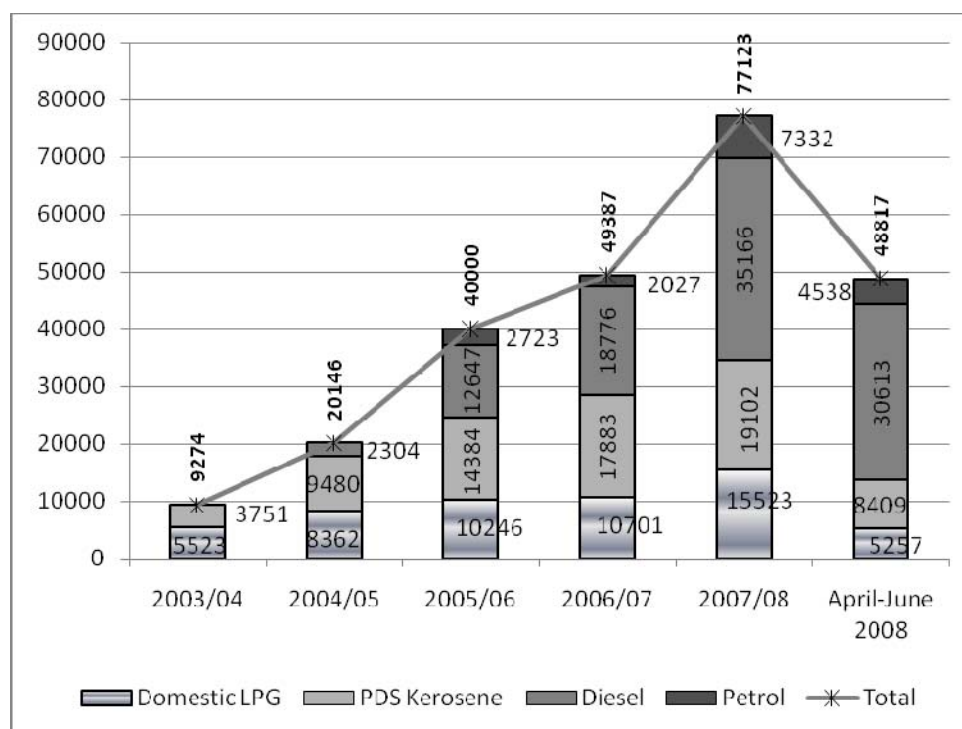
Data Source: GoI (2008)

It could also be argued that due to the presence of this financial surplus the figure for cash profit/loss performance (as shown in table 1.18 and in the fig. 1.7) does not truly reflect the impact of price restraint on the finances of the oil companies. The impact would obviously be much larger and could be more appropriately reflected if this financial surplus generated from uncontrolled products could be computed and taken out but that would not be very easy to estimate exactly. It also needs to be mentioned at this juncture that refining of crude oil is a

process industry where crude oil constitutes around 90 to 95% of the total cost and the remaining 5 to 10 % constitutes the refining cost. Since the value added is relatively small, determination of individual product-wise surplus becomes problematic and could not be correctly estimated. Thus, the cash losses as considered here could at best be considered as indicative.

Another important issue that deserves special attention in this context is how the under-recovery, as indicated in fig.1.7, is being defined and estimated by the OMCs. The notion of under-recovery comes directly from the import-parity pricing formula that was existing from April 2002 till May 2006 immediately after dismantling of APM. The only changes that took place in the basis of calculation from June 2006 onwards is that the price determination formula has been changed from import parity to trade parity for petrol and diesel in line with the recommendations of the Rangarajan Committee. The import parity price, as elucidated in earlier section on pricing of petroleum products, was yielding the retail selling prices (RSP) for four sensitive products namely petrol, diesel, domestic LPG and PDS kerosene. From the RSPs if the tax and other statutory levies are deducted, the net sales realisation (NSR) could be obtained. The difference between the NSR so obtained going by the notional import-parity pricing formula and NSR as permitted by the government under price-control has been termed as 'under-recovery' per unit of the good (litre or cylinder). The method of computation of per unit under-recovery remains the same in case of trade parity price. If the per unit under-recovery is multiplied by the total quantity sold by the company during the year, what one arrives at is the total annual under-recovery. Fig. 1.8 below shows the product-wise total annual under-recovery of OMCs for four sensitive petroleum products namely domestic LPG, PDS kerosene, petrol and diesel from 2003-04 till April-June, 2008. As the under-recoveries explained above is computed on the basis of a notional formula (import parity / trade parity), it could not be linked either to variation in crude oil price or to the published annual account of the oil companies.

Fig. 1.8: Product-wise Under-recovery of OMCs for sensitive products (Rs crore)



Data Source: GoI (2006), PPAC

1.5.2.5 Implication for Refining Margin

In the refining of crude petroleum a variety of products arise and the refinery margins are usually related to cracked margins. In fact a barrel of crude on distillation gives both lighter and heavier fractions. The lighter components consisting of LPG, MS, ATF, kerosene, HSD, etc. command higher margins and are high value products with prices that are generally higher than that of the crude oil. The heavier components - such as furnace oil, bitumen and coke- commands lower margin and sell at prices lower than that of crude. Moreover a part of the crude oil is consumed to produce the heat needed in the refining process and this ranges from 6 to 8 per cent for modern refineries⁴³, usually termed as Refinery Boiler Loss (RBL). Thus, in order for the refining operation to be viable, the selling prices of the higher value

⁴³ Ultra-modern refineries consume more as RBL as their complexity which enables them to work with very difficult (very heavy and sour) crude oils also involve more processing.

refinery fractions, that is, the light and middle distillates must cover (a) the direct cost of crude; (b) the cost of the RBL; (c) the negative contribution from the lower-than-crude oil values that will be realized on the sale of the heavy ends and coke; (d) the operating and capital servicing costs of the refinery.

A refinery usually tries to optimize its capacity and boost its margins by procuring heavy crude (with high sulphur content) available at cheaper prices to produce more remunerative light and middle distillates. However, Indian PSU refineries usually have higher yields of heavier ends, whereas the private sector with modern refineries has the capacity to maximize lighter ends and middle distillates. Consequently the refining margins of the private sector refinery are far superior to that of public sector refineries (GoI, 2005).

Gross Refinery Margin (GRM) can be defined as the difference between the costs of raw material (majorly crude) and weighted average prices of petroleum products. Given the fact that GRM of the refining business depends on the weighted average prices of petroleum products, it is contingent upon the pricing mechanism of the petroleum products that is being followed by the Indian refineries. In the APM era refining margins were administered by the government on the basis of fixed return on capital employed (i.e. on a cost plus basis, as explained before) which in the post-APM era used to be decided initially on an import parity basis and currently on trade-parity basis for petrol and diesel. However, it ought to be reiterated here that in computing the notional import or trade parity prices the actual cost of exploration and refining within the country or factors like inter-refinery differences in respect of crude oil, production pattern, size, complexities of refineries etc. are not taken into account. Thus the derived GRM under the import parity / trade parity regime is dissociated from the aforesaid factors which ideally should have been reflected in GRM in order to distinguish between the GRM of an efficient and inefficient refinery.

Furthermore, given the fact that every refinery is unique in terms of its ability to process various crude forms and generate products, the production levels can be different. Thus it becomes very difficult to determine a benchmark GRM using the weighted average

production of various refineries⁴⁴. If a refinery could produce more high-value products or refine various forms of crude it could post GRMs above the benchmark GRMs.

The factors that generally lead to an increase in gross refining margins are:-

- Crude selection (proper crude mix),
- Import of crude in larger parcels to improve economies of scale in respect of freight, landing charges etc.,
- Higher spreads between crude and product prices which are further dependent on differential in international prices of both crude and products, duties like customs duty on crude and the differential between customs duty on crude and products and other taxes (like entry taxes) that are imposed on crude etc.
- Enhanced production of value added products and
- Reduction of cost

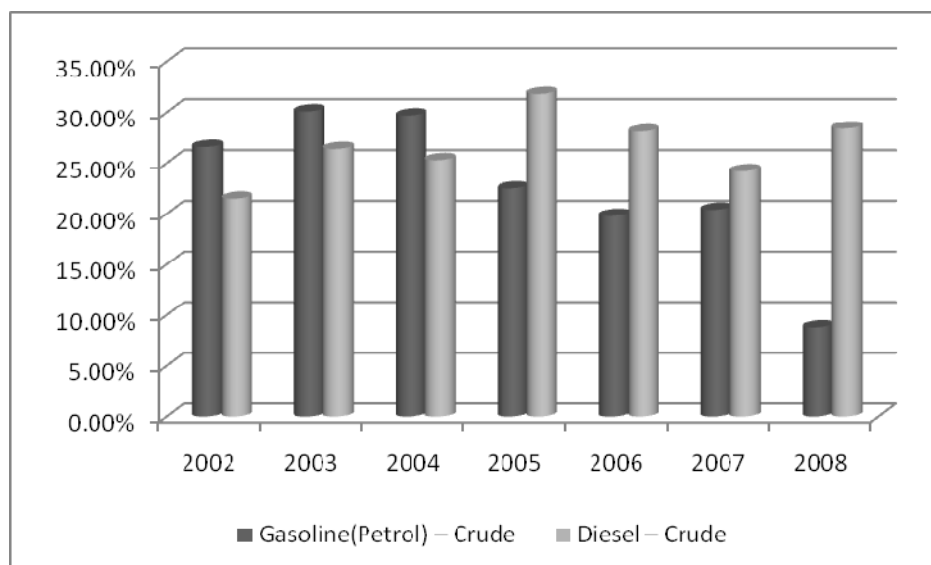
Of all the above factors, the higher spread between the crude and petroleum product prices in the international market has contributed mostly towards increasing domestic refinery margins in the post-APM era especially since 2004-05.

The product–crude spread is usually considered as the difference between a unit measure (barrel or KL or tonne) of crude oil (delivered at a specific location) and the wholesale selling price (refinery gate price) at the same location. In most international markets like USA (New York Harbour and Gulf Coast), North West Europe (Amsterdam-Rotterdam-Antwerp or ARA) and Singapore the spreads for both petrol and diesel (refinery gate price) over crude oil acquisition cost in 2002-03 has been observed as hovering around 25 per cent. In 2003-04 the spread changed to over 30 per cent for petrol and little less than 25 per cent for diesel. Fig. 1.9 below shows the average annual spread between the refinery gate prices of petrol and diesel and the composite crude acquisition cost for the US⁴⁵.

⁴⁴ Usually, Singapore is considered as a benchmark, and the Singapore margin calculation considers Dubai crude oil as an input and assumes a product mix of approximately 32% gasoline (petrol), 19% of jet fuel and kerosene, 16% of diesel/gasoil, 23% fuel oil, 3% LPG and 7% bitumen/naptha.

⁴⁵ The coefficient of variation (CV) between the market prices of gasoline, HSD and kerosene reported at the various centres in the USA (New York Harbour and Gulf Coast), North West Europe (Amsterdam-Rotterdam-Antwerp or ARA) and Singapore has been observed as fairly small and the trend has been towards smaller variation, most pronounced in the case of diesel and also in gasoline (petrol) and jet fuel.

Fig.1.9: Spread between Composite Crude and Gasoline (Petrol) and Composite Crude and Diesel (HSD) for US New York Harbour (in per cent)



Data Source: PPAC

As per import parity system, the pricing of the products was calculated in the country on the basis of the international prices of the products from April 2002 onwards. This building up of the import-parity prices on a notional basis, as explained before, ultimately led to ballooning of the prices of the products in the domestic market.

In order to estimate the average product margins for Indian Refiners-cum-OMCs in the period immediately after dismantling of APM, the Report of the High Powered Committee on Financial position of oil companies (GoI, 2008) assumed a 2.5 per cent margin on trading sales, and a total marketing and distribution margin at the rate of 5 per cent in 2002-03 and 2003-04. Thus the report estimated that the average product margins over the purchase cost of crude for these years amounted to 50 to 60 per cent for IOC, between 40 and 50 per cent for BPCL and about 25 to 40 per cent for HPCL. The report underscored on the possibility that the financial position of IOC and BPCL for these years might have derived partly from consideration other than efficient operations. However from 2004-05 onwards the crude oil

In other words, there is a considerable degree of co-movement in the market prices reported at these centres. (GoI, 2008).

prices rose steeply and the corresponding increase in the retail selling prices were also restrained by the government. As a result, the margins of these three companies fell sharply to 20 per cent and below, in 2006-07 and continued to decline further in 2007-08.

1.5.2.6 Taxes and Duties on Petroleum Products in the post-APM era: An Examination

In the earlier section 1.5.2.2 on 'Major Changes in Prices of Petroleum Products in the post-APM era' the variation in petroleum products on account of changes in taxes and duties have already been captured. This section however takes up the issue in greater details isolating the tax component in the retail pricing of petroleum products more clearly. In fact a major reason for the under-recovery of the OMCs, as already explained before is the high taxes and duties on petroleum products.

Central Taxes: Excise and Customs Duty

Since 1 April 2002, the central government has reduced customs and excise duties on the four sensitive products four times. From March 2005 onwards, customs and excise duties on kerosene and LPG have been reduced to zero. For petrol and diesel excise duties had been reduced from 30% and 14% respectively to 8 per cent plus Rs. 13/litre and to 8 per cent and Rs. 3.25/litre while custom duties were reduced from 20 per cent to 10 per cent for both products. From March 2007 onwards the ad valorem component of excise duties on both petrol and diesel has been reduced from 8% to 6% and the custom duties on both products were reduced from 10 per cent to 7.5 per cent. In addition to customs and excise duties, education cess@2 per cent on aggregate duties was levied with effect from 9 July 2004 and an additional 1 per cent was also levied with effect from 1 March 2007.

Table 1.19
Major Changes in Excise/Customs Duty on Four Sensitive Products
(Post-Dismantling of APM)

Excise Duty									
Item	As on 1.3.02	As on 1.3.03	As on 16.6.04	As on 19.8.04	As on 01.03.05	As on 01.03.07	As on 04.06.08		
Petrol	32%+ Rs 7 per litre	30%+ Rs 7.50 per litre	26%+ Rs 7.50 per litre	23%+ Rs 7.50 per litre	8%+ Rs 13.00 per litre	6%+ Rs 13.00 per litre	6%+ Rs 13.00 per litre		
Diesel	16%+ Re 1 per litre	14%+ Re 1.50 per litre	11%+ Re 1.50 per litre	8%+ Re 1.50 per litre	8%+ Re 3.25 per litre	6%+Re 3.25per litre	6%+ Rs 3.25per litre		
Kerosene (PDS)	16%	16%	16%	12%	NIL	NIL	NIL		
Domestic LPG	16%	16%	8%	8%	NIL	NIL	NIL		
Customs Duty									
Item	As on 2.6.98	As on 28.2.99	As on 1.3.2000	As on 30.9.2000	As on 1.3.03	As on 19.8.04	As on 1.03.05	As on 01.03.08	As on 04.06.08
Petrol	32%	30%	25%	20%	20%	15%	10%	7.5%	2.5%
Diesel	32%	30%	25%	20%	20%	15%	10%	7.5%	2.5%
Kerosene (PDS)	Nil	Nil	Nil	Nil	10%	5%	NIL	NIL	NIL
Domestic LPG	12%	10%	10%	10%	10%	5%	NIL	NIL	NIL

Note: 1) With effect from 9.7.2004, an additional levy of Education Cess @ 2% has been imposed and with effect from 1.3.2007 an additional 1 % has also been imposed.

2) The excise duties provided here are for branded diesel and petrol

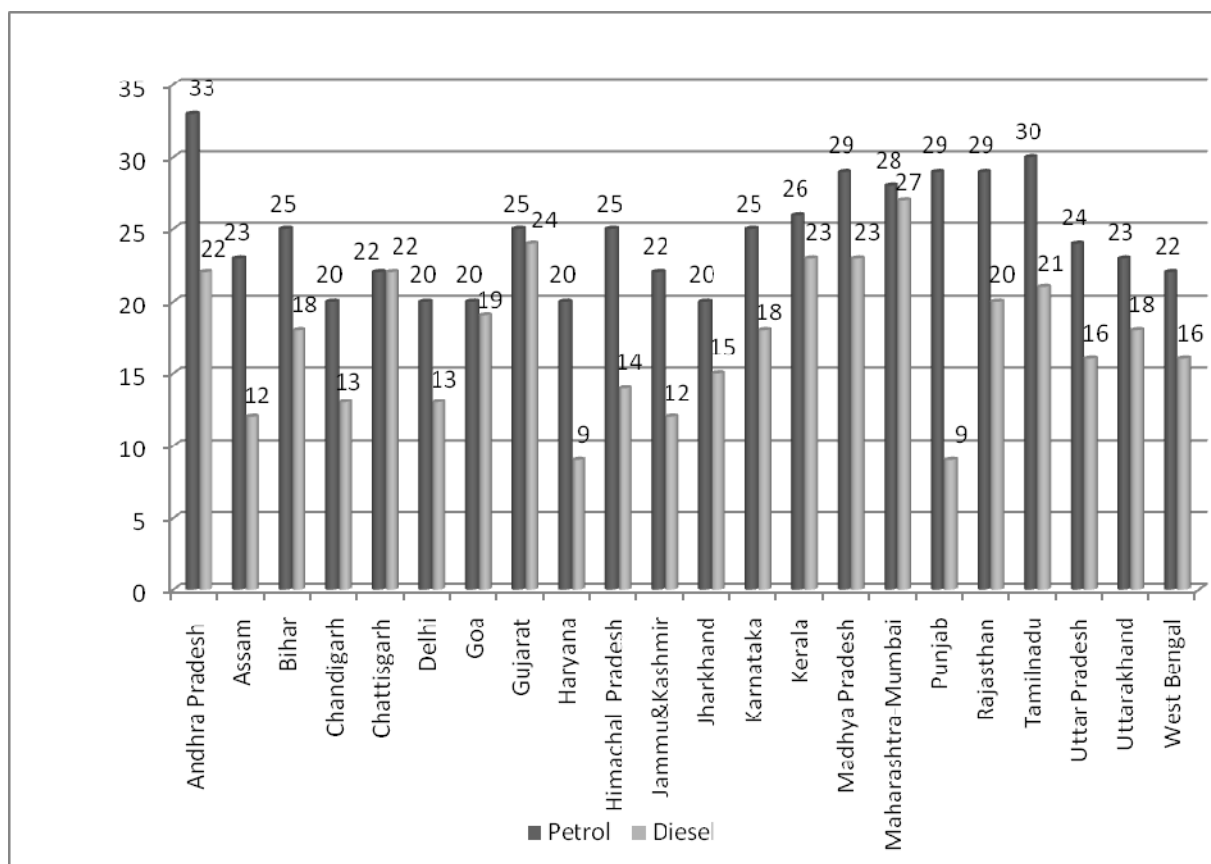
Data Source: PPAC

State Taxes

Due to India's federal structure, the state governments are authorized to levy certain taxes and surcharges on petroleum products. These mostly include, among others, Value Added Tax (VAT) and/or sales tax, entry tax, transit charges and other levies. The charges consist of flat rates and ad valorem taxes and sometimes a combination of both. The number of levies and their magnitude vary widely among states. The tables in Appendix 1.15 provide the detailed information on recoverable and irrecoverable sales taxes and duties on four sensitive products namely petrol/motor spirit (MS), diesel (HSD), domestic LPG and PDS kerosene across all states as of October 2008.

Fig 1.10 portrays the comparative picture of state-wise recoverable sales taxes on petrol and diesel. The state of Maharashtra has a 26% VAT on diesel while the state of Punjab imposes only 9% VAT. However, Punjab's VAT on petrol is 29% as compared to Maharashtra's 28%. Also, within the states local government units and municipalities can levy extra charges on petroleum products. For instance, in Thane and Navi Mumbai area, the rate of VAT for petrol (MS) and diesel (HSD) is 26% and additional surcharge of Re.1/ litre on MS and thus the effective VAT rate for petrol is 28% for petrol while that for diesel is 26%. Gujarat, Jammu and Kashmir (J&K), Punjab, Chandigarh, Rajasthan and West Bengal imposed cess in addition to VAT on petrol and diesel with cess only on petrol for J&K. Beyond recoverable taxes there are irrecoverable taxes like Central Sales Tax (CST) for all states and UTs (except Chandigarh, Himachal Pradesh, J&K, Rajasthan and Uttarakhand), entry tax (Bihar, Gujarat, Maharashtra-Mumbai, Uttar Pradesh) octroi (imposed by Municipality Corporation of Mumbai), additional irrecoverable surcharge on VAT (Bihar) additional tax on sales tax (West Bengal) additional purchase tax (Tamilnadu, Andhra Pradesh, Karnataka, Kerala, Assam). For some states the rate of irrecoverable taxes are abnormally high like entry tax on Mumbai (on petrol), Bihar (on petrol, diesel, domestic kerosene and LPG) purchase tax on Tamilnadu (for petrol and diesel), Karnataka (for petrol), additional surcharge on VAT in Bihar on diesel and additional tax on sales tax for West Bengal on petrol and diesel. The central government has been requesting the states very often to follow its example to reduce taxes and other charges on petroleum products. However for most of the time these requests were not granted. The most important reason for why the states have not reduced the taxes and duties lies in the fact that taxes and duties on petroleum products and crude oil constitute major revenues for the central and state governments. This issue has been taken up in the subsequent section.

**Fig 1.10: Effective Recoverable Sales Tax Rates on Petrol and Diesel in Various States
(as of June, 2008)**



- Note:
1. Rates are inclusive of cess, additional tax and VAT concession but precludes entry tax and other irrecoverable taxes.
 2. In case of Punjab VAT rate was 27.5% and 8.8% on petrol and diesel respectively on the taxable turnover before the price hike by the central government on 4 June 2008 and VAT rate would be 13.75% and 4% on petrol and diesel respectively on the increased taxable turnover as a result of price hike.

Source: PPAC

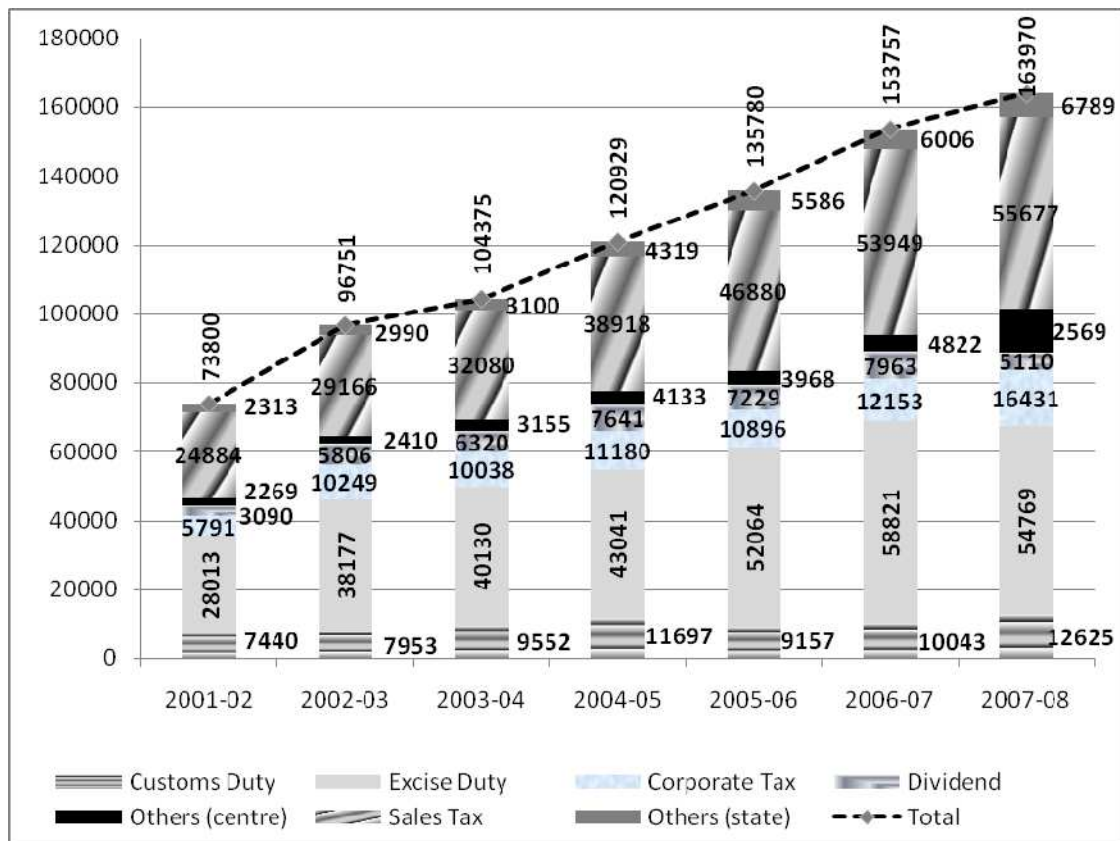
1.5.2.7 Contribution of Petroleum Sector to State and Central Exchequer

The petroleum industry contributes a substantial amount both to the Central and State exchequer in terms of duties, taxes, royalty, dividends etc. The total contribution has risen from Rs 96,751 crore during 2002-03 to Rs 1,63,970 crore during 2007-08. Levy-wise

details of contribution to the exchequer by the petroleum sector from 2001-02 onwards till 2007-08 is given in fig.1.11.

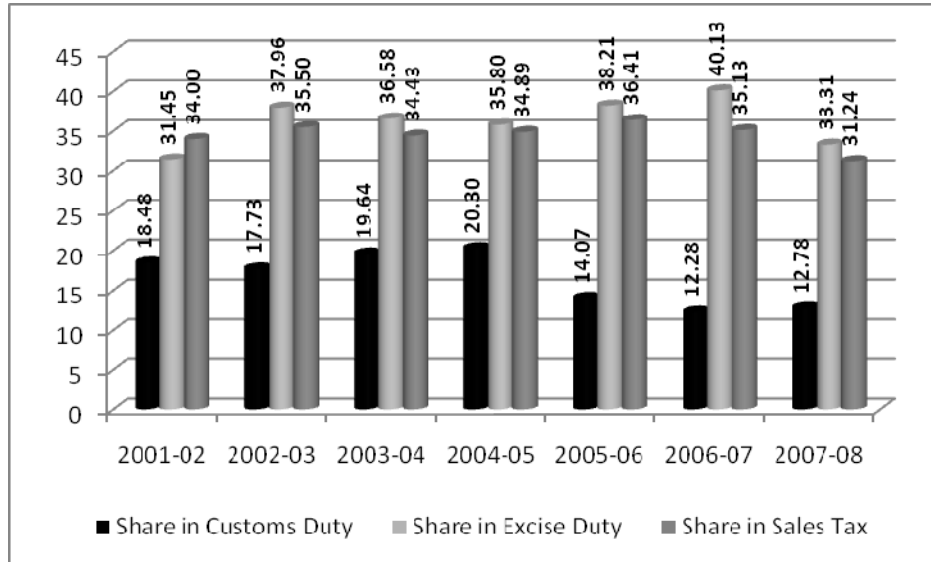
Of the total contribution by the petroleum sector to the government exchequer, the contribution of excise duty and sales tax are substantial (see fig.1.11). The customs duty is ad valorem in nature while excise duty on petrol and diesel is a combination of ad valorem and specific rates. For the entire period from 2002-03 to 2007-08 in the post-APM era the contribution of excise duties out of the total contribution by the oil sector remained between 33 to 40%. The contribution of customs duty ranged between 7 to 10 %. The situations in the states are similar. As state taxes are predominantly ad valorem in nature the absolute revenues from the petroleum sector for the states have increased substantially over the last few years. The contribution of sales tax revenue remained consistently between 30 to 35 % of the total contribution of the petroleum sector to the exchequer.

Fig. 1.11: Contribution to State and Central Exchequer by the Petroleum Sector (in Rs Crore)



Data Source: PPAC

Fig. 1.12
Percentage Share of Petroleum Sector in the Customs, Excise and Sales Tax Receipts of the Exchequer



Data Source: PPAC for customs, excise and sales tax figures of the petroleum sector; RBI for data on state taxes and Union Receipts Budget 2007-08 for central taxes

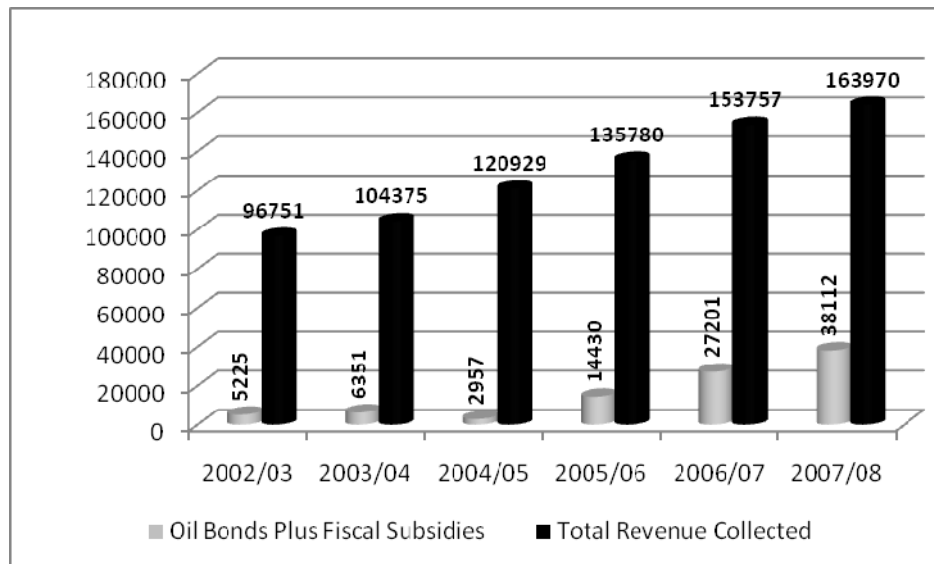
Fig. 1.12 shows the percentage share of petroleum sector in the individual duties and taxes of the central and state exchequer from 2001-02 to 2007-08. The share of customs revenue collected from the petroleum sector for the period 2002-03 to 2007-08 remained between 12 to 20 % of the total receipt of the Centre on account of Customs Duties. The share of excise duties for the same period remained between 33 to 40 %. The proportion of sales tax collected from petroleum sector remained between 31 to 37% of the total sales tax collected by the states.

The picture depicted above points towards a very high dependence of the central and state governments on revenues from the petroleum sector. Furthermore, the central government also receives revenues from the petroleum sector in form of royalties, corporate tax, dividends and others and the state governments obtain additional revenues from royalties, corporate tax, dividends and the state specific levies as well as a share of the excise duty collected by the centre.

What is really intriguing is that the central government revenues from total taxation of petroleum products and crude oil is substantially above the total support in the form of fiscal

subsidies and oil bonds extended to the refiners-cum-oil marketing companies in the petroleum sector (see fig.1.13 below).

Fig. 1.13. Total Tax Revenue Collected from the Petroleum Sector versus Total Oil Bonds plus Fiscal Subsidies Extended to the Petroleum Sector (in Rs. Crore)



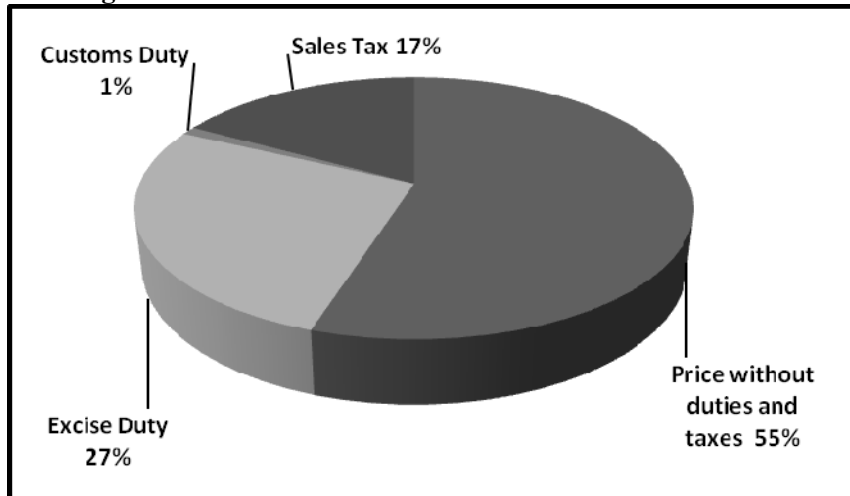
Data Source: PPAC

In particular, the ad valorem taxes and levies had the paradox effect of benefiting the government from increasing international oil prices. However, in view of India’s social and economic status such an inelastic revenue source has always been considered as crucial by the government in financing its policy objectives.

1.5.2.8 Absolute and Relative Tax Burden on Retail Prices of Petrol and Diesel

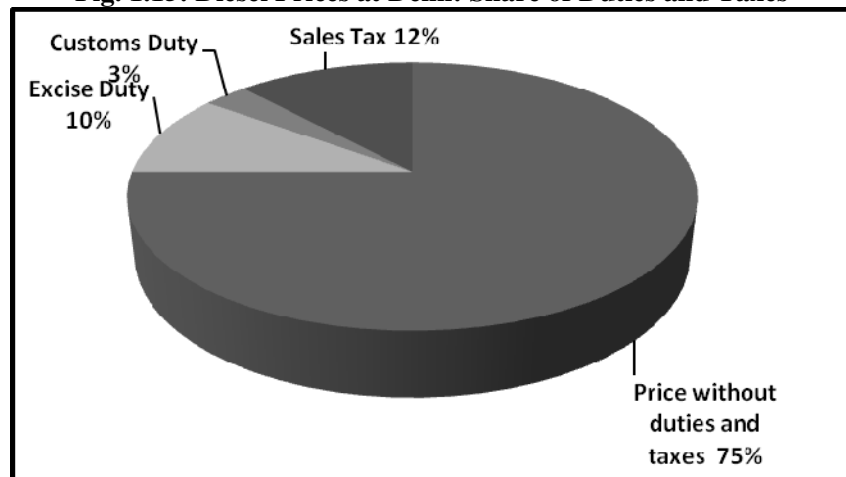
The existing incidence of taxation (as of September 2008) as a percentage of the retail price at Delhi remains significant for petrol and diesel as shown in the figures 1.14 and 1.15 below:

Fig. 1.14: Petrol Prices at Delhi: Share of Duties and Taxes



Source: PPAC

Fig. 1.15: Diesel Prices at Delhi: Share of Duties and Taxes

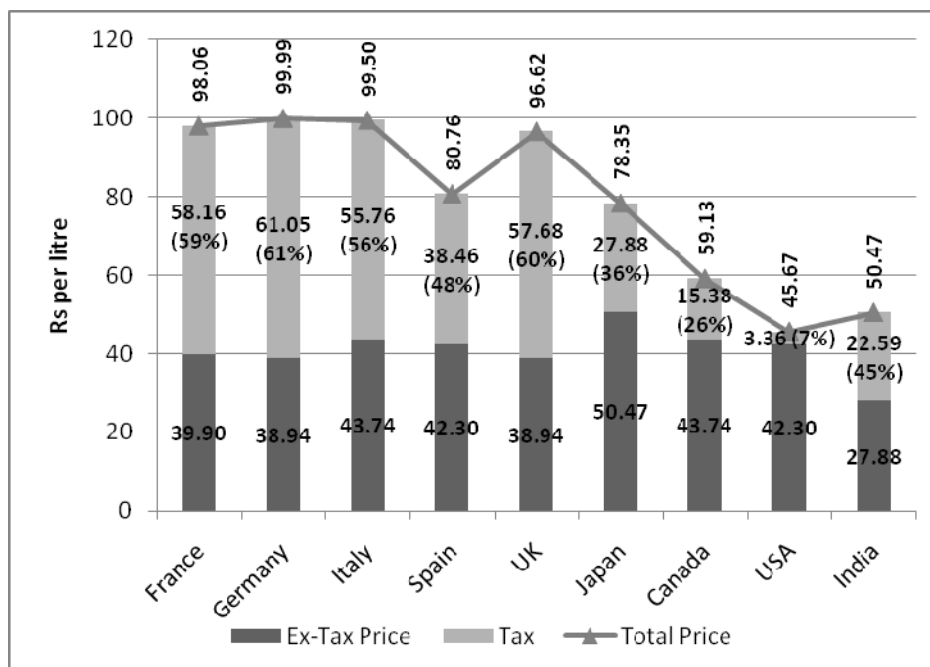


Source: PPAC

Tax levels as a percentage of the retail price in India (Delhi as benchmark) for petrol and diesel as indicated in the figures above are quite similar to the levels prevailing in the developed OECD countries (as shown inside parenthesis in the figures 1.16 and 1.17 below) that have been considered here with the exception of USA. Leaving aside USA, the share of tax in retail selling price of petrol varies from 26 % for Canada to 61% for Germany. For diesel the proportion of tax ranges from 20% for Canada to 48% for UK. It could also be observed from figures 1.16 and 1.17 that the retail selling price of automotive diesel is not much lower than gasoline (petrol) in most of the developed world, even though in most of

these countries taxes on diesel are significantly lower than that of gasoline (petrol). USA turns out to be an exception where, in general, taxes on automotive fuels are much lower in comparison to other OECD countries and, in particular, the tax on gasoline (petrol) is lower as compared to that on diesel unlike other OECD countries (as of September 2008). As a result the retail selling price of automotive diesel in the USA is higher than that of gasoline (as indicated in figures 1.16 and 1.17).

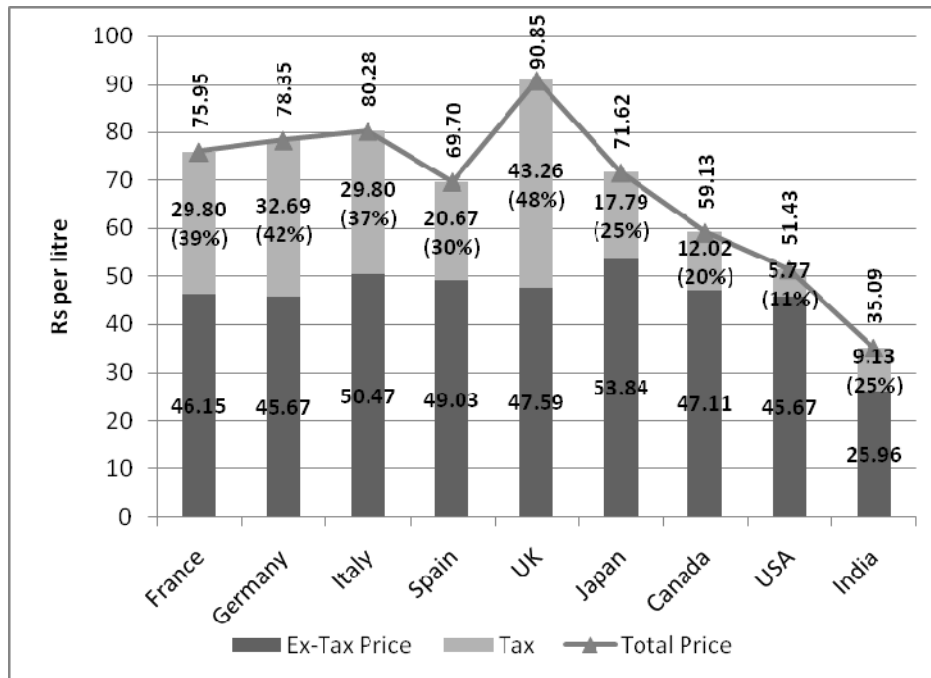
Fig. 1.16: Comparison of Retail Selling Price and Ex-Tax Price of Petrol with Developed Countries (as of September 2008)



Note: 1. Figures in the parenthesis indicates percentage of taxes in the total retail selling price
 2. World prices have been converted from local currencies (euros, pounds, yen and cents) and local volume units (litres, gallons) to Rupees per litre using the average exchange rate for September which is \$/Rs =48.07 .
 Prices reported for India are at Delhi as of September, 2008

Data Source: PPAC

Fig. 1.17: Comparison of Retail Selling Price and Ex-Tax Price of Diesel with Developed Countries
(as of September, 2008)



Note: 1. Figures in the parenthesis indicates percentage of taxes in the total retail selling price
2. World prices have been converted from local currencies (euros, pounds, yen and cents) and local volume units (litres, gallons) to Rupees per litre using the average exchange rate for September which is \$/Rs =48.07 .

Prices reported for India are at Delhi as of September, 2008

Data Source: PPAC

Retail selling prices of petrol (gasoline) in France, Germany and Italy and Spain were 15 to 30 per cent higher than that of diesel as of September 2008 while taxes were higher by 85 to 95 per cent. In the UK and Japan, petrol (gasoline) retail prices were 6 to 9 per cent higher. Taxes were about 33 per cent higher on gasoline in the UK and about 57 per cent higher in Japan.

In the USA, diesel prices in June 2007 were only 9 per cent less than gasoline, which changed to diesel being more expensive in December 2007 and May 2008 by a factor of 10 and 15 per cent respectively. US taxes on diesel were lower than that on gasoline by about 15 per cent in all the three periods (GoI, 2008).

In the figures 1.16 and 1.17 the comparable prices and taxes are also reported for India (for Delhi) which show that the relative tax burden on diesel is much lower than that in any other OECD country, even though the absolute burden on motor spirit in India is actually lower than that in every other country shown above with the exception of Canada and USA. Moreover, both the absolute price of diesel and its relative price vis-à-vis gasoline in India is much lower than that of the developed nations listed above.

Considering historically, the pricing mechanism in India usually had a built-in cross subsidy burden on petrol which was used to keep the price of diesel artificially depressed. This was later substituted by imposing a much higher excise duty on petrol. The consistent implicit assumption behind introducing asymmetry in the retail selling prices of petrol and diesel has been that petrol is the fuel of the relatively better off. However, this price asymmetry has had the unintended consequences of creating an incentive for motorists to opt for diesel rather than for gasoline cars. As a result the number of diesel run cars on the road has increased substantially and diesel has gradually become dominant in the Indian automotive fuel basket. The report of the Working Group on Petroleum and Natural Gas for the Eleventh Plan (GoI, 2006b) however, countered the implicit assumption behind introducing this asymmetry and underscored that 71 percent of non-transport vehicles are two wheelers, which run on petrol. The country has the highest population of two wheelers and is also growing at a much faster rate as compared to cars. The report further underscores that these two wheelers essentially provide mobility to the aspiring class, the climbers and the middle class and not to the relatively affluent sections. Thus, the report emphasises that the basic rationale for introducing the price differential does not seem to hold sufficient ground.

Considered from the perspective of relative merits and demerits, the production of diesel requires more capital investment in plant and equipment at the refinery end, but also provides more work energy and therefore where appropriate engines are available, more mileage kilometres per litre than a similar petrol driven car. The technical and operating factor that favours gasoline is the faster acceleration and easier operations especially in cold weather, but from the use value side there is little logic in selling diesel to motorists at prices that are lower than gasoline.

The only consideration, for maintaining 'a significant price discrimination in favour of diesel is that it creates positive externalities in the case of public transport and the trucking industry that carry people and goods, creating an extensive transport network, across the length and the breadth of the country' (GoI, 2008).

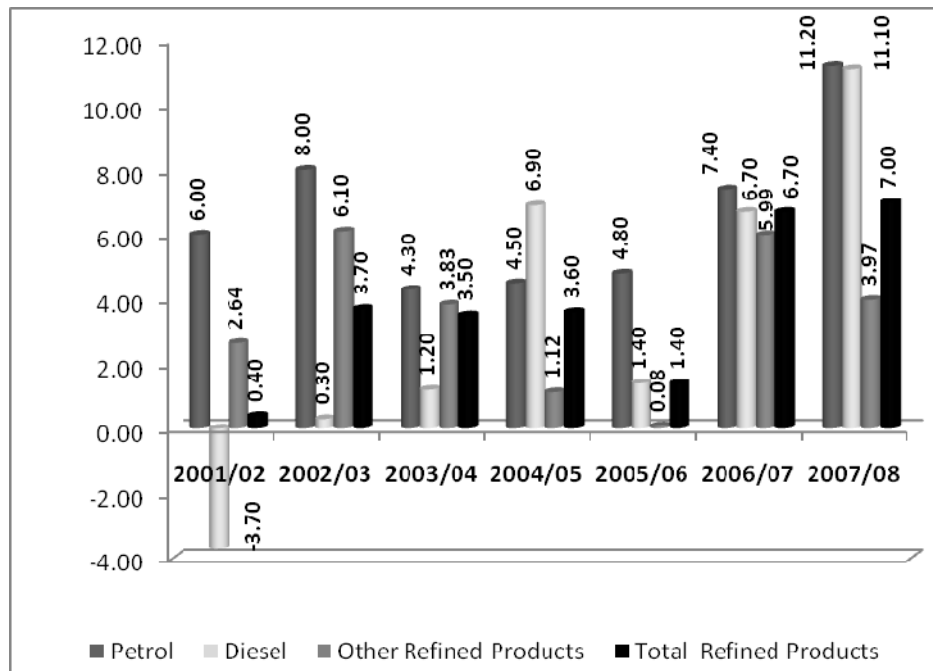
However, this logic does not apply for passenger cars and sports utility vehicles. Nor, does it apply for substantial consumption of diesel by industrial units and generators. Hence the issue of the extent to which the diesel prices should be maintained below that of gasoline, and the amount of burden it places on government finance and upstream oil companies needs much more careful consideration from the utility side other than the cost or the opportunity cost side.

Domestic consumption of refined petroleum products at the aggregate level has been growing at an average annual rate of about 2.5 per cent between 2000-01 and 2005-06. The pace of expansion picked up in 2006-07 to about 6.7 per cent and provisional estimates suggest that in 2007-08 it geared up further to 7.0 per cent (see fig 1.18). The acceleration as shown in fig. 1.18 could clearly be attributed to higher growth of consumption of both petrol and diesel in the past two years. Consumption of diesel rose by 6.7 per cent and 11.1 per cent in 2006/07 and 2007/08 respectively. Even in case of petrol, where the retail selling price was not that much depressed as compared to diesel, consumption rose by as much as 11.2 per cent in 2007/08.

It also deserves special emphasis that during this period of accelerating petroleum product consumption, the overall pace of expansion of the economy as measured by the Gross Domestic Product (GDP) was around 9 per cent per annum. Thus it is very difficult to negate that the rising economic growth coupled with the policy of keeping the retail selling prices of petrol and diesel lower through administrative restraints on domestic retail selling prices led to increase in consumption of petrol and diesel at such an aggressive pace. A higher selling price of automotive fuel could perhaps have kept aggregate growth in

automotive fuel consumption within levels that were lower than the general pace of economic expansion by placing higher incentives on fuel efficiency.

**Fig 1.18 Annual Growth in Consumption of Petrol, Diesel and Other Refined Products
(Percentage Growth over Previous Year)**



Source: Basic Petroleum Statistics, available at www.petroleum.nic.in

It ought to be underscored that price is the most effective economic instrument for energy conservation. This is particularly true when the consumers on grounds of vulnerability are being completely shielded from unprecedented hike in world crude prices and that of imported crude, that provide more than 75 per cent of the refinery throughput for meeting domestic consumption of finished products. Rather the domestic consumers have been constantly subsidised by way of subvention from the general government revenue (fiscal subsidy) and expansion of government debt (oil bonds with debt implication), both of which have significant and critical alternative use – whether it is in the creation of social or of physical infrastructure. This measure also frustrated the primary objective of dismantling of APM for creating a vibrant and competitive petroleum sector and brought the entire dismantling process into grief.

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Appendix 1.1: Major End Use of Petroleum Products

Product	Major End Use
LPG	Domestic fuel. Also for industrial application where technically essential. Now permitted as auto fuel.
NAPHTHA/NGL	Feedstock/ fuel for fertiliser units, feedstock for petrochemical sector and fuel for power plants.
MS(Petrol)	Fuel for passenger cars, taxies, two & three wheelers.
ATF	Fuel for aircrafts.
SKO (Kerosene)	Fuel for cooking & lighting.
HSD	Fuel for transport sector (railways/road), agriculture (tractors, pumpsets, threshers,etc.) and captive power generation.
LDO	Fuel for agricultural pumpsets , small industrial units, start up fuel for power generation.
FO/LSHS	Secondary fuel for thermal power plants, fuel/ feedstock for fertiliser plants, industrial units.
BITUMEN	Surfacing of roads.
LUBES	Lubrication for automotive and industrial applications.
OTHER PRODUCTS (BENZENE, TOLUENE, MTO,LABFS,CBFS, PARAFFIN WAX,ETC.)	Feedstock for value added products.

APPENDIX 1.2

BUILD-UP OF PRICES UNDER APM

BUILD-UP OF EX-REFINERY PRICES		
IMPORTED CRUDE OIL	POOLED FOB PRICE OF CRUDE OIL	INDIGENOUS CRUDE OIL
	+	
	FREIGHT	
	+	
	OCEAN LOSS	
	+	
	INSURANCE	
	+	
	WHARFAGE	
	+	
	AUXILIARY DUTY	
	=	
DELIVERED COST OF CRUDE		
	+	
	REFINING COST (Chemicals, catalysts & utilities, consumables, salaries and wages, repairs & maintenance/overheads, depreciation, etc.,)	
	+	
	RETURN ON CAPITAL EMPLOYED	
	=	
RETENTION PRICE PER TONNE OF CRUDE THRUPUT		
	X	
	STANDARD THRUPUT	
	divided by	
	STANDARD PRODUCTION X INDICES OF EACH PRODUCT	
	X	
	INDEX OF EACH PRODUCT	
	=	
RETENTION PRICE PER TONNE OF PRODUCT		
	WEIGHTED AVERAGE RETENTION PRICE FOR EACH PRODUCT ON INDUSTRY BASIS + Rs. 25	
	=	

$$\begin{array}{c}
\text{EX-REFINERY PRICE} \\
+ \\
\text{CUSTOMS/ EXCISE DUTY} \\
+ \\
\text{MARKETING MARGIN} \\
+ \\
\text{SURCHARGES} \\
+ \\
\text{PRODUCT PRICE ADJUSTMENT} \\
= \\
\boxed{\text{EX-STORAGE POINT PRICE AT REFINERY POINT}} \\
+ \\
\text{RPO CHARGES/SURCHARGES FOR MS/HSD} \\
= \\
\boxed{\text{EX-RETAIL OUTLET PRICE WITHIN FREE DELIVERY ZONE}} \\
\text{(excluding freight and local levies)}
\end{array}$$

Source: 'Pricing of Petroleum Products in the wake of Economic Liberalisation', Report of CAG on the Union Government (Commercial), 19 of 1995.

Appendix 1.3

Major Sector-wise Recommendations of the ‘R’ Group

Exploration and production

- Increasing the competency of ONGC and OIL by empowering the Board of Directors to diversify into downstream, allowing them to market their own produce, provide level playing fields to all companies in bidding blocks and providing international price for domestic crude produced by them
- Enhancement of domestic production through reserve accretion in India and abroad
- Acquisition and absorption of new technology for reserve accretion
- Mobilisation of venture capital required for building national oil industry
- Simplifying procedures in awarding production sharing contracts, provision of fiscal incentives and rationalisation of tariff structure
- Assignment of regulatory and monetary functions to Directorate General of Hydrocarbons (DGH) which shall be an autonomous body

Refining and Marketing

- Providing total freedom to refineries to decide their product mix to optimize their profitability through better yields and value added products
- Decanalisation of petroleum products
- Continuation of administered pricing for mass consumption products till the national economy is ready to accept market-determined prices.
- Doing away with cross-subsidisation of products and providing all subsidies through budgetary allocations in a transparent manner
- Phased deregulation of marketing by giving freedom to oil companies to appoint dealers/distributors by withdrawal of Sales Plan Entitlement (SPE) mechanism and thereafter full decontrol

Tariff and Pricing Reforms

- Phased rationalization of tariff structure by bringing down customs duties to a range of 0-5 per cent and providing a maximum tariff protection of 25 percent on finished products.
- Phased rationalization of royalty and cess on crude to modest levels (as prevalent internationally) and calculation of the same on ad-valorem basis instead of specific values.
- DGH and OCC should be designated as the regulatory authority for the upstream and downstream sector respectively.

Appendix 1.4 : Phased Programme of Reforms

Particulars	Model
Transition Phase	4 Years
Year 1 (1998-99)	
i) Removal of cost plus formula and payment to crude producers as percentage weighted average FOB price of actual imports	75 percent
ii) Products to be controlled during transition period	MS(Motor Spirit i.e. Petrol) , HSD (High-Speed Diesel) , Kerosene, ATF (Aviation Turbine Fuel) and LPG (Liquefied Petroleum Gas)
iii) Withdrawal of retention margin for the refineries and refinery gate prices for controlled products	Adjusted import parity prices to existing refineries and tariff-adjusted import parity prices to new refiners
iv) Products to be de-controlled	Naphtha, FO (Fuel Oil), LSHS , Bitumen, Paraffin wax
v) Exim (Export-Import) Policy	Decanalisation of imports/exports of all petroleum products except crude (slop crude and crude condensate), NGL (Natural Gas Liquids), ATF, petrol, diesel.
vi) Sourcing of crude	Sourcing of crude to be liberalised and import to be allowed for joint and private sector refineries under actual user license.
vii) Customs Duties	Rationalisation to be done in a phased manner
viii) Increase in prices of: Kerosene(PDS) LPG (Domestic)	30 percent of existing ex-storage point price 33 percent of subsidy passed on
ix) Freight and other under-recoveries	33 percent to be passed on in an equated manner
x) Shipping of crude oil	Withdrawal of cost plus formula for shipping of crude oil and move towards market related rates
Year 2 (1999-2000)	
i) Payment to crude producers as percentage of weighted average of FOB	77.5 per cent
ii) Increase in prices of: Kerosene (PDS) LPG (Domestic)	30 per cent of revised ex-storage point price at the end of year 1 A further 33 per cent of subsidy to be

	passed on
Particulars	Model
iii) Freight and other under-recoveries	A further 33 percent to be passed on in an equated manner
iv) Rationalisation of duties	To continue
Year 3 (2000-01)	
i) Payment to crude producers as percentage weighted average FOB price	80 per cent
ii) ATF	Deregulation of imports and pricing
iii) Increase in prices of: Kerosene (PDS) LPG (Domestic)	20 per cent of the revised ex-storage point price at the beginning of the year Suitable adjustment of price to reach subsidy level at 15 per cent of import parity.
iv) Freight and other under-recoveries	Balanced subsidy to be passed on, in an equated manner.
Year 4 (2001-02)	
i) Payment to crude producers as percentage weighted average FOB price	82.5 per cent
ii) Increase in prices of: Kerosene (PDS)	Suitable adjustment in prices to reach a subsidy level at 33.33 per cent of the import parity.
2002 onwards	Full Deregulation. Transfer of subsidy on kerosene (PDS), LPG (Domestic) and freight subsidy on supplies to far flung areas to the fiscal budget of the Government.

Source: MoPNG Resolution NO.P-20012/29/97-PP dated 21 November 1997 (appeared in The Gazette of India, Extraordinary, Part-1-Section1, New Delhi, Monday, 24 November 1997)

Appendix 1.5
Revisions in the rate of Royalty on Crude since 1990

Year	Royalty
1.1.1990 to 31.3.1993	Rs 481/ MT
1.4.94 to 31.3.1996	Rs 539.20 / MT
1.4.1996 to 31.3.1998	Rs 595/MT
1.4.1998 to 31.3.2002	@20 percent of the well head price
From 1.4.2002 onwards	@20 percent of the well head price for onshore and shallow water offshore (upto 400 meters) and @10 percent of well head price for offshore above 400 meters for heavier crude of API 25 degrees and less

Source: GoI (2005)

Appendix 1.6
Revisions in the Customs Duty on Crude

Year	Customs Duty
Until end-March, 1994	Specific
1994 to June 1 1998	35 percent (ad valorem)
June 2 1998 to 27 January 1999	22 percent (ad valorem)
28 January 1999 to February 2000	20 percent (ad valorem)
1 March 2000 to 29 September 2000	15 percent (ad valorem)
30 September 2000 to February 2005	10 percent (ad valorem)
1 March 2005 to 3 June 2008	5 percent (ad valorem)
From 4 June 2008	Nil

Source: Petroleum Planning and Analysis Cell (PPAC), MoPNG, and GoI (2005)

Appendix 1.7

Elements of Cost in Price Build up of Public Sector Oil Companies for Petrol and Diesel

(as of November 2006)

S.No.	Particulars	Petrol	Diesel
		(Rs per KL)	(Rs per KL)
1	Import Parity Freight	322.75	406.73
2	Under-recovery towards delivery charges	40	40
3	Terminalling charges	50	50
4	Marketing Cost	425.43	425.43
5	Escalation in marketing cost per annum (in percent)	5	5
6	Marketing margin	390.79	400.05
7	Stock loss	171.95	35.69
8	Return on working capital	Equivalent to 20 day's cost of sales excluding depreciation @interest rate of 11 percent	Equivalent to 20 day's cost of sales excluding depreciation @interest rate of 11 percent
9	Retail pump outlet(RPO) charges (only cost)	150	150
10	DLAF	100	100
11	RPO surcharge	36	21

Source: GoI (2006c)

Appendix 1.8

Methodology of calculating the cost price of PDS Kerosene on import parity basis

S.No.	Cost Component	Unit	Basis of Computation
1.	FOB Value	\$/barrel	Average of mean of high and low quotes of Platts Asia Pacific Arab Gulf (APAG) and Petroleum Argus Asia Pacific Products Report for Arab Gulf market during the “pricing period”.
2.	Premium/Discount	\$/barrel	Monthly average of spot premium/discounts for the same period as FOB as published in Argus/Platts for Jet fuel or Kerosene
3.	Ocean Freight (Converted by using conversion factor 7.90 bbl per MT)	\$/barrel	World Scale freight rates from Bahrain (Sitra) to the designated Indian ports adjusted by AFRA (Average Freight Rate Assessment) for MR (Medium Range) vessel size. The designated ports for Kerosene are Jamnagar, Hazira, Mumbai, Mangalore, Kochi, Chennai, Visakh, Haldia and Kandla ⁴⁶ .
4.	C&F Price	\$/KL	Total of 1 to 3 above (Converted to KL using conversion factor of 6.2898 bbl per KL)
5.	Insurance	\$/KL	Actual applicable tariff rates set by GIC
6.	CIF Price	\$/KL	Total of 4 and 5 above
7.	Exchange Rate	Rs/\$	Monthly average (for the same period as FOB) of the available RBI reference rates during the pricing period
8.	CIF Price	Rs/KL	Converted to Indian rupees
9.	Customs Duty	Rs/KL	As applicable. Assessable value for calculation of customs duty would include the CIF price and landing charges at 1% in line with the customs rules.
10.	Ocean Loss	Rs/KL	As permitted under the APM
11.	Wharfage, Port Charges, Landing Charges, Bank Charges etc.	Rs/KL	Dues applicable for the port based on the official tariff rates of the respective ports or nearest government port, in case of a private port, whichever is lower. Bank charges at the prevailing rates as assessed by SBI.
12.	Landed Cost (Import Parity)	Rs/KL	Total of 8 to 11 above

⁴⁶ Kandla would be considered as a designated port in case there are actual imports of PDS Kerosene at this point.

	Price) or Refinery Transfer Price		
13.	Storage/distribution cost and return on investments	Rs/KL	Weighted average of updated costs/return of the companies under the APM regime not exceeding Rs. 250/KL for cost and Rs 130/ KL for return. Port terminalling charges would be compensated to the extent of terminals located at the designated ports only at the rate mentioned in the agreement for 'Sharing of Infrastructure and Safekeeping Arrangement' dated 31March 2002 or updated APM rates for the year 2001-02 whichever is lower. Compensation for private facilities at Visakh
14.	Inland Freight	Rs/KL	Cost of inland transportation from the nearest designated port or the next nearest designated port if the capacity of the nearest port is exhausted by the cheapest available mode i.e. pipeline, rail or road from the designated port For the Northeast, inland freight would be calculated from the nearest Northeast refinery/production source instead of designated port for the quantities available from the Northeast refineries/production source. For far flung areas inland freight shall be calculated up to the Tap-off point or railhead only.
15.	Depot cost before stock loss and working capital	Rs/KL	Total of 12 to 14 above.
16.	Stock loss	Rs/KL	0.28 percent of depot cost excluding depreciation, return on investment and excise duty.
17.	Cost of working capital	Rs/KL	Interest on working capital for 18 days stock holding at SBI prime lending rate(PLR) per annum on item 15 above, excluding depreciation and return on investment but inclusive of excise duty
18.	Cost price at depot	Rs/KL	Total of 15 to 17 above.

Source: Adopted from Gazette Notification Ref. P-20029/18/2001-PP dated 28 January 2003, Annexure I.

Appendix 1.9

Methodology of calculating the cost price of Domestic LPG on import parity basis

S.No.	Cost Component	Unit	Basis of Computation
1	FOB Value	\$/MT	Saudi Contract price as quoted in Platts LP Gaswire for the previous month. LPG price is considered as a weighted average of butane and propane prices with weightage 60% and 40% respectively.
2.	Premium/Discount	\$/MT	Monthly average for the same period as FOB as quoted in LP Gaswire
3.	Ocean Freight	\$/MT	<p>Fully built up freight from Ras Tanura to the designated Indian ports calculated on the basis of Charter Hire rates obtained from Clarkson Shipping Intelligence Weekly for 13 TMT vessel size except Mangalore for which 18 TMT vessel size shall be considered. The designated ports for LPG are Ratnagiri, Kandla, Jamnagar, Hazira, Mumbai, Mangalore, Kochi, Chennai, Visakh and Haldia subject to the following proviso:</p> <p>a) In case the designated port does not have imported LPG handling facility, then the capacity of LPG production facility at the designated port shall be treated as the capacity of the designated port</p> <p>b) In case the designated port has handling facilities for import as well as LPG production facility, then the capacity of the designated port would be summation of LPG handling capacity at the port and the capacity of LPG production facility.</p> <p>In case of actual imports the difference between the transportation cost of imports per Transchart and notional freight limited to the quantities imported would be considered. For the purpose of subsidy, the addition to ocean freight would be limited to quantities imported in the pricing period.</p>
4.	C&F Price	\$/MT	Total of 1 to 3 above

5.	Insurance	\$/MT	Actual applicable tariff rates set by GIC
6.	CIF Price	\$/MT	Total of 4 and 5 above
7.	Exchange Rate	Rs/\$	Monthly average (for the same period as FOB) of the available RBI reference rates during the pricing period
8.	CIF Price	Rs/MT	Converted to Indian rupees
9.	Customs Duty	Rs/MT	As applicable. Assessable value for calculation of customs duty would include the CIF price and landing charges at 1% in line with the customs rules.
10.	Ocean Loss	Rs/MT	As permitted under the APM
11.	Wharfage, Port Charges, Landing Charges, Bank Charges etc.	Rs/MT	Dues applicable for the port based on the official tariff rates of the respective ports or nearest government port, in case of a private port, whichever is lower. Bank charges at the prevailing rates as assessed by SBI.
12.	Landed Cost (Refinery Transfer Price)	Rs/MT	Total of 8 to 11 above
13.	Storage/distribution cost and return on investments	Rs/KL	Weighted average of updated costs/return of the companies under the APM regime not exceeding Rs. 391/MT towards cost and Rs 239/MT for return. Port terminalling charges would be compensated to the extent of terminals located at the designated ports only at the rate mentioned in the agreement for 'Sharing of Infrastructure and Safekeeping Arrangement' dated 31March 2002 or updated APM rates for the year 2001-02 whichever is lower.
14.	Bottling Charges	Rs/MT	Updated costs plus return under APM not exceeding Rs 1449/MT.
15.	Charges for Cylinder Cost	Rs/MT	Cylinder depreciation spreading the cost of cylinders over 12 years, plus interest on net borrowings (after adjusting customer deposits) at SBI prime lending rate per annum. This cost shall not exceed Rs 1275/MT.
16.	Inland Freight	Rs/KL	Cost of inland transportation from the nearest designated port or the next nearest designated port if the capacity of the nearest port is exhausted by the cheapest available mode i.e. pipeline, rail or road from the designated port.

			<p>For Jamnagar-Loni LPG pipeline actual tariff paid would be used for computation of inland freight.</p> <p>For the Northeast, inland freight would be calculated from the nearest Northeast refinery/production source instead of designated port for the quantities available from the Northeast refineries/production source.</p> <p>For far flung areas inland freight shall be calculated up to the Tap off point or railhead only.</p>
17.	Bottling plant cost before stock loss and working capital	Rs/MT	Total of 12 to 16 above
18.	Stock loss	Rs/MT	0.25 percent of item 17 excluding depreciation, return on investment and excise duty.
19.	Cost of working capital	Rs/MT	Interest on working capital for 18 days stock holding at SBI prime lending rate(PLR) per annum on item 17 above, excluding depreciation and return on investment but inclusive of excise duty
20.	Cost price at depot	Rs/MT	Total of 17 to 19 above.

Source: Adopted from Gazette Notification Ref. P-20029/18/2001-PP dated 28 January 2003, Annexure II.

Appendix 1.10
Major Revisions in Retail Selling Price at Delhi
(between 1 April 2002 to December 2003)

	<u>MS</u> (Rs./litre)	<u>PDS Kerosene</u> (Rs./litre)	<u>HSD</u> (Rs./litre)	<u>LPG</u> (Rs./Cylinder)
04.06.02	28.94		17.99	
16.06.02	29.18		18.23	
16.08.02	29.00		18.05	
01.09.02	29.20		18.34	
16.09.02	29.66		18.68	
01.10.02	29.91		18.91	
17.10.02	30.24		19.23	
01.11.02	30.26		19.25	241.20
16.11.02	29.57		18.57	
01.12.02	28.91		18.06	
03.01.03	29.93		19.07	
16.1.03	30.33		19.47	
1.02.03	30.71		19.84	
1.03.03	32.10		21.21	
16.03.03	33.49		22.12	
16.04.03	32.49		21.12	
27.04.03	31.49		20.12	
01.05.03	31.50		20.13	
16.05.03	30.40		19.18	
01.06.03	30.30		19.08	
26.06.03		9.01		
01.09.03	32.40		20.33	
01.10.03				241.60
16.10.03	31.70		19.73	
16.12.03	32.70		20.73	

Source: PPAC

Appendix 1.11
Major Revisions in Retail Selling Price at Delhi (January 2004 to June 2008)

Date	MS (Rs./litre)	PDS Kerosene (Rs./litre)	HSD (Rs./litre)	LPG (Rs./Cylinder)
01.01.04	33.70		21.73	
16.06.04	35.71		22.74	261.60
01.08.04	36.81		24.16	
5.11.04	39.00		26.28	281.60
16.11.04	37.84			
01.04.05 (VAT Implemented at Delhi)	37.99	9.05	28.22	294.75
04.05.05 (VAT rate on diesel reduced to 12.50%)			26.45	
21.06.05	40.49		28.45	
25.07.05		9.08		
07.09.05	43.49		30.45	
25.05.06		9.09		
06.06.06	47.51		32.47	
21.06.06 (Reduction in VAT Rate)	46.85		32.25	
30.11.06	44.85		31.25	
16.02.07	42.85		30.25	
06.06.07	43.52		30.48	
27.09.07		9.15		
8.02.08 (Pollution cess implemented on HSD)			30.76	
15.02.08	45.52		31.76	
05.06.08 (includes interim revision in dealer's margin)	50.56		34.80	346.30 (304.70## effective 09.06.08)

after considering Delhi State Government subsidy of Rs.40 /Cylinder

Source: PPAC

Appendix 1.12

Analysis of the Pattern of Subsidized Kerosene and LPG Consumption in India⁴⁷

According to the Census of India (2001) estimates, 33.6 million households use LPG for cooking purposes out of which 25.75 million belong to urban areas and 7.85 million belong to rural areas. Furthermore about 48.0 per cent of urban households and 5.7 per cent of rural households use LPG. However, the number of LPG connections has gone up steeply since 2001. As per the figure recorded on March 1, 2001 there were about 57.85 million connections (including double cylinder and more than one connection at a given residential address). As on March 1, 2008 the total number of domestic LPG connections stands at 100.98 million which indicates a phenomenal rise of about 75 per cent.

Table 1.12.1 below adopted from the more recent National Family Health Survey II (conducted by International Institute of Population Sciences under the aegis of Ministry of Health & Family Welfare, Government of India) conducted in 2005 also corroborates the above observations and shows that only 5% of rural India uses LPG as cooking fuel. The table further shows that over 74% of the Indian population still uses firewood, dung cakes, coal, etc. as domestic fuel.

Table 1.12.1 : Main Type of Fuel Used for Cooking in India

Type of fuel	Urban Households	Rural Households	All India
Wood	23.1	73.1	59.3
Crop residues	0.5	8.1	6.0
Dung Cakes	1.4	8.4	6.5
Coal/Coke/Lignite/Charcoal	4.9	1.7	2.6
Kerosene	21.5	2.7	7.9
Electricity	0.8	0.2	0.4
LPG	46.9	5.1	16.7
Biogas	0.6	0.5	0.5
Others	0.2	0.2	0.2
Total Percent	100	100	100

Source: National Family Health Survey-II (www.nfhsindia.org)

The National Sample Survey Organisation (NSSO) also undertakes annual Household Consumer Expenditure Survey which provides detailed information on state-wise consumption of kerosene and LPG. Table 4.12.2 below based on data from this household consumption expenditure survey pertaining to various rounds shows

⁴⁷ This section draws heavily on the Report of the High Powered Committee on Financial Position of Oil companies which had been submitted on September 2008 for consideration of the Government (GoI, 2008). The High Powered Committee was constituted by the Prime Minister, Dr. Manmohan Singh with Shri B .K. Chaturvedi. Member, Planning Commission, as the Chairman.

the percentage of households in the rural and urban areas across all India using kerosene for lighting and cooking, and LPG for cooking purposes from 1999-00 till 2005-06.

Table 1.12.2: Percentage of Households using LPG and Kerosene as Primary Source of Energy

	Rural			Urban		
	Firewood	LPG	Kerosene	Firewood	LPG	Kerosene
Cooking						
1990/00	75.5	5.4	2.7	22.3	44.2	21.7
2000/01	75.4	7.2	2.4	21.0	47.4	19.4
2001/02	73.4	8.1	2.0	23.3	49.9	15.3
2002/03	74.3	8.5	1.6	21.2	51.2	14.8
2003/04	74.9	9.1	1.9	20.0	55.4	13.0
2004/05	75.7	9.0	0.9	21.5	56.4	10.4
2005/06	74.0	9.3	1.0	20.9	57.1	9.2
Lighting						
1999/00			50.6			10.3
2000/01			47.8			9.0
2001/02			47.2			7.8
2002/03			47.4			8.3
2003/04			46.6			8.3
2004/05			45.6			7.0
2005/06			42.0			7.2

Source: GoI (2008) based on 50th to 62nd Round of NSS

From table 1.12.2 it could be clearly seen that:

- a. Rural households are still dependent on firewood as a principal fuel for cooking and the dependence has reduced only marginally over the years from 75.5 per cent in 1999-00 to 74 per cent in 2005-06.
- b. Rural households use kerosene primarily for lighting. However, the percentage of rural households using kerosene for both lighting and cooking purposes has been steadily declining since 1999-00. The rural use of kerosene for lighting came down to 42 per cent in 2005-06 from 51 per cent in 1999-00. The proportion of rural households who use kerosene for cooking has always been marginal and has dropped down further to 1 per cent in 2005-06 from nearly 3 per cent in 1999-00.
- c. Urban households have been using kerosene more for cooking than for lighting purposes. However, the kerosene use across urban households shows a declining trend. The proportion of urban households who have been using kerosene for cooking came down to 9 per cent in 2005-06 from nearly 22 per cent in 1999-00. The proportion of urban households who have been using kerosene for lighting purpose also declined by about 30 per cent.

The steady decline in kerosene use for lighting purposes in rural households across all India over the aforementioned period could possibly be attributed to rise in electrification of rural homes. On the other hand, the sharp decline in use of kerosene for cooking in urban homes is owing to a sharp rise in number of LPG connections provided to urban homes over the period.

Table 1.12.3 below indicates the proportion of households using LPG and kerosene for cooking or lighting across high and low income states (classified in terms of per capita NSDP) in 2005-06 and reflects upon the disparity at the state level in trend and pattern of kerosene and LPG use.

In high income states like Punjab, Haryana and in the Union Territories (considered together), use of kerosene for the purpose of lighting both in rural and urban areas use has been observed to be insignificant as compared to low income states. On the contrary, usage of kerosene for cooking purpose has been found to be relatively higher in both the rural and urban areas of high income states with urban areas being a relatively larger user of kerosene for cooking as compared to rural areas.

It may also be observed that while higher LPG usage tends to be associated with higher income states, urban areas tend to be predominant users of LPG for cooking.

Table 1.12.3
State-wise Percentage Distribution Households using LPG and Kerosene for 2005-06

States	LPG (Cooking)		Kerosene (Cooking)		Kerosene (Lighting)	
	Rural	Urban	Rural	Urban	Rural	Urban
High Income States						
Punjab	28.7	74.7	1.8	10.8	0.5	1.0
Haryana	22.2	67.3	0.2	9.6	5.5	5.4
Union Territories	20.8	52.9	22.5	11.5	8.3	0.0
Andhra Pradesh	11.0	61.4	0.5	8.4	15.6	2.7
Karnataka	7.0	47.5	1.8	16.7	17.3	4.2
Kerala	18.7	41.7	0.6	0.5	13.8	6.8
Low Income States						
Assam	11.6	70.2	0.6	9.7	64.8	7.3
Bihar	2.0	41.3	0.1	7.2	83.8	27.7
Madhya Pradesh	2.8	66.2	0.3	3.3	32.9	4.1
Orissa	2.8	41.8	0.0	7.9	63.9	13.3
Uttar Pradesh	6.7	56.2	0.0	2.2	69.6	16.1
All India	93	57.1	1.0	9.2	42.0	72

Source: GoI (2008) based on 62nd Round of NSS

Another interesting observation that could be made from table 1.12.3 is that states with lower urban LPG usage cannot be associated on a one to one basis with higher usage of kerosene as cooking fuel. In other words kerosene does not turn out to be a substitute for LPG as an urban cooking fuel. This observation also implies a continued dependence of urban poor on biomass for cooking as reinforced by a marginal reduction of just 1.4 percent in the usage of firewood for cooking in the urban areas over the period 1999-00 to 2005-06 (see table 1.12.2).

Table 1.12.4 below juxtaposes the extent of rural electrification and kerosene allocation under PDS for the Indian states sorted by their per capita NSDP (as an indicator of economic profile). The table clearly reveals that in several states which have already achieved 100 per cent electrification of villages there are still a large continuing allocations of kerosene and cumulatively such allocations amount to nearly 43 per cent of the total

PDS allocation for the country. An insignificant 10 per cent of the total PDS kerosene allocated goes to states where the proportion of villages electrified has been 50 per cent or lower.

On disaggregating the kerosene allocations between rural and urban distribution centres (as shown in table 1.12.5) the revelation in table 24 gets reinforced all the more as it turns out that the states with cent percent rural electrification receives nearly 32 per cent of the total rural allocation and simultaneously lift 74 per cent of the total allocation to urban outlets. The aforesaid findings thus clearly go counter to the common perception that the states with lesser extent of rural electrification must be concomitantly receiving higher allocations or especially higher rural allocations of PDS kerosene and vice versa.

Table 1.12.4: Kerosene (PDS) Allocation State-wise sorted by Economic Profile for 2007-08

State	NSDP per capita	Electrified Villages	Kerosene Allocation
	Rs.	per cent	thousand metric tonnes
Goa	70,112	100.0	19.2
Haryana	38,832	100.0	145.6
Maharashtra	37,081	100.0	1,276.9
Punjab	34,929	100.0	237.2
A & N Islands	34,853	NA	6.8
Gujarat	34,157	100	743.8
Himachal Pradesh	33,805	99.4	50.5
Kerala	30,668	100.0	216.3
Tamil Nadu	29,958	100.0	570.6
Karnataka	27,291	98.1	461.9
Sikkim	26,412	90.6	5.6
Andhra Pradesh	26,211	100.0	517.9
West Bengal	25,223	83.6	754.0
Tripura	24,706	95.7	30.8
Uttaranchal	24,585	83.7	89.8
Arunachal Pradesh	23,788	64.0	9.3
Mizoram#	22,417	99.0	6.2
Meghalaya	23,420	55.0	20.7
Nagaland#	20,821	100.0	13.3
Manipur	20,326	93.6	19.9
Chattisgarh	20,151	94.0	146.9
Jharkhand	19,066	26.0	211.2
Assam	18,598	77.3	263.0
Jammu & Kashmir#	17,752	97.3	76.4
Rajasthan	17,863	98.4	401.2
Orissa	17,299	80.2	315.0
Madhya Pradesh	15,647	97.4	488.6
Uttar Pradesh	13,262	58.7	1,241.8
Bihar	7,875	50.0	663.0
All India	25,716	80.8	9,203.0

#NSDP: J & K and Nagaland for 2003/04 and Mizoram for 2004/05

Source: Adopted from GoI (2008) and based on Economic Survey 2007-08 and PPAC

Table 1.12.5: Pattern of Kerosene (PDS) Allocation State-wise vis-à-vis Rural Electrification 2007-08

Proportion of Villages Electrified	Share of Total Kerosene Allocation	Share of Total Urban Kerosene Allocation	Share of Total Rural Kerosene Allocation
100 per cent villages electrified	43%	74%	32%
90 per cent & above but less than 100 per cent	18%	13%	20%
80 per cent & above, but below 90 per cent	13%	12%	13%
Above 50 per cent but below 80 per cent	17%	0%	22%
50 per cent and below	10%	0%	13%

Source: Adopted from GoI (2008)

This startling observation becomes all the more significant in the light of the fact that the total allocation of kerosene has remained virtually unchanged at 9.2 million tonnes in 2007-08 (see the last row and last col. of table 1.12.4) as compared to 9.6 million tonnes in 2002-03, immediately after dismantling of APM (data source: PPAC), while the above evidence clearly indicates a decline in the pattern of household usage of kerosene.

Furthermore, it also needs to be underscored that in states where rural electrification has made greater headway the allocation came down only marginally. In fact for those states which have achieved cent percent village electrification the kerosene allocation in 2007-08 was just 7 percent lower than in 2002-03, as compared to the reduction of 4 percent in the all-India level of kerosene allocation (GoI, 2008).

In fine, these observations indicate -

- There has been little or no alteration in allocated quota of kerosene by the government despite a substantial reduction in household usage of kerosene in the states with higher level of rural electrification
- There has been an increased leeway for large-scale diversion of kerosene, (which has been discussed in details in Appendix 1.13)

Appendix 1.13

Diversions on Domestic LPG and Kerosene: Brief Review of Studies

The 'PDS Kerosene and Domestic LPG Subsidy Scheme' is universally applicable to all categories of consumers of these products. The subsidized kerosene is distributed through the public distribution system (PDS) and LPG is sold by distributors working with state-owned oil companies (as indicated before). About 95% of the LPG market belonged to the subsidized supplies by the state owned oil companies. The subsidy is available to all users of the domestic LPG, irrespective of their economic status. Domestic LPG thus carries non-merit subsidy and is not perceived as a fuel for the poor. The kerosene subsidy, however, comes with a quantity constraint i.e., households are allotted quotas that vary across the states and sectors they live in and whether they have an LPG connection or not. For LPG, there is no such quantity constraint (GoI, 2006).

UNDP and ESMAP conducted a joint study in 2003 (UNDP/ESMAP, 2003) with the primary objective of facilitating access to clean fuels, in view of the significant health and social benefits of switching away from traditional biomass. This study found that the price subsidy on kerosene and LPG had been ineffective in expanding the uptake of these fuels as primary household fuels among the poor, and also found the subsidy as fiscally unsustainable. The study was in favour of complete phase-out of the price subsidies on kerosene and LPG and fostering a vibrant, open and competitive market for these fuels, given the social objectives.

Another study by Gangopadhyay et al. (2004) observed that neither the kerosene nor the LPG subsidy reached the intended poor beneficiaries. The study relied upon NSSO data on consumption expenditure surveys for 1993/94 and 1999/2000. The LPG subsidy had been used largely by the higher expenditure groups in the urban sector and was unlikely to have much effect on biomass use. Kerosene on the other hand had been widely used but the subsidy on the fuel was badly targeted. The study further observed that about 50 per cent of PDS kerosene supplied never reached the targeted households. The study noted that on a per capita basis, the urban sector received a much larger subsidy. Moreover, the rural subsidy was not that progressive as higher expenditure groups received more subsidized kerosene than lower income groups. The study inferred that the kerosene subsidy turned out to be highly expensive as nearly half of the subsidized kerosene supplies got diverted and never reached consumers.

A study completed in June 2005 by the National Institute of Public Finance and Policy (NIPFP) titled "Modeling Economic Impact of Oil Price Changes on Indian Economy-Methods and Applications" (NIPFP, 2005) indicated the fuel usage pattern in rural and urban India for cooking and lighting purposes, wherein an overwhelming proportion of rural households used biomass as their primary fuel for cooking. On the other hand, in urban areas the percentage of households using LPG and kerosene for cooking was much higher than the rural households. Kerosene was observed as having been pre-dominantly used for lighting purposes in rural areas whereas this figure had been observed as very low in urban areas.

The aforesaid studies thus revealed two critical aspects:

- First, the subsidies for kerosene and LPG for cooking purpose, which can be termed as modern fossil fuels, predominately accrued to the urban sector.
- Second, despite subsidizing for decades, the fuel consumption pattern did not shift away from biomass to these modern fuels in rural areas.

Furthermore, PDS kerosene, being heavily subsidized, also geared up the illegal practice to divert the fuel for adulteration with diesel, which had always been priced at a much higher rate. In view of this, the MoPNG commissioned a study to National Council of Applied Economic Research (NCAER) to examine the kerosene distribution system across states, assess the demand for PDS kerosene and determine future trends. The study titled “Comprehensive Study to Assess the Genuine Demand and Requirement of Kerosene” submitted in October 2005 by NCAER (NCAER, 2005) estimated that more than 38 per cent of kerosene meant for distribution through public distribution system got diverted to the market. It was sold to households without ration cards (2.1 per cent) as well as to others for non-households usage (18.1 per cent). This prevented the fuel from reaching the targeted population. Classifying the states in terms of the magnitude of leakage the study observed that more than 50 per cent of the PDS sale in Bihar, Chandigarh, Delhi, Jharkhand, Orissa and Punjab got diverted. Very high leakage (about 40-50 per cent of sale of PDS kerosene) had been observed in Assam, Chhattisgarh, Tamil Nadu and Uttaranchal. High leakage (20-40 per cent) was observed in Andhra Pradesh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Meghalaya, Rajasthan and Uttar Pradesh. Less than 20 per cent diversion was observed in Goa, Himachal Pradesh, Kerala and West Bengal. The study estimated that the kerosene usage penetration in the country is about 94.4, 68.9 and 86.9 per cent respectively for rural, urban and all areas. Per capita consumption of kerosene using households had been estimated by the study as 55 litres per year. In view of the above situation, the study suggested that the kerosene distribution should follow a method similar to that of PDS grains. All households possessing APL (above poverty line) cards should purchase kerosene at the market price (at economic cost to the government) and subsidised PDS kerosene should be made available to people with BPL, Annapurna, Antyodaya or such cards which indicates low income status of households. The study opined that taking out the APL card holders from the purview of subsidies and controlling the leakages would bring down the subsidy bill substantially.

Two more studies were commissioned by Petrofed (Petroleum Federation of India) to IIM Ahmedabad on LPG and Kerosene distribution and related subsidy administration. The first study titled ‘LPG Distribution and Related Subsidy Administration-Generation and Assessment Options for Improvement of the System’ was completed in December 2004 and the second study titled ‘Kerosene Distribution and Related Subsidy Administration and Generation and Assessment Options for Improvement of the System’ was completed in July 2006.

The first report on LPG distribution and administration of subsidy contended that the best option to curtail LPG subsidy would be to eliminate it straight away but the report also warned that high input (crude) prices coupled with lack of preparatory groundwork might lead to political mobilisation against such a process. The second best option as identified by the study was to provide direct subsidy to BPL families through coupon which would allow these families to pay cash equal to retail price less the subsidy per coupon. The amount paid and a coupon would entitle each family to a 14.2 Kg. LPG cylinder. However, the study underscored that targeting LPG subsidy to BPL families might either lead to improper identification of beneficiaries (Type I error) or non-BPL consumers taking connections (Type II error) or BPL consumers opting for multiple connections and hence should be monitored closely by the oil marketing companies in cooperation with district and local administration. The study further pointed out that irrespective of the method adopted for subsidy reduction there is an urgent need to examine the taxes built in the estimated gross subsidy and consider net subsidy as the basis of elimination. In view of the volatility of input (crude) costs on retail selling prices, the study also recognised the necessity of oversight or regulation by a regulatory authority to review the input costs periodically and allow changes. Other than moving towards direct subsidy in the form of coupons the study emphasized on the simultaneous pursuance of rationalization of prices and tax reforms in the petroleum sector in order to minimize distortions that lead to misuse, diversion, and revenue loss along with added environmental and governance problems.

The second study carried out by IIMA examined the current design of the public distribution system and price based subsidisation of kerosene to bring out the problems that are inherent in such mechanism and argued that they should be replaced by market based mechanism. In view of the well-documented failure of TPDS (Targeted Public Distribution System) in capturing the Type I and Type II error in selection of beneficiaries, as indicated in the preceding paragraph, the study recommended adoption of a direct subsidy scheme which relies on free market pricing of kerosene and would be largely different from the current method of uniform low pricing. The study suggested that the subsidy could be disbursed to the poor through smart cards and the accounting of disbursement should be such that the disbursement is recorded at the point of transaction and gets immediately captured in a large centralized database, thereby creating a permanent audit trail, akin to operation of credit cards. The proposed system would almost completely eliminate the indirect losses arising from distorted choices since the price of kerosene would be market determined and therefore not relatively cheap as compared to alternate fuels. As an intended outcome, the purchasing power put to the hands of beneficiaries would allow them to use it for spending on their choice of commodities and services and thereby not only enhance the use of subsidy to the full but would also add substantially to the welfare of these poor households. This, as the study opines, should also make direct subsidies politically rewarding. The study underscored that the gain to the economy and society at large from elimination of indirect losses that would otherwise arise due to sub-optimal choices of fuel-mix, product-mix, and asset mix would be immense as they would be completely eliminated in the new system.

In view of the fact that LPG and kerosene subsidies are ineffective in serving the desired objectives, the Ministry of Finance in their report of December 2004 titled “Central Government Subsidies in India” recommended for the removal of LPG subsidy in a gradual manner; or at least a substantial reduction in the subsidy element. However for kerosene they suggested the adoption of a more cautious approach in the reduction of subsidies since about a half of the rural households use kerosene primarily to light their homes. The reports did not consider cash transfer to the poor as a suitable alternate strategy for inducing a shift toward hydrocarbons for use as cooking fuels. The reports expressed concern that the enhanced income from modest cash transfer might induce the urban poor and all rural households to use more fuel wood rather than spending the additional income for the purpose for which it is intended. Accordingly, both the reports suggested that an alternate approach could be channelization of all sales of kerosene through the retail markets, and encouraging small distributors of fuels and issuance of coupons only to poor ration card holders with entitlement to purchase kerosene from a retailer at the subsidized price. This would also discourage direct diversion of subsidized kerosene to other sectors.

Appendix 1.14

Recent Remedial Measures Undertaken or Proposed by the Government and their Success or Failure

A. Kerosene

Regarding Kerosene the Ministry of Petroleum and Natural Gas has been reviewing steps taken to curb adulteration from time to time. In the process, several technological and institutional measures have been taken to contain adulteration. Some of the recent steps taken by the Ministry in the post-APM era could be summarized as below⁴⁸:

1. **Automation of Retail Outlets:** In order to monitor the activities at retail outlets by adopting the latest technological improvements, MoPNG has directed the oil marketing companies towards complete automation of retail outlets selling more than 200 KL per month. The automation process is still ongoing.
2. **Third Party Certification of Retail Outlets:** OMCs have been directed to gear up third party inspection and certification of all the retail outlets selling more than 100 KL per month to ensure the quality of fuel supplied by these outlets and prevent adulteration.
3. **Monitoring of Movement of Tank Trucks through Global Positioning System (GPS)**⁴⁹: In order to prevent adulteration during transportation, OMCs have been directed to install GPS for complete monitoring of the movement of all the company owned or dealer owned or contractor owned tank trucks.
4. **Marker System in Kerosene:** To check adulteration in auto fuels, Government directed the public sector OMCs to introduce marker in adulterants. OMCs have commenced introduction of marker in kerosene on all India basis with effect from 1 October 2006. Under the new system, marker is being put in kerosene in all depots.

⁴⁸ Based on answers provided by MoPNG to the Rajya Sabha Unstarred Question No. 672 (available at : <http://164.100.47.5:8080/members/Website/quest.asp?qref=121216>).

⁴⁹ GPS is funded by and controlled by the U. S. Department of Defense (DOD). While there are many thousands of civil users of GPS world-wide, the system was designed for and is operated by the U. S. military. GPS provides specially coded satellite signals that can be processed in a GPS receiver, enabling the receiver to compute position, velocity and time. Four GPS satellite signals are used to compute positions in three dimensions and the time offset in the receiver clock.(source: http://www.colorado.edu/geography/gcraft/notes/gps/gps_f.html).

5. Revising the Marketing Discipline Guidelines: The Marketing Discipline Guidelines (MDG) under which the OMCs take penal actions against the erring dealers have been revised during August 2005 making the penal actions more stringent. As per stipulations in MDG a dealership would be terminated in the first instance of adulteration itself.

7 Smart Card Scheme: With the objective of ensuring that the benefit of the subsidy reaches the targeted consumers in an efficient and cost-effective manner and to prevent any leakages, the MoPNG had proposed in 2007 to introduce Smart Card System for distribution of PDS kerosene. The scheme was proposed on an experimental basis in three districts - Latur in Maharashtra, Nalanda in Bihar and Nainital in Uttaranchal in 2007. In the Pilot project, subsidized kerosene was proposed to be made available to BPL families while all other ration card holders would be given non-subsidized kerosene. Oil Marketing Companies (OMCs) would be ensuring adequate availability of PDS as well as non-subsidized kerosene during the entire period of implementation of the Pilot project. However, the Ministry encountered stiff resistance from the aforesaid states as they wanted to include above poverty line (APL) families as well, to which MoPNG was opposed, as it would negate the very idea of introducing the scheme. Thus the pilot project itself had to be put on hold.

6. Jan Kerosene Pariyojna (JKP): In an effort to effectively target subsidy on PDS Kerosene, government launched a scheme titled Jan Kerosene Pariyojana (JKP) on October 2, 2005 in selected blocks of some states. Under this scheme, OMCs have created infrastructure at wholesaler locations by providing underground tanks, dispensing units, specially painted blue barrels and barred sheds. Unlike the traditional system of distributing kerosene, delivery under JKP is made at wholesaler points by OMCs through dedicated tankers fixed with Global Positioning System (GPS).

In order to assess the impact of implementing JKP on distribution of PDS Kerosene, the Petroleum Planning and Analysis Cell (PPAC) commissioned a study to NCAER in 2007 to undertake impact assessment of JKP. The impact assessment study (NCAER, 2007) found that while there has been improvement in awareness of the kerosene consumers about their entitlement and about the monitoring and complaint redressal mechanism entailed under JKP, the benefit from JKP was still lower than the cost of the scheme, without imputing savings from elimination of losses arising from diversion. The study further revealed that while some states fared better, others failed primarily owing to a disparity in the level of involvement of Panchayati Raj Institutions (PRIs) in the monitoring mechanism. In fact, the level of involvement of the PRIs has been observed as having a positive correlation with the performance of the scheme. The study concluded that there was considerable scope for rationalization of cost as well as increase in the benefits from JKP. The proposal of regularizing the scheme was under consideration of the Government as of September, 2008.

B. Domestic LPG

Around 2005-06, there had been widespread reports of illegal LPG cylinder diversions from the subsidized household sector to the unsubsidized commercial sector. In order to prevent that Government instituted random

checks and raids. Inspectors were sent around the country to monitor the monthly sales patterns of LPG distributors and dealers to check if there were any unusual distortions on account of these illegal diversions. This action did seem to have some effect at that time.

But, the problem has resurfaced again due to introduction of piped natural gas in Indian cities. As of September 2008, piped natural gas supplies are restricted to three states – Maharashtra, Delhi and Gujarat. In Mumbai and Delhi, consumers who are now receiving piped gas have been returning their unwanted cylinders to LPG distributors. But the LPG distributors in many cases have been continuing to take their allocated subsidized LPG which they have then been reselling to the higher-paying commercial sector. The differential between commercial and household LPG prices is so large that the profits earned are sizeable⁵⁰. This observation is all the more alarming in view of the fact mounting subsidies are being provided every year on a 14.2 kg LPG cylinder. In fact, concerns have also been raised that in absence of a specific strategy or policy for withdrawing the subsidised LPG cylinders from circulations, there is a high possibility that those cylinders will be diverted to the black market for non-domestic use.

Earlier in 2006-07, the Ministry of Petroleum and Natural Gas came out with an initiative to sell LPG at market rates to people with permanent account number (PAN) cards issued by the income tax department. However the initiative also had to be scrapped due to resistance.

In order to eliminate/reduce diversion of domestic LPG to automotive sector and other commercial usage, oil industry initiated measures like refill audit to control the diversion. Moreover Auto LPG dispensing facilities have been set up in select areas to control pollution and to reduce or eliminate diversion of domestic LPG to automotive sector. This measure has yielded results and Auto LPG sales have gone up substantially over 2006 and 2007. Government had also approved a scheme for different colour coding of domestic and non-domestic cylinders to prevent diversion of domestic LPG cylinders.

The Report of the Working Group on Petroleum and Natural Gas for the Eleventh Plan recommended that in order to encourage use of auto LPG, Auto LPG Dispensing Stations (ALDS) should be set up on priority basis in big towns which are not likely to receive CNG in the short to medium term.

As of August 2008, two measures were under consideration by the Ministry:

- Rolling back the scheme for distribution of subsidized LPG in every area where piped gas connections are provided

⁵⁰ Subsidised LPG and Black Market in India , Opinion, Poten & Partners (available at : www.poten.com/Opinion.aspx?id=4218)

- Drawing up a scheme for focused and direct subsidization for LPG to consumers living in rural and backward areas which are not covered by piped gas networks and thereby replacing their use of subsidized kerosene.

Due to these measures subsidized LPG would more likely reach targeted people, instead of unjustified supply to middle class and more affluent sections of society in urban areas who have been constantly enjoying the double subsidy benefit. The Planning Commission further suggested that any surpluses in LPG cylinders that may arise on account of introduction of piped natural gas could be supplied to rural areas for cooking or lighting purposes to replace subsidised kerosene⁵¹.

However, the first measure may not be without problems. It is quite obvious that due to expansion of gas grids LPG distributors in urban areas would lose their business. Thus, concerns have also been raised that the government might face strong resistance which could even amount to sabotaging of the piped gas network itself.

For improved governance and better targeting of items which includes, among others, kerosene and LPG the government is planning to issue a unique identification (ID) to every citizen from December 2009⁵². In line with the suggestion given in the Plan document of the Eleventh Five Year Plan the subsidy amount would be directly credited to the individual smart card owners which could be redeemed at authorized suppliers like fair price shops, kerosene or domestic LPG dealers etc. According to the Plan document, the smart card would have a memory partitioned into distinct modules representing different entitlement groups for which implicit/explicit subsidies are given. These includes, among others, kerosene and domestic LPG.

⁵¹ Anupama Airy, 'Double Benefit troubles piped gas', The Financial Express, August 19, 2008.

⁵² Rajeev Jayaswal, ' Unique Ids to deliver goods from Dec'09', The Economic Times, November 10, 2008.

APPENDIX 1.15

**State-wise Recoverable and Irrecoverable Taxes as of 1.10.2008 on Petrol (MS), Diesel (HSD),
Domestic Kerosene (SKO) and Domestic LPG**

	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
1	MAHARASHTRA				
	<u>Recoverable Tax</u>				
	VAT	25%+Re.1/Ltr	23.00	4.00	NIL
	<u>Irrecoverable Tax</u>				
	CST	2.00	2.00	2.00	NIL
	BMC Octroi	2.00	2.00	0.00	2.00
	Entry Tax	27%+Re.1/Ltr		0.00	0.00
	Note: 1. In Mumbai, Thane and Navi Mumbai area, the rate of VAT for MS & HSD is 26 % & additional surcharge is Rs.1/ltr. on MS 2. Cess @1% for sale within Municipality(Mun.) limits and 0.1% for sale outside Mun. limits is levied by Navi Mumbai Mun. Corpn. on MS & HSD imported into the Mun. limits of Navi Mumbai. 3. Entry Tax is leviable on import of petroleum products in the State of Maharashtra. Input credit for entry tax is available on resale of products within Maharashtra/interstate sales 4. Exemption on inter oil company transactions is not available under VAT. However, input credit will be available to OMCs on subsequent sales. In case of local purchase of products and subsequent stock transfer outside the state, input credit will be available to the extent of VAT in excess of 4%				
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
2	GUJARAT				
	<u>Recoverable Tax</u>				
	VAT	23.00	21.00	0.00	Nil
	Cess	2.00	3.00	0.00	0.00
	<u>Irrecoverable Tax</u>				
	Entry Tax	0.00	21.60	0.00	0.00
	CST	2.00	2.00	2.00	Nil
	NOTE: 1. VAT is leviable at multipoint on all products. Exemption on inter oil company transactions is not available. However, input credit will be available to OMCs on subsequent sales. 2. Entry Tax paid on stock transfers is allowed as set off against VAT payable. 3. In case of local purchase of products within the state and subsequent transfer to other states, input credit will be available to the extent of VAT in excess of 4% 4. Cess is payable under the Gujarat Motor Spirit Cess Act on billing rate + VAT. Cess is exempt between Oil companies.				
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
3	MADHYA PRADESH				
	<u>Recoverable Tax</u>				
	VAT	28.75	23.00	4.00	4.00
	Entry Tax	1.00	1.00		6.47
	<u>Irrecoverable Tax</u>				
	CST	2.00	2.00	2.00	2.00
	NOTE : 1. VAT on MS, HSD is at first point only. For other products VAT is multi point 2. Exemption on inter oil company transactions has been withdrawn. There is no input tax credit on MS, HSD & ATF. Therefore, subsequent sale of these products by oil companies will be on composite basis.				

APPENDIX 1.15 (continued)					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
4	CHATTISGARH <u>Recoverable Tax</u> VAT Entry Tax <u>Irrecoverable Tax</u> CST	22.00 2.00	22.00 2.00	4.00 2.00	Nil 1.00 2.00
NOTE : 1. VAT on MS, HSD is at first point only. For other products VAT is multi point. 2. Exemption on inter oil company transactions has been withdrawn. There is no input tax credit on MS, HSD, SKO & LPG. Therefore, subsequent sales of these products by oil companies will be on composite basis					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
5	GOA <u>Recoverable Tax</u> VAT <u>Irrecoverable Tax</u> CST	20.00 2.00	19.00 2.00	4.00 2.00	Nil Nil
NOTE : No input credit is available on MS and HSD.					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
6	UTTAR PRADESH <u>Recoverable Tax</u> VAT <u>Irrecoverable Tax</u> CST Entry Tax	23.62 2.00	16.16 2.00 5.00	4.00 2.00	Nil Nil
NOTE: 1. VAT on MS, HSD is at first point only. For other products VAT is multi point and input credit will be available to the registered dealers. 2. State Development Tax would no longer be applicable on any product. 3. Entry tax is leviable on entry of products into a local area from any place outside that local area including a place outside the state of Uttar Pradesh for consumption, use or sale therein and can be set off against sales tax payable.					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
7	UTTARAKHAND <u>Recoverable Tax</u> VAT Tax Rebate (effective 14.6.08)	25.00 (Re 1/Ltr)	21.00 (Re 1/Ltr)	12.50	Nil
NOTE: 1. VAT on MS, HSD is at first point only. For other products VAT is multi point and input credit will be available to the registered dealers 2. Exemption on inter oil company transactions has been withdrawn. Therefore, subsequent sale products by oil companies will be on composite basis					

APPENDIX 1.15 (continued)					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
8	DELHI <u>Recoverable Tax</u> VAT <u>Irrecoverable Tax</u> CST	20.00 2.00	12.50 2.00	4.00 2.00	4.00 2.00
NOTE: 1. Exemption on Inter oil company transactions is not available under VAT. However, input credit will be available to OMCs on subsequent sales. 2. In case of local purchase of products within the state and subsequent transfer to other states, input credit will be available to the extent of VAT in excess of 4% 3. State Subsidy of Rs. 40/- for 14.2 kg implemented eff. 9.6.2008					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
9	HIMACHAL PRADESH Recoverable Tax VAT	25.00	14.00	0.00	4.00
NOTE: 1. In case of local purchase of products within the state and subsequent transfer to other states, input credit will be available to the extent of VAT in excess of 4% 2. VAT on MS and HSD is at first point only. No input credit for these products will be available.					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
10	JAMMU & KASHMIR <u>Recoverable Tax</u> Sales Tax VAT Cess	20.00 Rs.1000/KL	12.00	4.00	4.00
NOTE: In case of local purchase of products within the state and subsequent transfer to other states, input credit will be available to the extent of VAT in excess of 4%					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
11	PUNJAB <u>Recoverable Tax</u> VAT Cess <u>Irrecoverable Tax</u> CST	27.5(*) Re.1 /Ltr 2.00	8.8(*) 2.00	4.00 2.00	4(*) 2.00
NOTE: 1. Exemption on inter oil company transactions is not available under VAT. However, input credit will be available to OMCs on subsequent sales. 2. In case of local purchase of products within the state and subsequent transfer to other states, input credit will be available to the extent of VAT in excess of 4% *3. VAT rate will be 27.5%,8.8% & 4% on MS, HSD & LPG respectively on the taxable turnover before the price hike by the Central Govt. on 4.6.2008 and VAT rate will be 13.75%, 4.4% & 2% on MS, HSD & LPG respectively on the increased taxable turnover as a result of the price hike announced by the Central Government on 4.6.2008.					

APPENDIX 1.15 (continued)					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
12	RAJASTHAN <u>Recoverable Tax</u> VAT Cess	28.00 Rs.0.50/Ltr.	18.00 Rs.0.50/Ltr.	4.00	Nil
NOTE : 1. VAT is leviable at singlepoint at first stage on MS and HSD. 2. Interoil company sales of MS and HSD are not exempted from VAT. For other products, input credit will be available. 3. In case of local purchase of products within the state and subsequent transfer to other states, input credit will be available to the extent of VAT in excess of 4%					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
13	HARYANA <u>Recoverable Tax</u> VAT <u>Irrecoverable Tax</u> CST	20.00 2.00	8.8 2.00	4.00 2.00	NIL NIL
NOTES: 1. Effective 8.7.02, tax @ 4 % is payable on interoil company sales transactions 2. In case of local purchase of products within the state and subsequent transfer to other states, input credit will be available to the extent of VAT in excess of 4% 2. Even though there is provision of Purchase Tax under the Haryana VAT Act, there will be no purchase tax liability on oil companies due to payment of VAT on inter oil company transactions price.					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
14	CHANDIGARH <u>Recoverable Tax</u> VAT Cess	20.00 Rs.10/KL	12.50 Rs.10/KL	4.00	2.00
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
15	ANDHRA PRADESH <u>Recoverable Tax</u> VAT <u>Irrecoverable Tax</u> Purchase Tax CST	33.00 4.00 2.00	22.25 4.00 2.00	4.00 2.00	4.00 2.00
NOTES: 1. VAT on MS, HSD & PDS SKO is only at first point. For other products, VAT is applicable at each stage of sales 2. Purchase Tax is payable if the product is bought within the state from an Oil Company and transferred to other states. 3. Exemption on Inter oil company transactions for products other than MS & HSD is not available. However, input credit will be available to OMCs on subsequent sales. In case of local purchase of products within the state and subsequent transfer to other states, input credit will be available to the extent of VAT in excess of 4% 4. CST is irrecoverable only in the case of OMC CST sale. It is recoverable in case of CST sale to customers. 5. State Subsidy of Rs. 50/- for 14.2 kg LPG cylinder implemented with effect from 6.6.2008.					

APPENDIX 1.15 (continued)					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
16	TAMIL NADU <u>Recoverable Tax</u> VAT	30.00	21.43	4.00(Note 6)	4.00(Note 6)
	<u>Irrecoverable Tax</u> Purchase Tax CST	9.00 2.00	9.00 2.00	2.00	2.00
<p>NOTE: 1. VAT on MS, HSD is at first point of sale and no input tax credit is available on these products. Inter oil company transactions of these products are exempt from VAT</p> <p>2. Exemption on inter oil company transactions for products other than MS and HSD above is not available. However, input credit will be available to OMCs on subsequent sales.</p> <p>3. Purchase tax is payable if the product is bought within the state from an oil company and transferred to other states or consumed within the state by the purchasing oil company.</p> <p>4. In case of local purchase of products (other than MS, HSD) within the state and subsequent transfer to other states, input credit will be available to the extent of VAT in excess of 4%</p> <p>5. CST to Unregistered dealers is levied at 10% or regular VAT rate whichever is higher.</p> <p>6. Second & subsequent sale of LPG Domestic by distributor other than oil company and SKO under PDS by wholesaler/retail distributor/ fair price shops is exempt from VAT.</p> <p>7. As per goods based concession notification, rate of VAT for all the products above other than MS, HSD are @4% effective 16.07.07</p> <p>8. CST is irrecoverable only in the case of OMC CST sale. It is recoverable in CST sale to customers.</p>					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
17	PONDICHERRY <u>Recoverable Tax</u> VAT	12.50	12.50		1.00
NOTE: 1. VAT implemented eff. 01.07.2007					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
18	KERALA <u>Recoverable Tax</u> Sales Tax	26.03	22.49		
	Social Security Cess @1% on Sales tax and addl. Tax	1.00	1.00		
	VAT			4.00	4.00
	Social Security Cess @1% on VAT			1.00	
	<u>Irrecoverable Tax</u> Purchase Tax CST	Refer Note 2	Refer Note 2	Refer Note 2	Refer Note 2
<p>NOTE: 1. For products covered under VAT, exemption on inter oil company transactions is not available. However, input credit will be available to OMCs on subsequent sales</p> <p>2. Inter State Oil Company sale of MS, HSD, SKO & LPG produced with in the state is exempt from CST eff ective 12.10.2006</p> <p>3. Purchase Tax is payable if the product is bought within the state from an Oil Company and transferred to other states.</p> <p>4. CST is irrecoverable only in the case of OMC CST sale. It is recoverable in CST sale to customers.</p>					

APPENDIX 1.15 (continued)					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
19	KARNATAKA <u>Recoverable Tax</u> Sales Tax Entry Tax VAT <u>Irrecoverable Tax</u> Purchase Tax CST	25.00 5.00 28.00 2.00	18.00 5.00 4.00 2.00	4.00 4.00 2.00	1.00 1.00
NOTE: 1. MS and HSD though covered under KST Act, are exempt from Road & Infrastructure Cess. Road & Infrastructure Cess is not applicable for products covered under VAT. 2. For products covered under VAT, exemption on inter oil company transactions is not available. However, input credit will be available to OMCs on subsequent sales. In case of local purchase of products within the state and subsequent transfer to other states, no input credit will be available 3. CST is irrecoverable only in the case of OMC CST sale. It is recoverable in case of CST sale to customers. In case of inter state sales of LPG (Domestic) the CST rate is 1%					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
20	ORISSA <u>Recoverable Tax</u> VAT Entry tax <u>Irrecoverable Tax</u> CST	18.00 1.00 2.00	18.00 1.00 2.00	4.00 1.00 2.00	4.00 1.00 2.00
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
21	ASSAM <u>Recoverable Tax</u> VAT <u>Irrecoverable Tax</u> Purchase Tax CST	25.75%-Re.1/Ltr 4.00 2.00	15.5%-Re.1/Ltr 4.00 2.00	2.00 4.00 2.00	4.00 4.00 2.00
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
22	BIHAR <u>Recoverable Tax</u> VAT <u>Irrecoverable Tax</u> Surcharge on VAT CST Entry Tax	24.50 2.00 16.00	18.36 10.00 2.00 16.00	12.50 2.00 8.00	1.00 1.00 8.00

APPENDIX 1.15 (continued)					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
22	JHARKAND				
	<u>Recoverable Tax</u> VAT	20.00	14.50	4.00	4.00
	<u>Irrecoverable Tax</u> CST	2.00	2.00	2.00	2.00
NOTE: 1. Inter oil company transaction are exempted from VAT					
	State/Tax	MS	HSD	SKO Domestic	LPG Domestic
24	WEST BENGAL				
	<u>Recoverable Tax</u> Sales Tax	25.00	17.00		
	Sales Tax Rebate (effective 1.7.2008)	(2090.00)	(1360.00)		
	Cess	Rs.1000/KL	Rs.1000/KL	0.00	
	VAT			4.00	4.00
	<u>Irrecoverable Tax</u> Additional Tax on Sales Tax	20.00	20.00		
	CST	2.00	2.00	2.00	2.00
NOTE: 1. There is a tax rebate of Rs.17/KL on MS Sales.					

Source: PPAC