Abstract
Two major petroleum products, petrol and diesel are widely used all over the world. If their pricing is left free on the mechanism of market forces then they will reach to an unaffordable height. This paper deals with pricing scenario in Indian oil Industry starting from administered price mechanism (APM) then by dismantling of this method and then moving towards market determined price mechanism and then later reverting back to import parity pricing for controlled products. To ensure that socio-economic benefits accrue to general public, public sector enterprises provide petrol, diesel, kerosene and domestic LPG products at subsidized rates which become a major reason for loss incurred by PSUs like Hindustan Petroleum Corporation Limited (HPCL). Therefore this paper analyzes the relation between cost, price, profit and explores the shortest route for delivery of petroleum products for cost reduction.

Key Words: Pricing policy, Petroleum products, Short route, Profit, Cost, Performance, HPCL.

INTRODUCTION
Pricing method that has been adopted by the oil industry is “Import Parity Pricing” Principle. This pricing is done with that cost in mind, which would be applicable on any importer, if he imports that product. Import parity pricing is adopted by suppliers of a good for their sales to domestic customers.

HPCL is a Public Sector Undertaking(PSU) a Navratna Status, and a Fortune 500 and Forbes 2000 company, with an annual turnover of Rs 2,15,675 Crores (US$ 39.72 Billions) during FY 2012-13, having a strong market infrastructure and about 20% Marketing share in India among PSUs. Crude Thruput and Market Sales (including exports) of HPCL’s are 16 Million Metric Tonnes (MMT) and 30 MMT respectively in 2013.

Categorization of Petroleum Products:
Petroleum products are divided into two categories viz. Controlled products and Free Trade Products (FTP)/Decontrolled products. As on September 1995, the products under these categories were as under:

**CONTROLLED PRODUCTS:**
- High Speed Diesel (HSD)
- Superior Kerosene Oil (SKO)
- Liquefied Petroleum Gas (LPG)

**FREE TRADE PRODUCTS:**
- Motor Spirit (MS)
- Light Diesel Oil (LDO)

Controlled products are special products whose ceiling selling prices are also determined by the Government but their prices were fixed on a basis different from that applicable to formula products. The oil companies are free to fix their own selling prices for free trade products. However, Government regulates the ‘transfer price’ of a free trade product from refinery to the marketing company.

OBJECTIVES OF STUDY
- To study and analyze the present pricing process and profitability of HPCL.
- To study and analyze relation between cost, price and profit of HPCL.
- To suggest the shortest route for delivery of petroleum products for cost reduction.

RESEARCH METHODOLOGY
In this study a Descriptive/qualitative research is done. Secondary data related to prices of petroleum product, profitability ratios were taken from the...
This study has been done particularly for Delhi region. Last 5 years data ranging from 2009-13 has been taken.

**ANALYSIS AND INTERPRETATION**

**Pricing Mechanism for Product**

The calculation at the zonal level is based on the BCSP (Basic Ceiling Selling Price) as calculated and suggested by the HQO and is mentioned in the PPFA (product price folder advice) which is served by the head office to all the zonal offices.

Explanation is based on the price that was done on 2-7-2013 for Delhi state for the three major products HSD (EURO IV), MS (EURO IV) and MS Power (EURO IV).

**BCSP:** It is the value of the oil after refining when it is ready at refinery for distribution to different depots. It does not include freight, excise duty, octroi, vat, dealer commission or any other similar charges.

**Excise Duty:**

<table>
<thead>
<tr>
<th>Product</th>
<th>HSD (EURO IV)</th>
<th>MS (EURO IV)</th>
<th>MS Power (EURO IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excise</td>
<td>3563.80</td>
<td>9476.00</td>
<td>15965.00</td>
</tr>
</tbody>
</table>

**Additive Cost:**

<table>
<thead>
<tr>
<th>Product</th>
<th>HSD (EURO IV)</th>
<th>MS (EURO IV)</th>
<th>MS Power (EURO IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additive</td>
<td>0.00</td>
<td>0.00</td>
<td>847.17</td>
</tr>
</tbody>
</table>

**NRF (national railway freight):** From refineries the product moves to various depots or stock point through railways pipelines or roads. For the purpose of calculation of prices of controlled products (MS, HSD, domestic LPG, SKO etc.) a fixed amount of railway freight is decided by the govt. and announced in the railway budget. Since pricing at depot is done on least cost freight basis hence every depot is linked to the nearest refinery irrespective of the company that owns it.

<table>
<thead>
<tr>
<th>Product</th>
<th>HSD (EURO IV)</th>
<th>MS (EURO IV)</th>
<th>MS Power (EURO IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRF</td>
<td>102.68</td>
<td>91.96</td>
<td>91.96</td>
</tr>
</tbody>
</table>

**State Specific Cost:** It is charged on different controlled products at a different rate depending upon the state to which it is being delivered.

<table>
<thead>
<tr>
<th>Product</th>
<th>HSD (EURO IV)</th>
<th>MS (EURO IV)</th>
<th>MS Power (EURO IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSCharges</td>
<td>58.76</td>
<td>43.99</td>
<td>43.99</td>
</tr>
</tbody>
</table>

FDZ charges (free delivery zone charge): There is a fixed distance for which the delivery charges remain fixed. However for any extra kilometer (KM) there is a fixed charge per kiloliter which is added to the base charge for instance in Delhi the FDZ is 39KM.

<table>
<thead>
<tr>
<th>Product</th>
<th>HSD (EURO IV)</th>
<th>MS (EURO IV)</th>
<th>MS Power (EURO IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDZ Charges</td>
<td>145.00</td>
<td>145.00</td>
<td>145.00</td>
</tr>
</tbody>
</table>

RPO factor (retail pump outlet factor): It includes maintenance cost of RPO and other such expenses which are incurred by the company this factor is fixed by the company at a differential rate for a differential product.

<table>
<thead>
<tr>
<th>Product</th>
<th>HSD (EURO IV)</th>
<th>MS (EURO IV)</th>
<th>MS Power (EURO IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPO Factor</td>
<td>21.27</td>
<td>40.36</td>
<td>40.36</td>
</tr>
</tbody>
</table>

PRA (Product Rate Advice): The sum of all above specified components is known as the PRA. It is a price of final product at the depot before it is taken to the market for the final sale.

<table>
<thead>
<tr>
<th>Product</th>
<th>HSD (EURO IV)</th>
<th>MS (EURO IV)</th>
<th>MS Power (EURO IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRA Rate</td>
<td>6493.31</td>
<td>55893.33</td>
<td>62795.50</td>
</tr>
</tbody>
</table>

Product Price Adjusting Factor (PPA Factor): it comes into operation when a pre-determined increase or decrease is to be done in RSP (retail selling price) of controlled products and difference between the actual and suggested RSP which arises because of revision of various other components is absorbed by PPA.

Octroi charges: This includes any changes in the form of toll tax, octroi, MCD charges or similar charges that are paid by while transportation of the products.

Delivery charges: It is the expense that is incurred for the transportation of the final product from the depot to retail pump outlet for final sale.
TRSA amount (Town Special Rate Advice): It is a sum of PRA amount, delivery charges and entry taxes paid from depot to RPO.

<table>
<thead>
<tr>
<th></th>
<th>HSD (EURO IV)</th>
<th>MS (EURO IV)</th>
<th>MS POWER (EURO IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRSA AMOUNT</td>
<td>43849.31</td>
<td>55889.53</td>
<td>62725.50</td>
</tr>
</tbody>
</table>

Addtional Tax on dealer's commission:

<table>
<thead>
<tr>
<th></th>
<th>HSD (EURO IV)</th>
<th>MS (EURO IV)</th>
<th>MS POWER (EURO IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Tax</td>
<td>1089.00</td>
<td>1794.00</td>
<td>2054.00</td>
</tr>
</tbody>
</table>

Sales Tax (ST)/VAT: sales tax in Delhi is applicable at the following rates. It is charged on the sum of TSRA and all ambience funds.

<table>
<thead>
<tr>
<th></th>
<th>HSD (EURO IV)</th>
<th>MS (EURO IV)</th>
<th>MS POWER (EURO IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAT</td>
<td>5512.41</td>
<td>11077.87</td>
<td>12545.10</td>
</tr>
</tbody>
</table>

Shrinkage Allowance: the density of liquid changes with the environmental temperature when the product is taken from a plane region to a hilly area, it becomes denser because of comparatively lower temperature and hence its volume reduces. The cost of reduced volume is charged from the customer who buys it from hilly area. This shrinkage rates differ from all places and is fixed by the govt.

<table>
<thead>
<tr>
<th></th>
<th>HSD (EURO IV)</th>
<th>MS (EURO IV)</th>
<th>MS POWER (EURO IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSP/L</td>
<td>50.84</td>
<td>68.62</td>
<td>77.74</td>
</tr>
</tbody>
</table>

Profitability Ratios

<table>
<thead>
<tr>
<th></th>
<th>Mar ’13</th>
<th>Mar ’12</th>
<th>Mar ’11</th>
<th>Mar ’10</th>
<th>Mar ’09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Profit</td>
<td>2.7</td>
<td>3.26</td>
<td>3.65</td>
<td>2.87</td>
<td>2.43</td>
</tr>
<tr>
<td>Net Profit</td>
<td>0.48</td>
<td>1.08</td>
<td>1.13</td>
<td>0.44</td>
<td>1.01</td>
</tr>
<tr>
<td>Operating Profit</td>
<td>2.26</td>
<td>2.49</td>
<td>3.08</td>
<td>2.63</td>
<td>1.77</td>
</tr>
<tr>
<td>Return on Investment</td>
<td>8.27</td>
<td>7.93</td>
<td>9.91</td>
<td>9.48</td>
<td>6.25</td>
</tr>
<tr>
<td>Return On Equity</td>
<td>6.94</td>
<td>12.26</td>
<td>11.25</td>
<td>5.35</td>
<td>10.74</td>
</tr>
</tbody>
</table>

The Gross Profit ratio of 2013 is quite significant (2.7%) but still the company need to find the reason for this continuous decrease in the ratio which might be problematic in near future.

The net profit ratio is decreasing from past two years because the operating expenses have increased in Comparison to 2012. So HPCL should keep a watch on their operating activities and try to reduce the expenditure incurred on them.

Company should choose project which gives higher rate of return on investment. ROI in 2013 is 8.27 which is less than the previous year i.e. 2012 ROI 7.93.

Similarly, by comparing the ratio of 2012 with that of 2013 we can ascertain whether the return on equity shareholder’s funds is increasing or not. As we can see that return on equity is just half in 2013 as compare to 2012. This ratio may also be used for declaration of dividend and creation of reserve for future growth.
### RELATION BETWEEN COST, PRICE AND PROFIT

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Profit (in Cr.)</th>
<th>Percentage Change</th>
<th>Delhi Price of Petrol (in Rs)</th>
<th>Percentage Change</th>
<th>Cost (in Lakhs)</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar '10</td>
<td>1301.37</td>
<td>126.333</td>
<td>47.93</td>
<td>17.996</td>
<td>1.03</td>
<td>-14.876</td>
</tr>
<tr>
<td>Mar '11</td>
<td>1539.01</td>
<td>18.261</td>
<td>58.37</td>
<td>21.782</td>
<td>1.29</td>
<td>25.243</td>
</tr>
<tr>
<td>Mar '12</td>
<td>911.43</td>
<td>-40.778</td>
<td>65.64</td>
<td>12.455</td>
<td>1.74</td>
<td>34.884</td>
</tr>
<tr>
<td>Mar '13</td>
<td>904.71</td>
<td>-0.737</td>
<td>68.34</td>
<td>4.113</td>
<td>2.02</td>
<td>16.092</td>
</tr>
</tbody>
</table>

**Net profit increases by 126% in 2010- Reasons**

1. Cost reduces by 14%. HPCL reported sales of petroleum products (including exports) during FY'10 at an all-time high of 26.5 million tonnes, an increase of 3.5 per cent over the previous year.

2. The pipeline throughput increased to 11.95 million tonnes compared to 10.58 million tonnes in the previous year, a growth of nearly 13 per cent.

3. The refineries at Mumbai and Visakh processed 15.76 million tonnes of crude to earn USD 2.68 on processing every barrel of crude oil.

4. There was a sharp reduction in interest cost to Rs. 904 crore, lower by Rs. 1,179 crore from the earlier year.

5. Facilities for Euro III/Euro IV petrol production at refineries in Mumbai and Visakh have been commissioned.

**Net profit increases by 18% in 2011- Reasons (in 2011 cost increases by 25% still profit does not reduced to negative)**

1. Price of petrol rises by 22%. The Audited Accounts are subject to review by the Comptroller & Auditor General of India under section 619(4) of the Companies Act 1956.

2. Average Gross Refining Margins during the year ended March 11, were US $ 5.30 per BBL as against US $ 2.68 per BBL during the corresponding previous year.

3. In principle approval of Government of India for Budgetary Support amounting to Rs 8,976.28 crores (2009-10: Rs 5,563.13 crores) has been received and the same have been accounted under “Recovery under Subsidy Schemes”.

4. The prices of PDS Kerosene and Domestic LPG are subsidized as per the scheme approved by the Government of India. During the financial year 2010-11, Subsidy amounting to Rs 652.36 crores (2009-10: Rs 609.43 crores) has been accounted at 1/3rd of the subsidy rates for 2002-03 as approved by the Government.

5. During the financial year 2010-11, discount from upstream oil companies, viz., ONGC and GAIL, amounting to Rs 6,637.55 crores (2009-10: Rs 3,247.14 crores) in respect of Crude Oil/PDS/Kerosene/Domestic LPG purchased from them has been accounted.

**Net profit in 2012**

Profit reduces by 40% as cost further increases by 39% but the rise in price of petrol is only 12%.

**Net profit in 2013**

Profit decreases by 0.73% as cost further increases by 16% but rise in prize is only 3%.

### COST REDUCTION BY TRANSPORTATION

The BCSP, PRA, TSRA, RSP of MS/HSD for Sardarshahar market is attached with sanganer depot and Mathura refinery. (This is present pricing linkage). Another linkage that is to be supposed is panipat refinery attached with hanumangarh depot and hanumangarh depot attached with sardarshaher market.
The distance between Mathura refinery to sanganer depot is 394km and sanganer depot to Sardarshahar market is 553km. total distance is 902km. While the distance between panipat refinery to hanumangarh is 350 Km and hanumangarh to Sardarshahar market is 294 Km. total distance is 644km. which is less than existing linkage by 258km (902-644). Due to this reason the RSP decreases.

**FINDINGS**

- The calculation of prices at the zonal level is based on the BCSP (Basic Ceiling Selling Price) as calculated and suggested by the HQO.
  - To get PRA (Product Rate Advice) HPCL adds Excise duty, Additive Cost, National Railway Freight, State Specific Cost, Siding and Shunting Charges, free delivery zone charge, retail pump outlet factor to BCSP.
  - To get TRSA amount (town special rate advice) company adds Product Price Adjusting Factor, Octroi charges, Delivery charges to PRA.
  - To get RSP (Retail Selling Price) company adds Additional Tax, Sales Tax (ST), Shrinkage Allowance, Dealer's commission, ST on dealer's commission to TRSA amount.
  - RSP is divided by 1000 and rounded off from 2 places to get the final retail selling price of a liter of MSD or HSD.
- The profit of HPCL decreases from 1500cr. In 2011 to 900cr. in 2012.
- The Gross Profit Ratio compared with the previous years shows a gradual decrease which sounds problematic for the company.
  - Net Profit Ratio decreases with the high volumes compared to the previous years. This is due to depreciation provision and increase in manufacturing and operating expenses.
  - The Operating Profit Ratio also shows a decrease in comparison to past years. So HPCL should keep a watch on their operating activities and try to reduce the expenditure incurred on them.
  - Company should choose project which gives higher rate of Return on Investment (ROI).
  - We can see that return on equity (ROE) is just half in 2012 as compare to 2011. This ratio may also be used for declaration of dividend and creation of reserve for future growth.
- In the recent past years the net profit of HPCL decreases continuously as cost increases year on year (YOY) by large amount but price of petrol rises by the small margins only.
  - Net profit increases by 126% in 2010, as HPCL reported sales of petroleum products (including exports) during FY'10 at an all-time high of 26.3 million tonnes, an increase of 3.5 per cent over the previous year.
  - Net profit increases by 18% in 2011, as Average Gross Refining Margins during the year ended March 11, were US $ 5.50 per barrel (BBL) as against US $ 2.68 per BBL during the corresponding previous year.
  - In 2012 Profit reduces by 40% as cost further increases by 39% but the rise in price of petrol is only 12%.
  - In 2013 Profit decreases by 0.75% as cost further
increases by 16% but rise in prize is only 3%.

- The Retail Selling Price of any product of a particular market can be decreased by either changing its pricing depot or pricing refinery.

  - The distance between Mathura refinery to sanganer depot is 394km and sanganer depot to Sardarshahar market is 553km, total distance is 902km.
  - While the distance between panipat refinery to hanumangarh is 350 Km and hanumangarh to Sardarshahar market is 294 Km, total distance is 644km, which is less than existing linkage by 258km (902-644).
  - Therefore the RSP decreases with the change of refinery and depot.

**RECOMMENDATIONS**

- India’s upstream companies need to make heavy investments to prevent or at least delay the continuous decline of domestic production. Moreover India has substantial unexplored acreage of potential oil and gas deposits mainly in difficult geological terrain.

- The Import Parity Pricing formula needs to be revisited to ensure that the Indian refining industry enjoys a rational margin that is fair to producers as well as consumers.

- Currently the refinery gate prices are computed based on the import parity principle. There is need to review the pricing of sensitive petroleum products (petrol and diesel) to provide relief to consumers as also to rationalize pricing in the context of exports of the order of 20% of production of these products. Given the global context and our refining capacity a more appropriate pricing model for diesel and petrol will be the trade parity price.

- Accordingly we recommend adopting the trade parity principle for pricing petrol and diesel which would be a weighted average of the import parity and export parity prices in the ratio 80:20. This principle of trade parity pricing will apply for the refinery gate price as well as for determining the retail price. The trade parity prices would be port specific as against weighted average import parity prices currently followed for fixation of consumer prices of petrol and diesel. The relative weight of exports and imports is estimating the trade parity may be reviewed and updated every year.

- The govt. can define a sliding scale for excise duties that would ensure that its revenue expectations remain untouched with changes in international prices of crude and products.

- The trade parity price determined as above will operate as an indicative ceiling price. Having established this principle of trade parity price the govt. should keep them at arm’s length from the actual price setting. The marketing companies should be allowed flexibility to fix the actual retail price subject to the indicative ceiling. This will indicate an element of competition that will be in consumer interest.

- The recommendation are however bases on economic studies and theories, but practical application of these recommendations is very limited because of prevailing scenario of the country the extent of the poverty and economic backwardness of our country does not allow the GOI to phase out distribution of kerosene. The need of hour is to supervise and punish adulteration and black-marketing in order to ensure that that no injustice is done to poor and needy people of the country.

- Gross Profit ratio of the company is declining, to overcome this problem, following measures should be taken :-
  - Decrease in the prices of raw material.
  - Decrease in the manufacturing expenses.
  - Less exchange rate fluctuations in US $.

- The Net Profit Ratio of the firm also decreases. It shows the unrecovered expenditure and unpredictability of the business. This decline is because of increase in expenses borne by operating activities.

- As the oil sector has to strike a balance between social vis a vis commercial/economic criteria which finalizing any project or proposal. This has a great impact on net profit of HPCL.

- More the decisions are inclined towards social objectives, which benefit public at large in a country like our having significant population below poverty line.

- HPCL is doing a great job of balancing between profitability to socio-economic affairs.

- Sardarshahar market retail outlet of HPCL should start taking oil products from Panipat refinery and hanuman depot instead from Mathura refinery and sanganer depot and getting the benefit of reducing cost by 258km.
CONCLUSION

Historically, Indian economy has been shielded against any spike in the oil prices. The administered price mechanism has ensured that the impact of any sharp increase in international oil prices has been dissipated by spreading over the price increase through smaller incremental hikes spread over a period of time. The oil pool account even then ran substantial deficits, which was partially recharged when the international prices went into tough phase. Thus the Indian economy was protected against sharp spurt in oil prices. Increase on oil price also has impact on agriculture sector mainly through transport costs and through impact on price of inputs like fertilizers. In case of manufacturing the higher fuel prices and transportation costs raise cost of production and product prices, which impacts negatively on demand conditions. High oil prices also increase the cost of services especially in areas like tourism, community and personal services. Thus oil pricing shows great impact on all manufacturing product company and consumer too.

These were some of the ratio that was very regularly used at HPCL for the necessary analysis activities performed by it from time to time. HPCL uses this technique usually to check out its current functioning and to compare its performance on regular basis with the past years. This technique is useful in inter-firm analysis and to judge once performance standard as ratio helps to set some standard marks which the firm target to achieve in the given span of time.

The Gross Profit Ratio compared with the previous years shows a gradual decrease which sounds problematic for the company. Net Profit Ratio decreases with the high volumes compared to the previous years. This is due to depreciation provision and increase in manufacturing and operating expenses. The Operating Profit Ratio also shows a decrease in comparison to past years.

In the recent past years the net profit of HPCL decreases continuously as cost increases year on year (YOY) by large amount but price of petrol rises by the small margins only.

The Retail Selling Price of any product of a particular market can be decreased by either changing its pricing depot or pricing refinery.

REFERENCES AND LINKS

2. Diesel prices is available at http://www.iocl.com/Products/DieselDomesticPrices.aspx
3. Fourth report standing committee on petroleum and natural gas is available at http://164.100.24.208/is/committeeR/petro/4rep.pdf
6. Pricing/taxation/dealers distribution commission is available at http://ppac.org.in/uniquepage.asp?id_pk=9#
7. Petrol prices is available at http://www.iocl.com/Products/PetrolDomesticPrices.aspx
8. Prices of non brand petrol in metro cities is available at http://portal.indiainfoline.com/datamonitor/OtherIndianOilCorporation/PricesofNonBrandedPetrolinMetroCitiesRsLitre.aspx
9. Detail Retail Selling Price of Delhi
11. Other circulars of HPCL