

REPORT OF THE COMMITTEE ON
CITY GAS DISTRIBUTION IN MUMBAI

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P R E F A C E

On behalf of the Committee constituted by the Ministry of Petroleum & Natural Gas, I am happy to submit the Report of the Committee on the "City Gas Distribution in Mumbai". This Report was to have been completed by December 31, 2002 but got delayed due to late submission of data by the concerned organizations.

The main Report is in Volume I and Volume II consists of information/data and other relevant references, which have been referred to, in the main Report. The Committee also had an extensive discussion with Shri T. L. Sankar, Advisor (Energy & Growth), Administrative Staff College of India, Hyderabad. (Andhra Pradesh), who had also earlier headed Gas Pricing Committee in the year 1997, Dr. E.A.S. Sarma, Principal, Administrative Staff College, Hyderabad (Andhra Pradesh), Dr. Kirit Parekh, ex-Director, Indira Gandhi Institute of Development and Research, Mumbai. In addition, we had an audio conference with Mr. Jaap Kalkman, Principal, McKinsey & Co., Singapore. We have also had the benefit of comments from A. T. Kearney, and Gaz de France as well.

In view of the shortage of time, the Committee restricted itself to the analysis of the existing data for the purpose of finalising the recommendations. However, the Committee also feels that the major issues, on which a clear decision would be required in future, would also impinge on the structure of the pricing for the Town Gas Distribution in India. These issues have been separately listed out for the consideration of the Government of India.

I take this opportunity on behalf of the Committee to place on record the dedicated work done by a team of officers from GAIL (India) Ltd. and BPCL, especially Shri Raju Natekar, E.A. to CMD, BPCL, Shri Arvind Krishnaswamy, DGM (Strategy), BPCL and Shri Santanu Roy, Chief Manager (Mechanical), GAIL (India) Ltd. The Committee is thankful to Shri Swami Singh, Director, Ministry of Petroleum & Natural Gas for organizing the set up for the Committee and the collection of required data/ information. But for the unstinted cooperation of these persons, the Report would not have been possible. The Committee also extensively benefited from its discussion with various groups/organizations, consumer forums and officials of the Government of Maharashtra.

January 23, 2003

(S. Vijayaraghavan)
Joint Secretary to Government of India
Ministry of Petroleum & Natural Gas

EXECUTIVE SUMMARY

The Industrial, transport and domestic consumers of natural gas in Mumbai made a representation to the Union Minister of Petroleum and Natural Gas on the problems faced by them in terms of availability and pricing of Natural Gas, quality of service etc.

[para 2.9.1]

On the basis of these representations the Hon'ble Union Minister of Petroleum & Natural Gas set up a Technical Committee under the chairmanship of Mr.S.Vijayaraghavan, Joint Secretary (V), Ministry of Petroleum & Natural Gas, with the following members:

Shri S. Vijayaraghavan, Joint Secretary (V), MOP&NG, Govt. of India

Shri H.P.Chandna, Director (Planning), GAIL (India) Limited

Shri A Sinha, Director (Finance), Bharat Petroleum Corporation Limited

[para 1.1.1]

The terms of reference of the committee were:

- (a) Examine the price structure for industrial, commercial, domestic and transport consumers keeping in view the need for a reasonable return on the investment by MGL.
- (b) Recommend an in-built mechanism for future revision of gas price for the consumers in the various sectors taking into account the relevant factors.
- (c) Any other matter incidental / consequential thereto.

[para 1.1.2]

The committee met with concerned interest groups, MGL officials, experts in various fields, management consultants with exposure to gas pricing and also studied reports on the organizational structure, legal / regulatory framework, pricing mechanism in various countries.

[para 6.1.1]

The performance of Mahanagar Gas Ltd., both, the past and for the future as envisaged by them was analysed. The past performance was compared to that of two other similar companies, Indraprastha Gas Ltd. (IGL) based in Delhi and Gujarat Gas Company Ltd. (GGCL) based in Gujarat.

[paras 5.1.1 and 5.5.1]

Recommendations

In view of the several imponderables and the imminent changes expected in the Petroleum and Natural Gas sector and the lack of reliable data on sector wise costs, it is suggested that the specific recommendations of the committee may be considered by the Government for implementation for a period up to 31st March 2004 only.

[paras 6.6.1 and 6.6.2]

A proper grievance redressal system should be put in place by MGL in order to deal with all consumer complaints effectively and this system should be tailored to the specific needs of each consumer segment. A code of service standards needs to be devised by MGL and published.

[paras 6.7.4, 6.8.7, 6.9.8 and 6.10.2]

A. Domestic Sector

1. The present selling price pegged at a 17% discount to LPG should be frozen till March 2004 irrespective of any upward changes in domestic LPG price. In case of decline in prices of LPG, the same may be passed on to the consumer.
[para 6.7.2]
2. In future the deposit requirement should be standardized at Rs. 5000 for both bulk and individual connections. For all domestic customers, rebate of Rs.22 from the monthly bills to be given over a 15 year period.
[para 6.7.3]

B. CNG Sector

1. Keeping in view the breakeven point of conversion cost and price of CNG with regard to alternate fuel, no change in CNG pricing is recommended.
[paras 6.8.1 and 6.8.2]
2. The committee is also requesting MGL to set up more CNG stations in the city immediately so that the waiting time is minimised.
[para 6.8.3]
3. As regards operational issues like pressure and wider availability, the officials of ONGC and GAIL has been requested to take co-ordinated actions to avoid drop in pressure at MGL stations and also have alternate arrangements due to failure of supply pipeline.
[paras 6.8.4 and 6.8.5]

C. Industrial Sector

Apart from the 10% discount on prevailing price of LSHS, the Committee felt that a ceiling price of Rs. 8600 / MT of LSHS (inclusive of State Surcharge and Octroi) and corresponding ceiling gas price of Rs. 6.80 per SCM (before taxes) up to March 2004 would be appropriate to adopt.

[para 6.9.6]

This would not only protect the consumers in periods of high rise in LSHS price, but would also ensure that the benefit of any decrease in LSHS price below Rs. 8600 / MT is passed on to the consumers.

[para 6.9.7]

D. Commercial Sector

No change is suggested in the prevailing pricing structure.

[para 6.10.1]

Recommendation on revision of prices

The Committee feels that it would not be advisable to give a formula splitting the cost into 'capacity charge' and 'variable cost' that would automatically take into account the likely revisions in various costs. The regulatory mechanism or any other expert body that would be constituted later should go into the whole aspect of various components of fixed and variable costs involved suggesting a comprehensive formula for periodical revision.

[paras 6.11.2, 6.11.3 and 6.11.4]

Since the CNG sector price is computed on 'cost plus' basis, it would be necessary to pass through to the consumer any increase in gas price and the consequential increase in taxes and levies, if any. For the domestic, industrial and commercial sectors, price is co-related to the price of alternate fuels such as LSHS and LPG. Hence, in case of any increase in input price of gas supplied to MGL, there would not be any revision in prices for these sectors.

[para 6.11.5]

Further issues for the consideration of the Government

The committee had a very short span of time to study the whole matter. Given the expected growth in city gas distribution, it feels that the Government should examine in greater depth and wherever applicable establish regulatory norms with legal provision for the issues listed below :

- Natural Gas Pricing for utilities
- Tariff fixation for transportation of Gas.
- Ownership of gas pipelines and access rights to them.
- Pricing structure for utilities.
- Nature of contracts from the producer to the consumer and service level agreements
- Safety, Health and Environment related codes, practices and nominated monitoring agency
- Quality norms for these utilities and
- Availability of statistical information from Gas distribution companies through statutory provisions as in the case of Petroleum products

[para 6.13]

RECOMMENDATION FOR VARIOUS CATEGORIES OF CONSUMERS

For consumers from all sector

Existing	Recommended
1. No procedure / system for effective dealing with consumer complaints.	1. Grievance redressal system and code of service standards to be established.

For domestic consumers

Existing	Recommended
<ol style="list-style-type: none"> 1. Pricing – varies with 10% discount on domestic LPG. 2. Price likely to increase with reduction in subsidy of domestic LPG. 3. Non-refundable connection charge of Rs. 6500 (for individual registration) and Rs. 5000 (for bulk registration). 	<ol style="list-style-type: none"> 1. Frozen till March 2004 at present price i.e. no price increase till March 2004 even if LPG price increases. In case of decline in prices of LPG, the same may be passed on to the consumer. 2. Connection charge Rs. 5000 for all consumers. 3. Rebate of Rs. 22/month for 15 years to be given to all existing and new customers for the connection charge.

For CNG consumers

Existing	Recommended
<ol style="list-style-type: none"> 1. Long time for queuing - 37 CNG stations as of Nov 2002. 2. Drop in supply pressure affects filling time. 	<ol style="list-style-type: none"> 1. More CNG dispensing stations (Total 55 by March '03 and 80 by March '04) to reduce CNG filling time. 2. GAIL and ONGC to co-ordinate with MGL for ensuring proper pressure.

For Industrial consumers

Existing	Recommended
<ol style="list-style-type: none"> 1. Gas price linked to LSHS price with 10% discount (without any ceiling). 2. Average gas price charged by MGL from April to November 2002 has been Rs. 8.09/SCM (before taxes) due to high crude oil price in international market. 	<ol style="list-style-type: none"> 1. Ceiling of gas price at Rs. 6.80 / SCM before taxes (corresponding to LSHS price of Rs. 8600/MT inclusive of State Surcharge and Octroi and allowing 10% discount thereon) till March 2004. 2. For LSHS price less than Rs 8600/MT, existing practice of 10% discount for gas to continue.

CHAPTER - I

BACKGROUND

**Let us do something,
while we have the chance !
It is not every day that we are needed.**

Samuel Beckett

**And only the Master shall praise us,
and only the Master shall blame ;
And no one shall work for money,
and no one shall work for fame ;
But each for the joy of working,
and each in his separate star,
Shall draw the Thing as he sees It,
for the God of Things as They Are !**

Kipling

1.1 COMMITTEE FORMATION

1.1.1 In line with the decision taken during the meeting convened by the Hon'ble Union Minister of Petroleum & Natural Gas in Mumbai on 11.11.2002, Government of India has constituted a Committee vide resolution no. 301 dated 21.11.02 (please refer Annexure 1) consisting of following members :-

Shri S. Vijayaraghavan, Joint Secretary (V), MOP&NG, Govt. of India
Shri H.P. Chandna, Director (Planning), GAIL (India) Limited
Shri A. Sinha, Director (Finance), Bharat Petroleum Corporation Limited

1.1.2 The Terms of Reference of the Committee are as follows :-

- a) Examining the price structure for industrial, commercial, domestic and transport consumers keeping in view the need for a reasonable return on the investment by MGL.
- b) Recommending an in-built mechanism for future revision of gas price for the consumers in the various sectors taking into account the relevant factors.
- c) Any other matter incidental / consequential thereto.

CHAPTER - II

GAS TRANSPORTATION. DISTRIBUTION AND TARIFF IN INDIA

What is history but a fable agreed upon ?

Napoleon Bonaparte

2.1 DEVELOPMENT OF NATURAL GAS INDUSTRY IN INDIA

- 2.1.1** Oil India Limited (OIL) was the first Indian company, who started sale and distribution of gas in Assam in the sixties. Later on, Oil & Natural Gas Commission (ONGC) and Assam Gas Company also laid natural gas pipelines for sale of gas to major industries and tea gardens. In Gujarat, ONGC started selling its associated gas to the neighbouring industries in the seventies and pipelines were laid / owned by either ONGC or customer itself.
- 2.1.2** ONGC had major oil / gas find in Mumbai High in the seventies and first offshore pipeline was laid up to Uran in Maharashtra for supply of gas mainly to the industrial consumers around Mumbai – like MSEB, Tatas, RCF etc. ONGC laid gas pipeline network for distribution of this gas in Mumbai region. Some of the dedicated pipelines were also laid by the customers themselves. Gas available from Mumbai High peaked to 13/14 MMSCMD (Metric Million Standard Cubic Meter per Day) in the late eighties / early nineties and is presently on decline with present availability at 9.5 MMSCMD.
- 2.1.3** In the late seventies, a major gas reserve was found in the South Bassein in Mumbai Offshore having its landfall point at Hazira in Gujarat. The first major cross-country pipeline in India to utilise this gas mainly in the fertiliser and power sectors was conceptualised in the early eighties. Gas Authority of India Limited (GAIL) was formed in August '84 to construct and operate the HBJ (Hazira--Vijaipur--Jagdishpur) pipeline and also to act as the nodal agency for transmission, distribution and processing of natural gas in India. The 1700 KM. long HBJ pipeline was commissioned in phases between 1987 and 1989.
- 2.1.4** Thereafter, GAIL looked after the entire transmission and distribution of natural gas in India through the takeover of existing assets from ONGCL and laying of new high pressure gas pipelines in states like Andhra Pradesh, Tamil Nadu & Tripura to connect gas sources and consumers. At present approximately 92% of gas transmission and distribution business in India is controlled by GAIL.

2.2 DEMAND & SUPPLY OF GAS – A PROFILE

- 2.2.1** Natural Gas is emerging as the preferred fuel of the future in view of its being an environment friendly, economically attractive fuel and also desirable as feedstock for petrochemicals. While the details are given in the Annexure 6, the major points are highlighted below :-
- Due to limited availability of indigenous gas, there is a projected deficit of 42.4 MMSCMD for 2004-05 which is more than 39% of the allocation on an all India basis.

- in Uran (Mumbai) sector alone, the deficit of 7 MMSCMD is expected to be about 44%.of the allocation by 2004-05.
- As per the Report of the Working Group on Petroleum – Formulation of 10th Five Year Plan, the All India deficit in 2007 is likely to be approximately 93% of the demand 166 MMSCMD (taken on a lower side) and 145% of the demand 231 MMSCMD (taken on a higher side).
- Based on projections of gas supply by the principal gas supplier in India and with no further allocations, for the Uran sector, the deficit is likely to be 55% by 2006-07 and 100% from 2011-12.

2.3 PATTERN OF GAS USE

2.3.1 The major points related for Gas Use Pattern in 2001-02 are highlighted below (please refer to the Annexure 6 for details) :-

- Average Gas sale, on all India basis has been 61.6 MMSCMD. The Power sector with average 23.2 MMSCMD (37%), closely followed by the Fertiliser sector with average 21.6 MMSCMD gas supply (35%), are the main consumers.
- Uran (Mumbai) sector supply has been average 9 MMSCMD. Average 3.5 MMSCMD gas was supplied to the Fertiliser sector (39%) and gas supply to the Power sector was avg. 3.2 MMSCMD (36%). Gas consumption by MGL during same period has been at the rate of 0.42 MMSCMD (0.44 %).

2.4 CITY GAS DISTRIBUTION IN INDIA

2.4.1 In view of the scarcity of Natural Gas vis-à-vis demand of the Fertiliser and Power sector, the supply of gas to cities through distribution systems did not develop in India as it did in many other countries - UK, USA, Australia, Korea etc. – where gas is available / imported to meet gas demand in residential and industrial sectors of cities.

2.4.2 In the eighties, GAIL initiated techno-economic feasibility studies for Gas Distribution in the metro cities of Mumbai and Delhi through Sofragaz & British Gas respectively. Based on the encouraging recommendations of these studies, Government of India approved gas allocation for Mumbai and Delhi.

2.4.3 Mahanagar Gas Limited (MGL), a Joint Venture company of Gas Authority of India Limited (GAIL), British Gas and Government of Maharashtra was incorporated in May '95 for supply and distribution of Natural Gas (NG) to domestic, commercial, small industrial consumers and Compressed Natural Gas (CNG) to vehicular consumers in Mumbai through its integrated gas pipeline network. Similarly Indraprastha Gas Limited (IGL), a JV of GAIL and Bharat Petroleum Corporation Limited (BPCL) was incorporated in December '98 for developing a distribution network for the residential, transport and commercial consumers in Delhi.

2.4.4 Gujarat Gas Company Limited (GGCL), promoted by British Gas, has developed the Gas Distribution in Surat, Bharuch & Ankleshwar of Gujarat. In Baroda (Vadodara), the distribution network has been developed by Municipal Corporation of Vadodara. As per the direction of the Hon'ble Supreme Court GAIL is also supplying gas to the polluting industries in Agra and Ferozabad of U.P.

2.5 PATTERN OF CITY GAS USE

2.5.1 The major points related to City Gas Use Pattern in 2001-02 are highlighted below (please refer to the Annexure 6 for details) :-

- In Mumbai, MGL supplied on an average 420434 SCM gas per day. The consumption pattern is – Industrial 205426 SCMD (49%), CNG 157258 SCMD (38%), Commercial 32701 SCMD (8%) and Domestic 25047 SCMD (6%).
- IGL in Delhi supplied 348369 SCMD to following sectors – CNG 332120 SCMD (95%), Commercial 13332 SCMD (4%) and Domestic 2916 SCMD (1%).
- In Surat, Bharuch & Ankleshwar of Gujarat, GGCL supplied 1.148 MMSCMD gas to the following categories of consumers - Industrial 1.045MMSCMD (91%), Domestic 0.084 MMSCMD (7.3%), Commercial 0.084 MMSCMD (1.5%) and CNG 0.002 MMSCMD (0.2%).

2.6 GAS TARIFF

2.6.1 Prior to 1987, natural gas produced by ONGC and OIL had been sold at prices largely determined by the producers themselves. The principles of thermal equivalence with coal as well as parity with other alternative fuels were taken into consideration by the producers while fixing gas prices.

- 2.6.2** In 1987 the Ministry of Petroleum and Natural Gas decided to examine the issue of natural gas pricing and set up a committee along with the Planning Commission for this purpose. Based on the recommendations of this committee the Government thereafter decided to have an administered pricing structure for natural gas. The recommendations of the committee were based on the cost of production of free gas from the South Bassein field, and the cost of transportation of gas along the HBJ pipeline. The Government administratively decided to fix the price of natural gas at Rs.1400 / '000 SCM at landfall and a flat rate of Rs.2250 / '000 SCM for gas transported along the HBJ line.
- 2.6.3** In 1989 the Government again decided to reexamine the gas pricing structure and set up the Kelkar Committee for the purpose. Based on the recommendations of the Kelkar Committee, in 1992 the Government introduced a gas sales price of Rs.1550 / '000 SCM at landfall to be increased each year by Rs.100 until it reached Rs.1850 / '000 SCM. Transportation charges were set at Rs.850 / '000 SCM for transportation along the HBJ line.
- 2.6.4** In 1996 the Sankar committee was established to review the above prices, with some consideration given to the impending need for gas imports and the effects of parity in pricing with alternative fuels. The committee decided that import parity pricing would be too steep a transition and recommended rates for producers of Rs.1800 / '000 SCM for ONGC and Rs.1900 / '000 SCM for OIL. Transportation charges were set at Rs.1150 / '000 SCM for transportation along the HBJ line. The consumer prices were set at the sum of producer and transportation rates with an additional Rs.250 crores to be contributed to the Gas Pool Account taken from the gas revenues collected from consumers.
- 2.6.5** The 1997 Gas Pricing Order provides for the consumer price for natural gas (the "Consumer Price") a floating price linked to an international basket of LS/HS fuel oils (the "International Reference Price") that is determined and fixed quarterly as per the methodology laid down by the Ministry of Petroleum & Natural Gas. This Consumer Price was 55 per cent, 65 per cent and 75 per cent of the International Reference Price in the fiscal years ended 31st March, 1998, 1999 and 2000, respectively. The Consumer Price is, however, subject to both a ceiling of Rs.2,850 / '000 SCM and a floor of Rs.2,150 / '000 SCM and is linked to a calorific content of 10,000 KCal/SCM. For gas having a lower or higher calorific content, the Consumer Price will increase or decrease proportionately. The Price of gas after adjustment for gas price paid to the joint ventures and setting aside Rs.250 Crores per annum towards the Gas Pool Account, is the producer price for the national oil companies for their domestic production (the "Net-back Producer Price").

- 2.6.6** The pricing formula / structure as recommended by Sankar Committee was applicable up to 31.3.2000. Thereafter the pricing structure has come under review of the Government of India. The Government has examined various aspects related to pricing, and considered options aimed at the gas price achieving full parity with F.O. prices in the long run. The final pricing order is yet to be notified.
- 2.6.7** The transportation tariff for HBJ (presently Rs. 1150/ '000 SCM) has been approved by the Govt. of India on the basis of 12% post tax Internal Rate of Return (IRR) on investments made by GAIL for the HBJ pipeline system and allowable Operating & Maintenance Cost for the estimated Project Life.
- 2.6.8** For other pipelines, GAIL and its consumers enter into contracts with mutually agreed tariffs calculated on the same basis as HBJ pipeline. As of now, these tariffs do not require any approval by any statutory agency / Government of India.

2.7 CITY GAS TARIFF

- 2.7.1** For the industries in Delhi, Agra & Ferozabad, GAIL has been charging distribution tariff in the pattern of HBJ pipeline i.e. on the basis of 12% post tax IRR on investments made and standard Operating & Maintenance Cost for the estimated Project Life.
- 2.7.2** Other companies after taking delivery of gas at administered price at their City Gas Stations from GAIL charge their consumers on different methodologies.
- 2.7.3** MGL's tariff for natural gas supplied to residential, commercial and industrial sectors is based on some discount over alternate hydrocarbon fuel for each sector. MGL charges on cost-plus method for CNG supply to the transport sector. Currently, MGL is supplying gas to industrial / commercial consumers on the basis of contracts and to its automobiles & domestic consumers on retail basis. IGL's pricing for CNG is based on a model for Return on Investment vis-à-vis full cost and capacity buildup to meet demand. For other sectors, IGL charges gas at 10% less than corresponding alternate fuel. GGCL's prices are market determined.
- 2.7.4** During the initial stages, MGL and IGL incurred losses on account of very slow growth in the domestic / automobiles sector. However, due to recent directives from the Hon'ble Supreme Court with regard to Delhi & Hon'ble High Court with regard to Mumbai, there has been a spurt in demand of CNG. The sales volume of natural gas through City Distribution has increased several-fold in the last couple of years.

2.8 PROPOSED GAS REGULATORY BOARD IN INDIA

2.8.1 In most of the countries where the market for gas has matured and a legal framework / regulator is in place, the regulator has two major functions:-

- a) Customers should receive gas at reasonable and competitive price and their grievances / complaints should be duly and reasonably addressed.
- b) Distribution Companies should have reasonable rate of return so as to carry out its services effectively & safely and also giving it scope for reasonable expansion.

2.8.2 The Natural gas market in India is at a very initial stage of development. The Ministry of Petroleum & Natural Gas, Government of India has already tabled the “Gas Regulatory Board Bill” in the Parliament. The Board will regulate the tariffs for natural gas charged by gas transportation & distribution companies and also ensure organised growth of natural gas related infrastructure & market. Till the regulatory mechanism is put in place, the main functions are to be carried out by the Government.

2.9 REPRESENTATIONS BY MGL’s CONSUMERS

2.9.1 Ministry of Petroleum & Natural Gas, Govt. of India had received representations from various categories of consumers in Mumbai. The main issues raised by them are as follows:-

- The Forum for Industrial consumers emphasised the need to provide the supply of gas at a competitive price so that they can compete with other industries that are getting gas directly from GAIL in Gujarat and UP.
- The Mumbai Grahak Panchayat (MGP) stressed the need for strengthening the “Consumer Redressal System” to expeditiously handle consumer complaints. They also requested review of pricing etc. It was also stated by them that MGL is charging Rs.5,000/- per customer from the domestic consumers for Bulk Registration Scheme (BRS) case and Rs.6,500/- for Individual Registration scheme (IRS) case. The scheme of BRS is not being extended to various domestic consumers who are unable to meet the criteria.
- The Mumbai Taxi Association, Mumbai Chalak Malak Sena, Mumbai Taximen Union and Mumbai Autorickshawmen’s union stressed the need for taking immediate action of providing CNG with proper pressure to reduce the waiting time for filling up Gas. It would also help in increasing their earnings since

they lose lots of time due to waiting in queues and sometimes, they are even required to come twice to fill CNG due to lack of adequate pressure. They also requested GOM and GOI to exempt CNG, CNG kits, and cylinders from sales tax, custom duty and excise as this along with the high price of conversion kits, cylinders and CNG gas is a major burden. They also requested Hon'ble Union Minister to either appeal in the Supreme Court or to pass an ordinance for prescribing "Emission standards" rather than fuel standards since adequate infrastructure is not available in the city for CNG and LPG. The representations of Taxi and Autorickshaw unions also requested for a reduction in the price to give some relief. They also suggested that MGL should be asked to augment its infrastructure to provide CNG within 8 minutes as prescribed in the Vinay Lal Committee Report and unless that happens the prices of CNG should be reduced.

2.9.2 After hearing the views of all concerned, the Government of India decided the following:-

- a) By end of November 2002, MGL should send detailed calculations regarding the price for the sectors in particular Industry & Domestic Consumers;
- b) Within a month thereafter, a Technical Committee under the chairmanship of Mr. Vijayaraghavan, Joint Secretary, Ministry of Petroleum & Natural Gas, will submit a report on the pricing structure to be followed;
- c) MGL to strengthen the grievance redressal system.
- d) GAIL to look into the technical aspects of maintaining the minimum required pressure to MGL for supply of CNG and also for taking action through MGL for reducing the waiting period;
- e) The Maharashtra State Government to be requested to constitute a 'High Powered Monitoring Committee' under the chairmanship of Chief Secretary, Maharashtra to review the infrastructure & constraints and to coordinate the implementation of the plan of action by Oil marketing Companies and MGL in compliance with the High Court's orders. On the issues relating to Government of India, the same will be co-ordinated by Secretary Petroleum, Government of India.

2.9.3 Accordingly, Government notification dated 21.11.02 (please refer to Annexure 1 for a copy) was published in the Gazette with the Terms of Reference as under :-

- a) Examining the price structure for industrial, commercial, domestic and transport consumers keeping in view the need for a reasonable return on the investment by MGL.

- b) Recommending an in-built mechanism for future revision of gas price for the consumers in the various sectors taking into account the relevant factors.
- c) Any other matter incidental / consequential thereto.

CHAPTER - III

MAHANAGAR GAS LIMITED (MGL)

There are two kinds of companies, those that work to try to charge more and those that work to charge less.

Jeff Bezos

A Business that makes nothing but money is a poor business.

Henry Ford

3.1 SUBMISSION BY MAHANAGAR GAS LIMITED (MGL)

3.1.1 MGL has submitted their report in response to the Committee's communication. The salient features of MGL's submission are summarised in this chapter.

3.2 BACKGROUND OF CITY GAS DISTRIBUTION PROJECT IN MUMBAI – MGL'S SUBMISSION

➤ In the early '90s, the Government of India accorded its approval for GAIL to execute the Mumbai City Gas Distribution Project and allocated 1.5 MMSCMD of Gas for this purpose.

➤ This supply of 1.5 MMSCMD of Natural Gas was to be sold as follows :-

Sector	Nos.	% Allocation
Domestic	6,26,000	32%
CNG Vehicles	20,000	12%
Commercial	4,500	8%
Industrial	146	48%

➤ Considering the requirement of technical know how & foreign equity for setting up of India's first metropolis city gas distribution project and in accordance with the FIPB approval (February '94), a Joint Venture Company Mahanagar Gas Limited (MGL) with GAIL and British Gas of United Kingdom was incorporated on 8th May 1995. The company got permission to commence business in July 1995.

➤ Gas Supply Contract signed between GAIL & MGL provided allocation of 1.5 MMSCMD of natural gas to MGL in a phased manner. The Contract provided that initially the Company would draw gas only to cater to domestic, commercial and vehicular consumers until company achieved sales of 0.778 MMSCMD of gas to these sectors. Once company achieved sales of 0.778 MMSCMD, the allocation was to be increased to 1.5 MMSCMD out of which some gas would be sold to industrial customers.

➤ However since the cost being incurred by MGL was much more than the revenue generated by the domestic sector, Ministry of Petroleum and Natural Gas permitted MGL to supply 40,000 SCMD gas to industrial consumers (to supplement higher revenue generation) prior to achieving 0.778 MMSCMD gas sales, provided 3000 domestic consumers are connected. The supply to industrial customers was further permitted to 1,00,000 SCMD (upon achieving 8000 domestic connections) and then to 3,00,000 SCMD (after achieving 1,00,000 domestic consumers) and finally to 4,00,000 SCMD (against

achievement of 2,00,000 domestic connections). The copies of permission letters of MOPNG from time to time are enclosed in Annexure 10.

3.3 COMPARISON OF PROJECT ASSUMPTIONS AND GROUND REALITY - MGL'S SUBMISSION

3.3.1 As per MGL's submission, a comparison of the key assumptions underpinning the viability of the Gas Distribution Project vis-à-vis the actual ground reality faced while implementing the project shows that on almost accounts there has been a negative / adverse impact affecting the viability of the project.

Sr.	Project Assumptions	Ground Reality (as per MGL)
1	Sales to industries to start from the first year itself	Gas Supply Contract restricted supply to Industries till MGL achieved gas sales of 0.778 MMSCMD in the other 3 sectors.
2	Gas Selling Prices on full parity with replaced fuel	Selling price to the transport sector, which constitutes more than 40% of sales is about 40% parity
3	Industrial load stable at 0.72 MMSCMD	Current Industrial sales are 0.26 MMSCMD, and the current projections are far below 0.72 MMSCMD
4	Contribution from domestic consumers to cover the cost of service lines and fittings inside the residence	The present contribution of Rs. 5000 per consumer falls short of the Rs. 9000 actual cost incurred.
5	Advance against future gas consumption to be collected from each domestic consumer	Gas presently sold at an average credit period of about 2.5 months
6	Interest free sales tax deferral for 13 years	The facility has been revoked in F.Y. 2001-02. Matter represented to Govt. of Maharashtra.

Sr.	Project Assumptions	Ground Reality (as per MGL)
7	215 KM of old C.I.Network to be issued as conduit to reduce pipeline laying cost	This was not found feasible, legally, economically and to some extent technically
8	Per Capita Gas consumption of 0.726 SCMD for domestic sector and 33 SCMD for small commercial sector.	Actual per capita gas consumption is 0.5 SCMD for the domestic sector and 22 SCMD for the small commercial sector.
9	All approvals required for pipeline laying to be made available expeditiously	Hardly 6-7 months construction season is available and multi-window clearance systems continue.
10	Only 20,000 vehicles to convert to CNG	Due to judicial intervention, number of vehicles presently has gone up to over 53,000 and queuing situation requires MGL to incur substantial additional CAPEX.

3.4 EVOLUTION OF PRICES – MGL’s SUBMISSIONS

- In the domestic sector, MGL sells gas at a discount to domestic subsidised LPG. A discount of 10% on a calorific value basis is to be given, but of late, MGL has not passed on the hike in gas prices required due to reduction in subsidy of LPG and some increase in taxes. This has resulted in MGL supplying gas to this sector at a price which has a discount of about 17% to domestic subsidised LPG.
- In the CNG sector, MOP&NG, Government of India vide its Order dated December 03, 1998, stated that the retail selling price of CNG is to be fixed by the Marketing Agencies themselves. While fixing the price, guideline was given that payback period for retrofitting in existing vehicles should not be longer than two years. Copies of MOP&NG letters in this regard are placed at Annexure 10. At present, MGL supplies CNG at a price of about 40% of the cost of petrol and the payback period for a taxi works out to be about 6 months.
- In the commercial sector, prices are based on fuel to be replaced. This category has different kinds of consumers, using a mix of commercial LPG,

LDO and LSHS. Discounts are given on fuel used to ensure that customers enjoy an attractive payback period and that they are always better off when compared to others using the same fuel.

- In the Industrial sector, prices are linked to LSHS, the predominant fuel used by this sector. Initially a few contracts were signed on fixed price, but customers wanted a pricing mechanism that would keep them always better off when compared to those using existing fuels. Therefore, MGL, having due consideration to the needs of the market, has offered the replacement fuel pricing policy.

3.5 OTHER IMPORTANT POINTS SUBMITTED BY MGL

- In order to make Mumbai city gas distribution project a viable proposition, it is imperative to have a judicious mix of different customer segments like domestic, CNG, commercial and industries and the present Pricing Policy appears to be consistent with DFR approved by GOM and GOI.
- So far, MGL has made gross investments of over Rs. 340 crore resulting in faster execution of the project at accelerated pace. In order to maintain the momentum and further improve the progress of the project and to provide NG to all the households and CNG to vehicles, MGL has made plans to further invest over Rs.400 crore in the coming years. Further investment may depend upon adequate rate of return over the investments. MGL has made a loss from its commencement of physical implementation in 1995-96 till 1998-99.
- The present Internal Rate of Return (IRR) on a twenty year life cycle at US\$ 21 Brent prices taking into account the CAPEX required vis-à-vis the sales volumes comes to 10.08% which is much below the industry / business norms of expected Internal Rate of Return of 16%. MGL needs to take suitable steps to improve the present IRR level to the expected IRR level to ensure that future investments to be made in the project can be justified from the long term perspective.
- Revenues generated by the project so far are being ploughed back to accelerate the implementation of the project to grow MGL's network.
- In line with the requirements of DFR, Government of Maharashtra (GOM) had granted 13 years Sales Tax Deferral facility to the Company, however, during the year 2001-02, the said facility has been revoked by the Sales Tax Authorities. The Company has represented to the GOM for continuation of

deferral facility until the original envisaged period of 13 years i.e. up to 2009. It is stated that the continuation of deferral facility by GOM would enable the Company to plough back the sales tax accruals for faster execution of the project and provide the benefit of Natural Gas (NG) and Compressed Natural Gas (CNG) to all the residents of the city of Mumbai.

- All consumer segments of MGL are getting gas at the price below the alternative fuel prices, and are enjoying the benefits of clean, environment friendly, economic and reliable gas. Moreover the present pricing policy of linking gas pricing with that of alternate fuels is not only market responsive but also gives perpetual saving to consumers using NG/CNG supplied by MGL. The present Pricing Policy followed by the Company not only keeps always better off in terms of direct financial savings but also provides several indirect qualitative and financial savings such as :-
 - Continuous supply;
 - No Inventory cost;
 - Improvement in operational efficiency;
 - No pre-heating required as in the case of LSHS;
 - Pay after use;
 - Ideal fuel for Process Industries such as Glass, Ceramics etc; and,
 - Environmental friendly fuel with potential upside for carbon credit
- The prices being charged for domestic and CNG sectors have been stable and only sales tax and excise duty increase have been passed on. In case of the CNG sector, MGL has not revised its prices since last four years. In fact MGL has absorbed increase in the turnover tax effected by GOM in May '02. It is observed that in the recent past due to temporary spurt in the prices of LSHS, gas prices of MGL have gone up as MGL pricing for industrial consumers is linked to the price of LSHS. In the past, gas prices have been much lower and the consumers have accrued savings on the same.
- In view of the recent judicial directives and to ensure good quality of service and minimum feasible waiting time, MGL has made plans to increase the outlets from the present 40 to 80 outlets by March 2004 which includes opening of 17 dedicated CNG outlets on the independent plots to be allotted by GOM. This will require an investment of over Rs.140 Crores. The operational expenditure will also accordingly increase to service the increased number of outlets. It may be mentioned that the increase in the number of

vehicles will not be commensurate with the CAPEX investment and the additional OPEX will primarily result in reduction in waiting time and improvement in the quality of service. Allotment of 17 plots by GOM will be an important milestone to achieve the objective of providing better quality of service to the consumers.

- In line with its mission of providing better “Consumer Service and Satisfaction”, MGL proposes to have dialogue with all categories of consumers to understand their constraints, concerns and areas where the quality of service can be improved including contractual aspects. Necessary steps in this direction are being taken and will be continued in future.

CHAPTER - IV

REPRESENTATIONS OF CONSUMERS, VIEWS OF GOVERNMENT OF MAHARASHTRA AND RESPONSE OF MGL

Few men think, yet all have opinions.

George Berkeley

You don't get what you deserve, you get what you negotiate.

Anon

Public opinion is a weak tyrant compared with our own private opinion. What a man thinks of himself... that is what determines his fate.

Henry David Thoreau

4.1 CONSUMERS' VIEWS

4.1.1 In order to appreciate the problems faced by various categories of consumers of the City Gas Distribution system in Mumbai, the Committee sent formal requests to all the concerned Consumer Forums / associations / interest groups / unions to submit their detailed views / representations. This was followed by meetings / depositions by these organizations / groups during Committee's visit to Mumbai on 14.12.02 to understand their views on the subject. While copies of their representations/ suggestions are given in Annexure 7, highlights of the representations made by various Consumer Groups is indicated below.

4.2 REPRESENTATIONS OF INDUSTRIAL SECTOR CONSUMERS (Forum of Natural Gas Industrial Consumers, Mumbai)

- Exorbitantly high price charged by MGL compared to price charged by GAIL for similar units (though calorific value of MGL gas is much lower).
- NG price of MGL is Rs. 8.39 – 9.19 per SCM (incl. ST) vis-à-vis NG price of GAIL Rs. 3.48 per SCM in Gujarat & Rs. 4.748 per SCM in Ghaziabad
- Though price charged by GAIL to MGL has been constant, MGL has increased NG price by 44% from December '01 to September '02.
- City transportation cost (Rs. 2.72/ SCM) and apportionment of overheads (Rs. 0.58 / SCM) as sought by MGL in May '01 for 'built up component' pricing is disproportionate to gas price at well head (Rs. 2.85 / SCM) and transportation cost payable to GAIL (Rs. 0.41 / SCM)
- With the rise in gas price (linked to LSHS), MGL as a monopolistic company is enjoying very high profit margins (32% of gross turnover in '01-'02) whereas consumer industries are fighting for survival and many units have already closed down leading to unemployment.
- GAIL returned deposits taken against contracts (signed before MGL existed) and thereafter MGL took hefty connection charges. It is not justifiable to charge such steep rates for NG supply now.
- Since natural gas is a mineral wealth and property of the nation, price charged by MGL should have parity / uniformity with similar consumers being supplied by GAIL.
- As an immediate relief MGL should be directed to bring down price of Natural Gas to December '01 level (Rs. 5.72 / SCM excluding Sales Tax) and give credit note for the gas supplied at higher price since then. (average price

charged by MGL in '01-'02 was Rs. 6.3 to Rs. 6.7 / SCM excluding ST leading to a profit of 32% of turnover).

- Contract conditions for all industrial consumers of MGL should be uniform and not one-sided.
- MGL should improve Consumer Grievance Redressal mechanism.

4.3 REPRESENTATIONS OF CNG SECTOR CONSUMERS (Mumbai Taximen's Union, Mumbai Taxi Chalak Malak Sena, Mumbai Taxi Association, Mumbai Auto Rickshaw Men's Union & Maharashtra Rickshaw Sena)

- At introductory stage, GAIL committed to supply CNG at 50% of petrol price. But CNG price in Mumbai has been increased from Rs. 7.50/ KG. in 1993 to Rs. 19.70/KG. which is much higher than CNG price in Delhi supplied by IGL.
- Taxi / Auto Rickshaw drivers, hailing from the weaker section of the society, have suffered a lot selling their petrol / diesel vehicles at dirt-cheap rates and then arranging finances for new / converted CNG vehicles by selling their lands and personal belongings. Many of them suffer from dreaded diseases like TB.
- Long stretches with heavy taxi / auto density does not have any stations. At least 60 stations required immediately and 150 on-line stations by June '04. with 1 station after every 2 KM.
- MGL to take steps to bring down queuing time of around 8 minutes (as prescribed by V.M. Lal Committee) – presently time taken is 30 min. to 2 hrs which directly affects their earnings.
- Quite often GAIL is not able to supply NG at contract pressure of 19 KG / cm² leading to increased queue. Breakdown of supply occurs almost once a fortnight. Appropriate steps to be taken to ensure supply without fail.
- Govt. / Govt. companies should take minimum profit from CNG since auto / taxi drivers have already undergone heavy sacrifice for the sake of environment protection. All taxes & duties on CNG, CNG kits and cylinders should be totally withdrawn / reduced substantially.
- CNG to be priced at minimum level since NG is available free and was being flared till recently. Subsidy on CNG to be in line with NG for household sector. CNG price to be fixed at Rs. 10/KG for next 10 years.

- Supreme Court Directive to accord top priority to transport sector to be implemented in letter and spirit by MGL. Gas should be supplied as per the V.M. Lal Committee recommendations which were accepted by the Mumbai High Court.
- Even after de-regulation, CNG should be treated as an essential item like Kerosene & LPG and price of CNG to be controlled.
- CNG stations should be company owned so that in case of strike by dealers, the transport sector is not crippled.
- Issue of Cash Memo against sale of CNG to be made mandatory. MGL to look into stopping malpractices being resorted by the staff of dealer owned stations.
- Periodical co-ordination meeting with customers, dealers and Oil Marketing Companies to be started.
- MGL to have trained staff and inventory of required spares to immediately tackle breakdowns.
- Diesel Generator sets to be used for running compressors during load-shedding.
- In order to reduce load on CNG, Govt. should provide incentives for using LPG. In this connection, present stringent rules for storage of LPG may be reviewed in line with the practice in developed Countries.

4.4 REPRESENTATIONS OF DOMESTIC SECTOR CONSUMERS (Mumbai Grahak Panchayat)

- Due to charging of higher price than neighboring states and uncertainty in supply of NG, households have not discarded LPG totally even after taking NG connections.
- A large number of people have deposited the requisite connection charge long back but NG supply has not commenced as yet.
- Whereas the deposits against LPG cylinders are refundable, the connection charges (which is also very heavy – Rs. 5000/- for bulk registration and Rs. 6500/- for individual registration) for NG is non-refundable. Moreover, scheme of BRS is not being extended to various domestic consumers who are unable to meet the criteria.

- MGL, unlike other public utility companies like BSES, is not responding to the news items / letters published in newspapers.
- Price for NG to be charged by MGL should be based on the following considerations :-
 - NG, a natural resource, should be available all through out India at uniform price
 - NG supply by MGL is a infrastructure development project by the Govt.
 - NG was being flared till recently
 - With a life of about 80 years, the maintenance cost for NG supply system is minimal
 - NG use by residents of Mumbai is going to increase rapidly provided MGL carries out Sales & Marketing of NG properly
- MGL to develop system for better control and accountability of the NG construction & supply work which is carried out entirely by contractors.
- The process for creation of Regulatory Authority be initiated without any further loss of time. Domestic NG consumers should get proper representation / participation in this mechanism.
- Redressal mechanism for consumer grievances needs to be strengthened and function effectively for the cause of common consumer. MGL should hold periodical meetings with Mumbai Grahak Panchayat to sort out pending issues.

4.5 VIEWS OF GOVERNMENT OF MAHARASHTRA **[A.S. Khot, Principal Secretary (Industry & Labour), Govt. of Maharashtra]**

- Due to globalisation and open market economy, a large number of industries set up in Maharashtra find it difficult to compete and are closing down, with the result that there is very serious problem of workers who are out of employment due to closure of such factories.
- Since the meeting with the Hon'ble Minister, Golden Chemicals employing 700 workmen, has shut down, because of the high cost of gas.
- Industrial units in Ankleshwar and Baroda in Gujarat pay Rs. 3.48 per SCM, including sales tax for natural gas, as against Rs. 9.63 per SCM, including

sales tax, charged by Mahanagar Gas Ltd. to units located in Mumbai. This needs to be seriously reconsidered because prima facie charging rates three times higher than Gujarat can not be justified. The rates may differ nominally as is in the case of petrol and diesel prices.

- Some of the glass factories, who have to pay heavy charges for natural gas have threatened to close down their factory because of non viability of these factories. In case these units are closed down, there will be more unemployment. In addition, there will be unemployment in the secondary and tertiary sector, which depend on these factories.

4.6 MGL's RESPONSE ON REPRESENTATIONS BY VARIOUS CONSUMER GROUPS

4.6.1 Industrial Sector

- MGL has been having dialogue with Industrial consumers and wherever feasible, consumer complaints and concerns have been redressed. The dialogue will be continued to understand further their constraints, concerns, the difficulties they have been experiencing on the contractual aspects and the areas where quality of service can be further improved. Wherever feasible, the constraints and the concerns of industrial consumers will be redressed amicably.

4.6.2 CNG Sector

- Normally gas at adequate pressure is provided to MGL and there is no problem in CNG filling. However, whenever there is any constraint / problem in the offshore, the availability of adequate pressure gets likely affected. This happens rarely.
- ONGC, GAIL and MGL are co-ordinating on the issue of availability of adequate pressure and it is hoped that with better co-ordination, the problem of the pressure will remain resolved.
- MGL has been constantly endeavouring to improve the quality of service and this process will be continued in the future. The dispensing operators will be trained and provided guidance to improve the quality of their service to consumers. Similarly, actions are being taken to provide timely information to the consumers with regard to any breakdown of the compressor etc.
- MGL presently has 40 CNG outlets in the city of Mumbai. During the last 9 months, MGL has opened 15 outlets against 25 outlets opened during the

previous 7 years. All efforts are being made to increase the number of outlets to 46 outlets by December 2002, 55 outlets by March 2003 and 80 outlets by March 2004.

- MGL is also taking action to upgrade its outlets from daughter booster to online and also to add additional compression capacity wherever feasible.
- The number of dispensing points is also being increased to simultaneously cater to large number of fleet at any given point of time.

4.6.3 Domestic Sector

- For Domestic consumers, MGL have an automated 24 hours Interactive Voice Recording System, whereby consumers can know their last five consumptions, payment details. They can lodge their complaints, know the status of complaints, get registrations forms and duplicate bills via fax. MGL also have 24 hours Emergency Control room, ECS, help desk and consumer service centre manned by professionals who attend the consumer complaints and redress them amicably.
- Shortly, MGL will be opening an automated and Interactive call center to quickly attend the consumer complaints and redress them. The call center will be taking care of all the consumer letters and replying them quickly.
- MGL will also be having quarterly meetings with Mumbai Grahak Panchayat to continuously receive their feedback and redress any issue of concern.
- The primary objective of keeping the connection charge lesser than the investment is to provide the required thrust to the Domestic sector. The salvage value of the material installed in case the consumer surrenders the connection may not be significant. The labour cost incurred by MGL remains non-recoverable. Over and above, MGL would need to incur the additional cost to dismantle the installation incase the connection is surrendered by the consumer. Refund of connection charge at the time of surrender of a connection by the consumer prima facie does not seem to be in line with the normal business practices.
- Necessary steps are being taken to minimize the delay in providing connections after payment of the connection charge. Presently, registrations are being collected only from the areas where connections can be provided in the next 9-12 months time.

CHAPTER - V

ANALYSIS OF MGL's PERFORMANCE AND FUTURE PROJECTIONS

Believe nothing, no matter where you read it, or who said it – even if I have said it – unless it agrees with your own reason and your own common sense.

Buddha

They who dream by day are cognizant of many things which escape those who dream only by night.

Edgar Allan Poe

5.1 ANALYSIS OF MGL's PERFORMANCE

5.1.1 Keeping in view the Terms of Reference, the Committee had requested MGL, IGL and Gujarat Gas Company Ltd. who are presently engaged in city gas distribution in Mumbai, Delhi, Surat, Bharuch and Ankleshwar to provide information on sector wise pricing, revenue, investment etc. Even though requested data and information could not be obtained in full / in time, the Committee made use of the same after some analysis and projections.

5.2 SALIENT FEATURES OF CNG CONSUMERS SECTOR OF MGL

➤ Growth of this sector is as indicated below :

Year	Avg. volume (SCMD)	Quantity (% of total)	Selling Price Rs / SCM incl. ST	No. of addl. consumers	No. of outlets
1996 - 97	14778	99.9%	8.08	3461	5
1997 - 98	28827	91.5%	7.84	3048	2
1998 - 99	48715	81.8%	8.03	2950	3
1999 - 00	64222	63.8%	8.50	2947	7
2000 - 01	112077	43.2%	9.49	9234	5
2001 - 02	157258	37.4%	11.14	13545	3
2002 -03 (till Nov. '02)	245000	41.7%	11.62	22367	12
Cumulative				57591 (incl. 39 in '95-'96)	37

- Pricing - Present price is about 40% of Petrol Price on Energy Equivalent basis.
- Attractive Payback period - about 6 months for taxis and 8 months for autos
- Likely to have high growth in future in view of the High Court ruling related to conversion of auto rickshaws / taxis to CNG.
- Future projections SCMD – 328411 SCMD in '03-'04, 348712 SCMD in '04-'05 and 379452 SCMD by '05-'06.

5.3 SALIENT FEATURES OF INDUSTRIAL CONSUMERS SECTOR OF MGL

➤ Growth of this sector is as indicated below :

Year	Avg. volume (SCMD)	Quantity (% of total)	Selling Price Rs / SCM incl. ST	No. of addl. consumers
1997 - 98	438	1.4%	6.69	1
1998 - 99	4263	7.2%	6.40	3
1999 - 00	20252	20.1%	7.60	8
2000 - 01	114353	44.1%	7.84	14
2001 - 02	205427	48.9%	7.61	5
2002 -03 (till Nov. '02)	255417	43.5%	9.37	7
Cumulative				38

- Fuel replaced : Predominantly LSHS (80% cases), balance SKO, FO, LDO and LPG
- Pricing : 10% Discount allowed after computing the Gas Price Replacement Fuel Pricing (RFP) linked to LSHS on Energy- equivalent basis
- Economics : Payback period less than one year. No Inventory Cost and reduced working capital requirement (Pay-After-use vis-à-vis upfront cost in case of other fuels)

5.4 SALIENT FEATURES OF DOMESTIC CONSUMERS SECTOR OF MGL

➤ Growth of this sector is as indicated below :

Year	Avg. volume (SCMD)	Quantity (% of total)	Selling Price Rs / SCM incl. ST	No. of addl. consumers
1996 - 97	1.4	0.1%		2900
1997 - 98	1504	4.8%	6.75	2000
1998 - 99	4726	7.9%	6.74	5114
1999 - 00	9047	8.9%	7.37	19956
2000 - 01	15632	6.0%	9.79	19975
2001 - 02	25047	5.9%	9.94	53471
2002 -03 (till Nov. '02)	41667	7.1%	11.48	38176
Cumulative				141692 (incl. 100 in '95-'96)

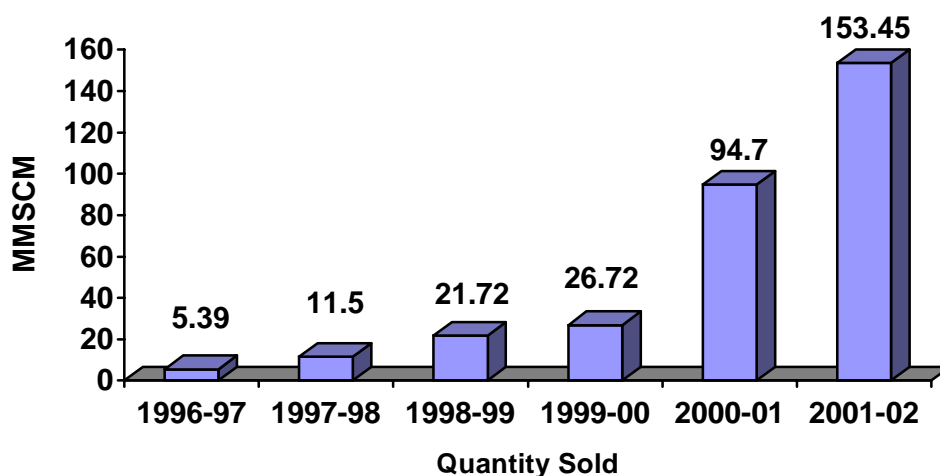
- Number of connections – have increased rapidly since 2000 and is expected to reach cumulative figure of 2,60,000 by March 2004.
- Pricing - minimum 10% Discount on domestic subsidized LPG Price.
- The connection charge per domestic customer is only Rs. 5000, while the cost incurred per domestic customer is about Rs. 9000
- Extensive pipeline network required and high operational costs renders the domestic sector unviable on a 'stand-alone' basis.

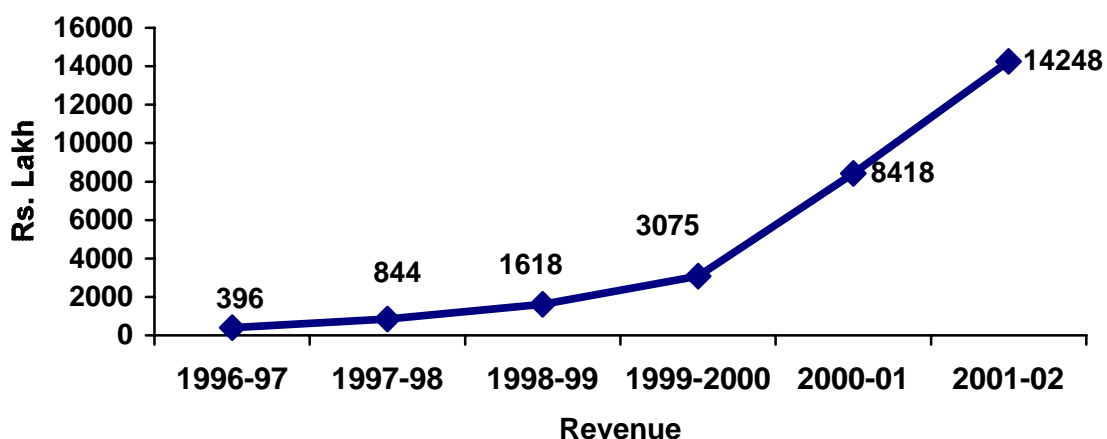
5.5 ANALYSIS OF MAHANAGAR GAS LTD.'S PAST RESULTS

5.5.1 For the purpose of analyzing MGL's profitability the committee did an extensive study of the results published by MGL during the last five years. A full print out of the analysis is enclosed at Annexure 11. Salient features emerging out the analysis are indicated below.

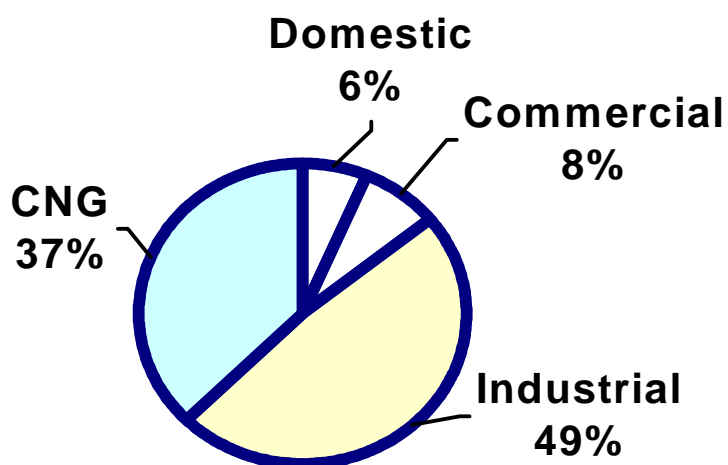
5.6 ANALYSIS OF SALES FIGURES

5.6.1 MGL has been showing an upward trend in sales every year. The sales revenue growth has shown a Compounded Annual Growth Rate (CAGR) of more than 100%. This growth has come both in terms of volumes and rates. Sales volumes have increased from a level of 5.39 MMSCM during 1996-97 to 153.46 MMSCM during 2001-02. Average realization from sales has increased from Rs. 7.34 per SCM in 1996-97 to Rs. 9.28 per SCM during 2001-02. Graphically the sales during last 5 years will look as indicated :





5.6.2 The sales have been distributed now primarily in the Industrial and CNG sectors – each of which account for nearly 40% of the sales mix. The Domestic sector contributes to slightly more than 10% of the sales and rest is contributed by the commercial sector. The sales mix for the last year is depicted below :



5.7 ANALYSIS OF COSTS FIGURES

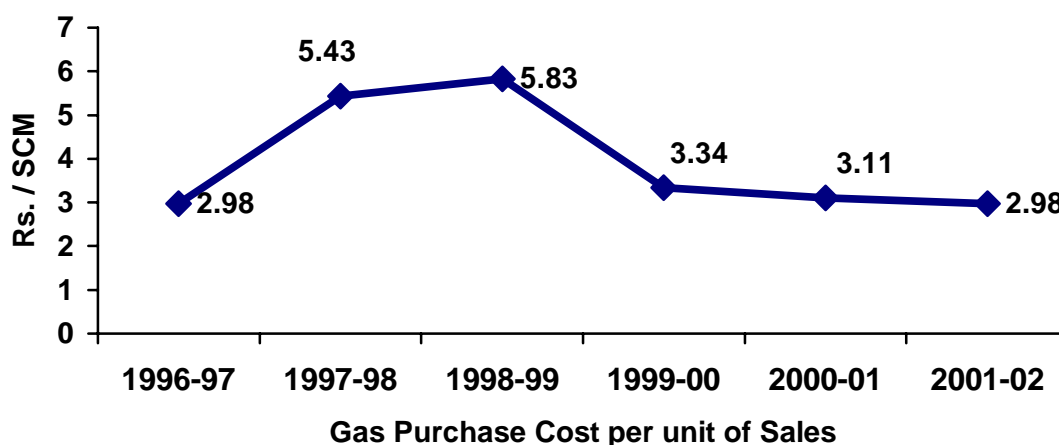
5.7.1 MGL costs can be divided in four main categories :

- Gas Purchase Costs
- Variable Cost of Operations
- Service Costs and
- Cost of Assets

5.7.2 MGL purchases Natural Gas from GAIL and is charged at the current upper ceiling price applicable to the GAIL consumers. Basic price of gas charged to MGL is Rs. 2850 / '000 SCM (calorific value 10,000 KCal/ SCM). MGL is also charged for a 10% royalty on the producer's price (price at which the producer – ONGC sells the gas to GAIL). Gas supplies in Mumbai attract a 1.8% Octroi charge. MGL is given a Calorific Value Discount which is nearly 15%. Net price chargeable to MGL by GAIL is currently Rs. 2677 / '000 SCM (calorific value 8,500 KCal/ SCM).

5.7.3 In addition to the above, MGL also has to pay a fixed transportation charge per annum. This transportation charge is on an increasing scale and was agreed between MGL and GAIL. The transportation charge has been designed to meet the requirements of MGL, as the sales volumes were expected to be increasing every year. During 1997-98 the transportation charge was Rs. 125 lakhs. It has increased to Rs. 476 lakh during 2001-02. Further, MGL also pays GAIL for SCADA charges.

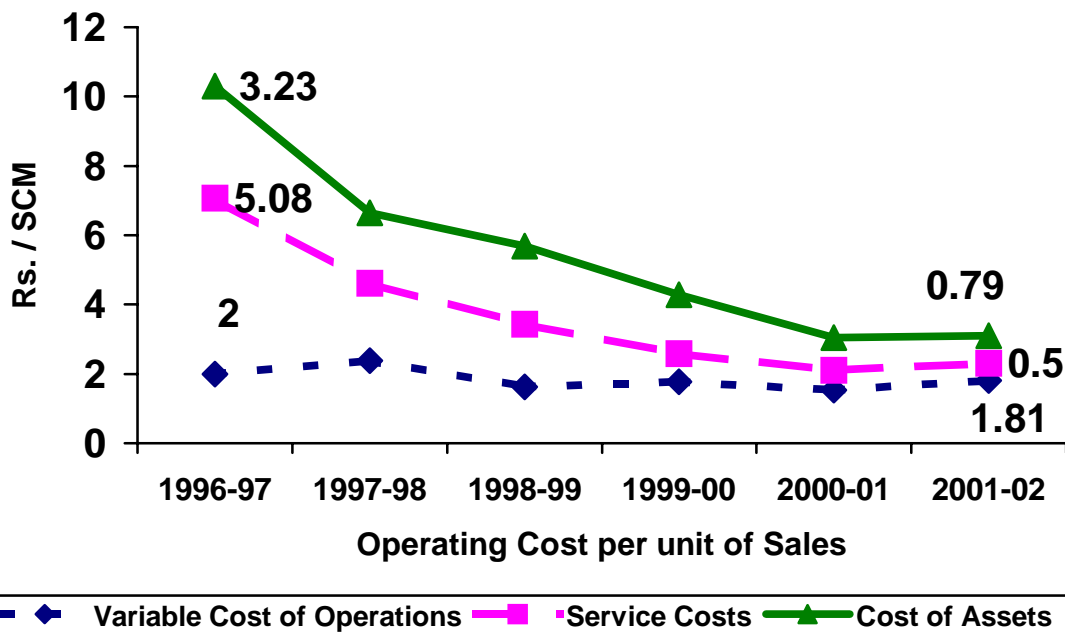
5.7.4 As a result of the above arrangements, MGL's Gas Purchase Cost per unit of sales have remained fairly stable except for the years 1997-98 and 1998-99, wherein MGL did not fulfill the obligations for minimum purchases. MGL's gas purchase costs per unit of sales are as indicated :



5.7.5 Operating costs reflected in MGL's balance-sheet have been divided into three categories by the committee.

- a) Variable costs of operations include the Sales Tax, Excise Duty, Power and Fuel, Compressor Lease Charge and Transportation Charge.
 - NG sales to industrial, commercial and domestic categories do not attract excise duty. CNG sales attract a duty at 16%.

- MGL does not charge any sales tax on CNG sales to oil marketing companies. On the rest of the sales, sales tax is reckoned at 15.8%. While MGL books sales tax as a cost, it is not paid to the State as MGL was initially granted a deferment. The sales tax payable has been recognized only as a liability under the heading “Unsecured Loans” and MGL’s deposit of Rs. 1.5 crore is recognized as a receivable in the books of accounts.
- b) Service Costs include the manpower costs and other elements of general administration. Although these costs have increased from Rs. 274 lakh in 1996-97 to Rs. 764 lakh in 2001-02, they have been consistently reducing when linked to sales.
- c) Cost of Assets includes maintenance, depreciation and amortization. These costs normally increase when the company is adding assets every year. In the case of MGL as well the trend is clearly visible. However, even these costs have shown a declining trend when linked to sales.



5.8 ANALYSIS OF MARGINS FIGURES

5.8.1 During 2001-02, MGL has earned a gross margin of Rs. 6.30 per SCM during the last year. This represented nearly 68% of the selling price realized of Rs. 9.28 per SCM. After knocking off the variable costs, the contribution works out to Rs. 4.49 per SCM – nearly 50% of the sales price. The contribution has covered the fixed costs and left an earning before interest and taxes (EBIT) of 3.20 per SCM

– nearly 30% of selling price. However, the company has shown negative EBIT till the year 1999-2000 and as such margins earned by the company need to be seen with this background.

5.8.2 MGL's business is still in the first stage of cash flows – wherein the business is still requiring additional funds. The free cash flows for all the years have been negative. In other words the capital expenditure is quite in excess of the revenues generated by the business. In the initial period of three years, MGL has funded the business through equity route. The debt equity ratio during this period was less than 0.15 to 1. However, during the last three years of operation, the funding has been through internal generation and borrowings and no new equity contribution has been made. Currently the debt equity ratio is 0.79 : 1.

5.8.3 The company has been showing improved performance every year with the return on invested capital increasing from a negative 224% in 1996-97 to a positive of 27% during 2001-02.

5.9 FUTURE PROJECTIONS

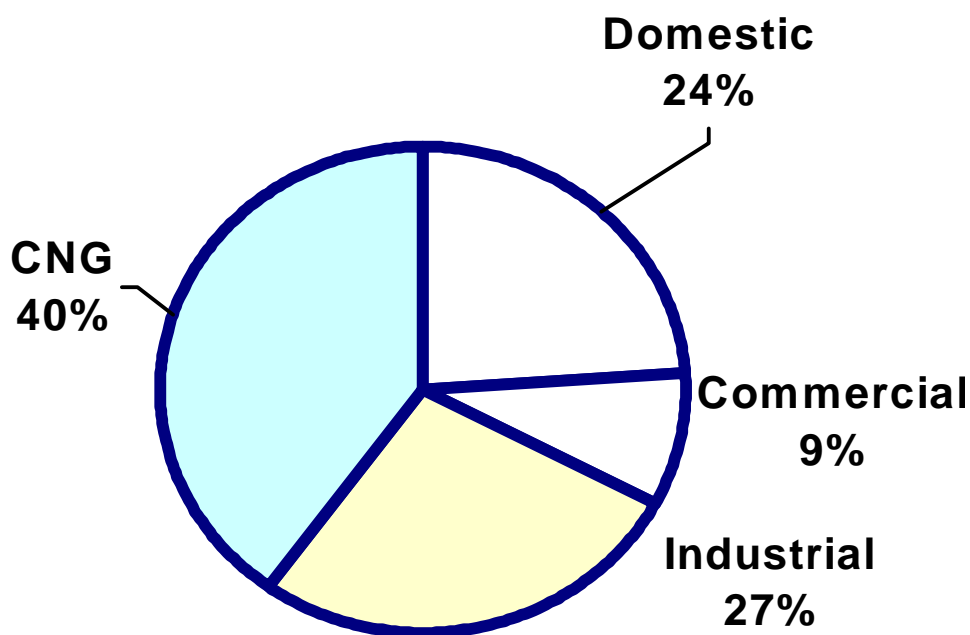
5.9.1 MGL, on the requirements of the Committee, had submitted their future business plan highlighting that the equity holders are likely to achieve an Internal Rate of Return (IRR) of 10.08% over a twenty year business span – from 1996 to 2016. The detailed calculations of this IRR are not reproduced in the report due to the absence of data from MGL.

5.9.2 The broad principles on which the working is based are given below, based on the data made available by MGL (up to the year 2011-12):

- To start with MGL had taken sales during the year 2001-02 as a base and increased the same every year based on additional customers being inducted into the system.
- During the initial two years of projection i.e. 2002-03 and 2003-04, the number of CNG customers increases considerably, after which the increases are only marginal.
- Industrial sales have been restricted to a maximum of 3 lakh SCM per day.
- The number of customers being enrolled every year and their average consumption is indicated :

Particulars	Industrial	Taxis	Autos	Domestic	Commercial
Average consumption per day in SCM		6.3	3.5	0.5	
Additional Customers					
2002-03	2	15000	12000	75000	118
2003-04	1	1000	5000	60000	106
2004-05	-	1000	3000	60000	93
2005-06	-	1000	3000	50000	82
2007-08	-	100	3000	40000	56
2008-09	-	100	3000	40000	47
2009-10	-	100	3000	40000	13
2010-11	-	100	3000	40000	14
2011-12	-	100	3000	40000	13

- As a result of the above projections, total sales increase from 153.46 MMSCM in 2001-02 to 394.98 MMSCM during 2011-12. The CAGR for this period works out to nearly 10%.
- During 2011-12, the sales mix would be :



- With a maximum ceiling on the industrial sales in place, the share of industrial customers in overall sales mix is expected to reduce from 49% to 27%. The domestic sector is expected to increase from existing 6% to 24%.

- Prices for industrial customers have been linked to the LSHS prices with a 10% discount. The future projection for LSHS prices is done by regression analysis considering crude prices to be US \$ 21 per barrel.
- Prices for Domestic customers have been linked to Domestic LPG prices with a discount ranging from 23% to 25% of the ruling prices. Domestic LPG prices have been considered at current base level of Rs. 11.53 per SCM with an inflation of 3% every year.
- CNG prices are on cost plus basis and have been considered along with a margin of Rs. 7.85 per SCM.
- Commercial prices are different for different categories. Commercial A customers would get prices linked to LPG Bulk. Commercial B customers are charged prices equal to industrial customers. Commercial C customers are charged prices with multiple linkages of LPG, LDO and LSHS. However, the overall impact of the commercial sector on the profitability of the corporation is not very significant.
- The projections are based on exchange rates (US \$) with a rupee depreciation of 3.4% every year.
- Inflation is considered at 6%. However, with an efficiency gain estimated at 3%, the resultant net inflation is only 3%.
- Purchase quantities are taken after considering a line loss of 1.5%.
- Gas prices for supplies by GAIL have been worked out based on 100% of FO parity of average of quotations for Cargoes CIF, NWE Basis (1% Sulphur), Cargoes FOB, Med Basis, Italy (1% Sulphur), Singapore FOB, HSFO 180 CST (3.5% Sulphur) and Arab Gulf FOB, HSFO 180 CST (3.5% Sulphur). The working of the international prices is once again based on regression analysis and is related to a crude price of US \$ 21 per barrel.
- MGL has planned a considerable amount of Capital Expenditure in order to fulfill the requirements of its increasing customer population. In particular a major portion of Capital expenditure is being planned for the CNG sector, which is affected by long queues and waiting periods currently. MGL had 25 CNG stations at the end of 2001-02. It has a plan to set up additional 30 stations in the current year so as to bring total number of stations to 55 by March 2003. It has further plans to put up 25 new stations during 2003-04.
- The Capital expenditure for the Domestic sector is a requirement every year. The cost for reducing pressure from 19 bar to 4 bar and connecting the gas to the kitchen of the consumer has been estimated at Rs. 9400 per connection

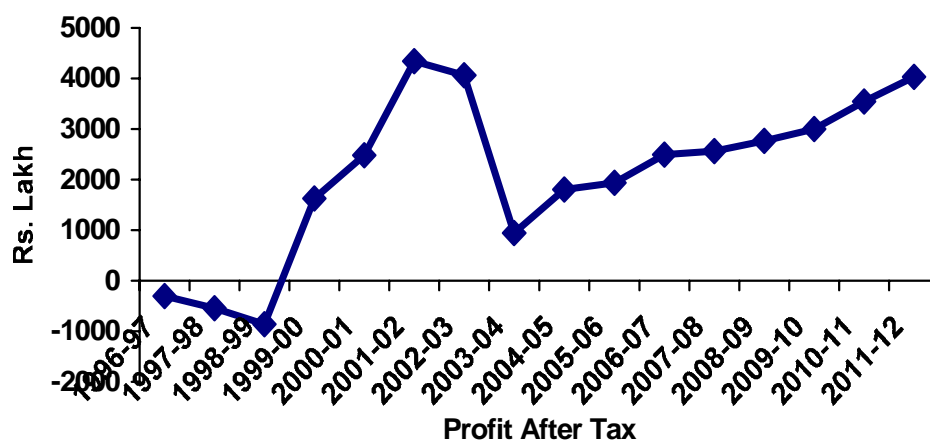
in the year 2002-03. The same is escalated at an inflation rate of 3% every year. The capital expenditure is net of the connection charge collected from the domestic consumer. Although MGL is charging Rs. 5000 per connection for bulk connections and Rs. 6500 per connection for individual connections, the projections are worked out based on additions from the bulk connections category. MGL has also considered bad debts to the extent of 2% in the projections.

- MGL's capital expenditure plan for next 10 years (total Rs. 520.55 crore) is as indicated :-

Particulars	CNG	Domestic	Pipelines	Total
Figures Rs. in lakhs				
2002-03	4928	3375	2756	11059
2003-04	8872	2869	688	12429
2004-05	112	3044	1000	4156
2005-06	0	2686	800	3486
2006-07	136	2271	300	2707
2007-08	861	2399	300	3560
2008-09	579	2529	300	3408
2009-10	791	2663	300	3754
2010-11	446	2802	300	3548
2011-12	703	2945	300	3948
Total	17428	27583	7044	52055

- Working capital elements are linked to sales / purchases. Debtors are considered at 45 days outstanding for Domestic and Commercial sectors and 30 days outstanding for Industrial sector. The CNG sector is expected to continue on cash and carry basis.
- Inventories are expected to remain at current levels of Rs. 60 lakh.
- Creditors are expected to be equivalent to 1 month revenue costs plus 15 days Gas Purchase Price.
- Projections for repairs and maintenance are linked to the cumulative gross fixed assets value excluding CNG assets. The repairs and maintenance is estimated to be 2% of the asset value at the close of the year.
- Depreciation and amortization for the assets is charged in line with the rates provided in Schedule XIV of the Companies Act 1956. For the purpose of tax depreciation, relevant WDV rates, as allowed under Income Tax Act, 1961 are used.

- Manpower cost and administration cost has shown a substantial increase during the year 2002-03. During the year 2001-02, these costs were Rs. 765 lakh and during the year 2002-03 they are expected to increase to Rs. 3808 lakh.
- Majority of the capital expenditure is expected to be from borrowings. The long term borrowings are expected to increase from the current level of Rs. 8720 lakh during 2001-02 to a peak of Rs. 20379 lakh during 2003-04. After that the borrowings decrease in a gradual manner every year.
- The highest debt : equity ratio is 1.35 : 1 for the year 2003-04.
- The loans are expected to carry a coupon rate of 11% with a maturity period of 5 years. The loans are rotated as required.
- Income tax is considered at current levels of 36.75% with Minimum Alternate Tax (MAT) at 7.88% of PBT as applicable.
- MGL's profits are expected to remain nearly constant at Rs. 4000 lakh for the year 2002-03. However, with the expected increase in Gas Purchase Price and higher loading due to heavy capital expenditure, the profits are expected to dip considerably in the next year to Rs. 900 lakh in the next year. Thereafter the profits increase steadily and reach Rs. 4000 lakh once again in the year 2011-12.
- Graphically the projected profits after tax would look as below :



- The company has already paid two dividends in 2000-01 and 2001-02 at 20% and 31% of distributable profits. It proposes to maintain a dividend payout ratio of 30% of PAT every year from 2002-03 onwards.
- Based on the above assumptions, the equity IRR – discounting the net cash outflows and inflows for the equity shareholders – works out to 10.08%.

5.10 COMPARISON WITH OTHER COMPANIES

5.10.1 The committee has also tried to benchmark MGL's data with data reported by other companies in the City Gas Distribution sector in the country. For this purpose, the company analyzed the balance sheets of Gujarat Gas Company Limited (GGCL) and Indraprastha Gas Limited (IGL). The comparison is not very accurate considering various differences between the companies as given below:

- The accounting year for MGL and IGL is April – March, while in case of GGCL the accounting year is January – December. As such the last year figures for GGCL are not available.
- GGCL is a matured company and has been in existence for many years. Certain businesses of the company have crossed the initial stage of business demanding very high capital expenditure and are now stabilized. The company has nearly three times the turnover of either MGL or IGL.
- GGCL differs with MGL in another aspect viz. it is mainly in the business of supplying bulk gas to industrial and commercial customers – which account for nearly 92.5% of the total sales. Domestic sales contribute to about 7.3% of GGCL's volume with a meager 0.2% being sold as CNG. The sales mix of MGL on the other hand has 37% sales to CNG sector.
- IGL is similar in size to MGL. However, IGL has concentrated more on the CNG sector and has nearly 95% of the sales coming from that sector. IGL also has substantially higher equity holding as compared to MGL.
- There are also differences in the methodology of recognizing costs and their classification in all the companies.

5.10.2 The comparison therefore is done for average data for the last three reported years and as a percentage of sales. A full print of the comparison is enclosed at Annexure 11. Major highlights emerging out of the comparison are:

- MGL has a very high percentage of miscellaneous income as compared to the other two companies. Nearly 50% of the miscellaneous income is from interest.
- Reflecting the sales mix, revenue per unit is highest for IGL.
- Gas purchase cost per unit of sales and as a percentage of sales is lowest for MGL at 35.7%.
- MGL also has the highest contribution (total income including other income less variable costs) per unit at 63.7%.
- Fixed costs for both MGL and IGL are about Rs. 1500 lakh each as compared to Rs. 4300 lakh for GGCL. These costs per unit of sales (Rs./SCM) work out to 2.72, 4.59 and 1.31 for MGL, IGL and GGCL respectively reflecting higher percentage of industrial customers for GGCL and MGL.
- Profit before tax, both in percentage term (30.10%) and as rupees per unit (Rs. 2.86 per SCM), is highest for MGL. Retained earnings have shown a similar trend.

5.11 COMMENTS ON THE PROJECTIONS

5.11.1 The committee could not go into detailed working of the assumptions – due to paucity of data and time and as such has decided to go ahead with the base case as developed by MGL. However, certain specific comments have been given below:

- In the projections, MGL has considered a quantum jump in capital expenditure as well as revenue expenditure.
- Actual quantum of debtors for MGL are much higher than the norms considered – the committee feels that the norms are reasonable and MGL should aim for a more efficient collection process.
- While a major portion of capital expenditure would be required for the new CNG stations and additional gas connections to the domestic customers, the rates considered per station are on the higher side.
- Operating expenditure also shows a major increase as compared to the past actual data.

- Benchmarking against possible peers (GGCL & IGL) supports the contention that MGL's sales mix – a well balanced sales mix – would result in lower costs per unit.
- Sales volume projected by MGL seems to be on the lower side in all the sectors. Particularly in CNG sector the projections have very low number of the vehicles being added every year. Further, in view of the High Court ruling, all the passenger busses including the BEST busses are expected to convert to CNG – which is not factored in the projections.
- Current year's experience shows that the crude prices have been substantially higher than the pricing basis adopted by MGL, a standard crude price of US \$ 21 per barrel. The pronounced pricing policy of OPEC is to keep the crude price between US \$22 and US \$28 a barrel. This fact would increase both the selling price as well as gas prices – but would result in increased contribution as increase in selling price would be much higher than the gas purchase prices.
- MGL has not considered removal of subsidies on domestic LPG – which has been on the Government's agenda and is expected to take place in the next five years.

5.11.2 All these factors indicate that MGL's profitability could be higher and in the long run (2 years hence) there would be a scope for review of selling prices of MGL.

5.12 PRICING POLICY OF MGL

5.12.1 MGL has informed the committee that it follows a market value approach for pricing of Domestic, Commercial and Industrial sectors. In case of CNG, however, its policy is on a cost plus approach.

5.13 DOMESTIC SECTOR PRICING

5.13.1 In case of domestic gas pricing, MGL is charging the consumers a one time charge of Rs. 5000 or Rs. 6500 per connection for bulk and individual bookings respectively. In addition they charge Rs. 11.53 per SCM for the consumption. The monthly consumption charge is fixed with a discount of about 17% to the existing prices of LPG.. Against this, the consumers are currently paying a one time refundable deposit of Rs. 1500 for a double bottle connection and a charge of Rs. 250.61 per cylinder. Converted to a daily consumption of 0.5 SCM (after equating the calorific values of LPG and NG) and a month having 30 days, the average bill for a consumer per month for NG would be Rs. 173 while a consumer of LPG would be paying Rs. 208. Thus there is a saving of Rs. 35 per

month for a NG consumer. NG pricing would thus meet all the above-mentioned criteria - Economic Efficiency, Financial Viability and Social Equity (please refer to Annexure 13) - except for the high one time charge being borne by the consumers. The committee, therefore, has dealt with this aspect in its recommendations, further in the report.

5.14 INDUSTRIAL SECTOR PRICING

5.14.1 In case of Industrial consumers, the pronounced pricing policy is with a 10% discount to the landed LSHS pricing. However, the committee has noted from the contracts that MGL has also reserved its right to change to cost plus pricing mechanism in case the input gas price increases to such an extent that delivered gas price calculated on the basis of alternate fuel pricing mechanism does not give MGL sufficient margins to cover its cost and profit. The relevant clauses from MGL's contracts are reproduced below:

5.14.2 Fixed Price Contracts

Quote

Without prejudice to the provisions of aforesaid clauses, the SELLER shall be entitled to vary the GAS PRICE, at any time, without prior notice to the BUYER, in case of any variation in taxes/levies cess, assessments and duties and any other statutory levy(s) applicable to the Gas or any variation in cost of the GAS to the SELLER. Any variation in the cost of GAS to the SELLER at any time during the period of this CONTRACT shall be passed on in full to the BUYER from the date of the first meter reading with retrospective effect, if required, following notification of such price variation from the supplier of the GAS (presently GAIL) to the SELLER.....

Unquote

5.14.3 Variable Price Contracts

Quote

Presently the price of Gas as contained in Clause ____ of the contract is charged by the SELLER, "indexed to LSHS price on thermal equivalence principles" (LSHS PRICING) as more particularly stated in the Contract and the SELLER has explained to the BUYER that in case of variation in the purchase price of Gas the SELLER may have to revise the sale price of the Gas based on the "Built up Component Pricing Mechanism" (Built

up Pricing). The SELLER has explained in detail about the Built up Pricing and the BUYER has understood the same fully.

It is unconditionally agreed by the parties that in case of any variation in the present Gas Purchase Price of the SELLER, the SELLER shall have the right to revise the mechanism of charging the selling price of gas from the present system of LSHS pricing to Built up Pricing provided prior to exercising such right as aforesaid, the SELLER, shall notify in writing to the BUYER and the BUYER shall convey its acceptance or otherwise in writing within 21 days from the date of receipt of SELLER's letter to the SELLER. IF the BUYER fails to notify as aforesaid within the 21 days period it shall be deemed to have been accepted by the BUYER. However, in the eventuality of BUYER's declining to accept the Built up Pricing as offered by the SELLER within the 21 days period as aforesaid, the Contract shall stand terminated 3 months after the date of receipt of the BUYER's written communication of declining the offer of SELLER and during the said 3 month period all provisions of the contract read with amendments, if any, would apply and shall be binding upon both the parties.....

..... The Built Up Component of Rs. 3.71 per SCM, as aforesaid, shall be effective from <date> The said Built Up Component will be escalated @ 3% each year on April 1st.

Any variation in the Gas Purchase Price of MGL shall be passed on in full to the BUYER. The said variation shall come into force from the date it becomes effective for the SELLER

Unquote

5.14.4 Thus, it can be seen that under contractual obligations, MGL has ensured that it can earn a minimum gross margin of Rs. 3.71 per SCM at all times, while there is no cap on the maximum margin which it can earn. Built up component of Rs. 3.71 includes the following :

	Rs./SCM
➤ Transportation cost payable by MGL to GAIL	0.41
➤ City transportation cost of MGL	2.72
➤ Apportionment of overheads	0.58
➤ Total	3.71

- 5.14.5** The committee also checked the present pricing structure with the 'cost plus' method. The average actual delivered gas price for the year (as indicated by MGL in their submission) vis-à-vis notional delivered gas price for the year (actual average input gas price for the year + margin as given in contract) were compared for the years 1999 – 2000 onwards (i.e. after MGL's gas transportation cost per unit has stabilised).
- 5.14.6** The comparison clearly brings out the fact that the actual prices charged have been more or less matching with notional 'cost – plus' prices for the period 1999 – 2000 to 2001 –2002. However, the actual prices charged have gone way ahead of notional 'cost plus' prices only during the current year due to increase in price of alternate fuel (i.e. LSHS) as a result of spurt in international price of crude. While the input gas price has gone down marginally, delivered price of gas (before taxes) for the year 2001-02 has increased from 6.60 per SCM to Rs. 8.09 per SCM during first eight months of 2002-03 of.
- 5.14.7** It may be noted that the supply to industrial consumers was started by MGL as a means of boosting their revenue in the initial period, when the capitalization could not be serviced by the Domestic and CNG sectors. In other words, the industrial sector has been introduced as a stop gap arrangement till MGL acquires a critical mass in gas retailing. Keeping this factor in mind, the sales to the industrial sector are being capped at 3 lakh SCM per day in future.
- 5.14.8** The present pricing policy of charging the sector at a discount to alternate fuel, thus, meets the criteria of gas pricing – Economic Efficiency and Financial Viability. It provides both, an incentive to the consumers as well as revenues to the gas utility. The pricing also would continue to help MGL in the year's to come, as the Domestic and CNG sectors have still not fully matured.
- 5.14.9** However, the committee has taken into account the feelings expressed by the industrial consumers – particularly the fact that increases in international fuels markets drive their costs upwards making the units non-competitive in the short run. Therefore the committee has made certain recommendations, which are given further in the report.

5.15 CNG SECTOR PRICING

- 5.15.1** In the case of CNG, the current prices of alternate fuels - particularly the taxes and duties on MS and HSD - make them a lot more expensive than CNG, thereby providing room for the economic return required to finance the initial investment required to convert a vehicle from liquid fuels to CNG. However, these taxes may result in CNG pricing on Alternate Fuels giving abnormal returns to MGL.

5.15.2 The price of CNG is extremely competitive as compared to MS based on the current gas price and the cost plus approach. However, the committee decided to test the same, in case the natural gas prices are deregulated and the pricing policy of MGL requires MGL to raise the prices of CNG as well. Although the Gas price is expected to be linked to a basket of Furnace Oil prices at FOB levels, the committee has taken two benchmark points for the purpose of comparing with MS prices.

5.15.3 In the table enclosed at Annexure 11, the current price of MS (applicable on 16th January 2003 in the city of Mumbai) has been compared with that of i) the current price of CNG, ii) CNG price worked out on the basis of input gas price to MGL as Rs.5800 per '000 SCM. and iii) CNG price worked out on the basis of input gas price to MGL as Rs. 8730 per '000 SCM. The break-even point works out to 19000 to 30000 KM at the lowest and highest levels of CNG prices.

5.15.4 Assuming that the taxies have an average running of about 100 KM per day and auto rickshaws have an average running of around 70 KM per day, it is expected that even at the highest cost of CNG, the breakeven point for CNG vehicles would be achieved in one or two years.

5.15.5 Thus, the CNG pricing policy also meets the objectives of Economic Efficiency as well as Financial Viability and could be continued in the long run.

5.16 COMMERCIAL SECTOR PRICING

5.16.1 The commercial sector has a low volume and has no significant impact either on the sales volumes or on the profits of MGL.

CHAPTER – VI

RECOMMENDATIONS OF THE COMMITTEE

It requires a very unusual mind to understand the analysis of the obvious.

Alfred North Whitehead

Creativity can solve almost any problem. The creative act, the defeat of habit by originality, overcomes everything.

George Lois

6.1 METHODOLOGY ADOPTED BY THE COMMITTEE

6.1.1 The Committee took the following steps before finalizing its recommendations :

- Invited all the concerned associations / unions representing the various categories of consumers to submit their detailed views / representations. This was followed by personal meetings / depositions by these organizations / groups.
- In order to work out cost of services / return and review the fairness of the current price charged to various categories of consumers, the Committee sought information related to Investment, Operating / Retailing / Administrative / employee related / other Costs, revenue generation, return on investment etc. from all the city gas distribution companies operating in India
- Held discussions / brain-storming sessions with eminent experts in the fields of Hydrocarbon industry, Deregulation, Social Economics, Industrial Planning etc.
- Formally requested some reputed MNCs / Consultancy firms operating in India for information about the method / practices adopted in foreign countries to ensure that charges paid by various consumers along a distribution network are fair and reasonable.
- Studied international scenario of natural gas market with special emphasis on city gas distribution in terms of organizational structure, legal / regulatory framework, pricing structure & mechanism.
- Carried out detailed analysis of MGL submission with respect to past and projected data for sales volume, price, CAPEX, OPEX, revenue etc. and also compared same wherever possible / relevant with data for Indraprastha Gas Limited & Gujarat Gas Company Limited as published in their Annual Reports.

6.2 GENERAL OBSERVATIONS OF THE COMMITTEE

- Linking of gas prices with alternate fuel prices is an international practice and can not be dispensed with. It also provides a ceiling to gas prices as gas and alternate fuels compete with each other.
- Original gas allocation for city gas distribution in the city of Mumbai did not include gas supply to the Industries. The emphasis was, initially, on domestic

- gas supply. Later, the transport (CNG) sector got added on primarily due to environmental considerations. As domestic sector gas supply was not viable purely as a stand alone project; industry was included for supply by MGL to enable it to make a reasonable return and also invest for growth of Domestic / CNG sectors. Industrial / commercial customers have entered into formal agreement with MGL, linking delivered gas prices with alternate fuel cost.
- City gas distribution is a natural monopoly, as the system can not be duplicated. In most of the matured gas markets, revenue to the gas distribution companies is regulated through legal framework. Where as, long-term / contracted customers provide basis of initial investment decision by the companies, retail customers are benefited by paying marginal distribution costs.
 - Cost of gas to customer, in many countries, is also worked out on the basis of gas cost to the Distribution Company and cost of service (Depreciation plus operation and maintenance cost). This method ensures both a fair return to the company to enable its operations in a safe manner as well as investment for its expansion. The customer is also benefited by a transparent method of calculations. Revenues allowed / tariff / gas cost to the customers are monitored / regulated by the regulator / concerned ministry in most of the countries.
 - Companies like MGL in Mumbai, IGL in New Delhi and GGCL in Gujarat are being supplied natural gas by GAIL at administered price. These companies are supplying gas to their customers at prices based upon market conditions, mainly linked with alternate fuel. In absence of any regulatory mechanism in the country, the pricing mechanism of these companies has not been scrutinised by any regulatory / statutory authority in the past.
 - In view of Government of India notification to review pricing mechanism of MGL, the committee has collected data from MGL on their past and projected numbers in area of prices, gas volumes and investment plans. MGL has also submitted their expected returns based upon past returns and future plans.
 - Committee also observed that there were many areas in Natural Gas pricing, transportation and distribution, which need to be addressed separately, as same are not part of reference for this committee.

6.3 GUIDING PRINCIPLES FOR THE RECOMMENDATIONS

- 6.3.1** As per the terms of reference, the Committee had to “examine the price structure for industrial, commercial, domestic and transport consumers keeping in view the need for reasonable return on the investment by MGL”.

- 6.3.2** On utility pricing structure, there exists a large body of literature concerning other developed countries and some of the South East Asian countries. All these studies basically relate to efficiency and equitable pricing practices.
- 6.3.3** As far back as 1995, the Sundararajan Committee in its report had observed that the 'Gas Pricing' should be based on i) Economic Efficiency, ii) Financial Viability and iii) Social Equity (please refer to Annexure 13). All these propounded principles would still be applicable, as there is not much change on the ground even now.
- 6.3.4** The Committee also came across a report prepared by Asia Pacific Energy Research Centre (APEC) on Natural Gas End-Use Prices published in March 2001. The issues covered by this study concentrated on :-
- Market drivers in a historical perspective
 - Deregulation
 - Competition
 - Universal service obligation
 - Government's willingness to mobilize price policy to resolve issues
 - Government's awareness of and willingness to remedy problems relating to cross-subsidies and
 - Methods of gas pricing other than the traditional cost-plus method.
- 6.3.5** Most of the above issues are also common to India even though the City Gas Distribution is yet to mature. The study conducted by the APEC shows that different ways and objectives of subsidisation exist across industries and nations within the Asia Pacific region.
- 6.3.6** The social welfare function and constraints perceived by policy-makers or regulators may be different across economies. The issue of subsidies is more to do with need to appear fair than on efficiency. Therefore, an optimal choice based on the perceptions of social welfare functions and constraints that include efficiency, equity etc., will have to be made in developing economies and India is no exception. Maybe when the Industrial gas market in India gets liberalized and de-regulated the scope for subsidies and cross-subsidies would get reduced.
- 6.3.7** Considering the need for gas market development in India which is a developing economy and convenience of use and the need for environmental improvement, consumption of gas certainly entails "public good" attributes. Therefore, these

reasons would impact on any pricing strategy for different sectors. The large consumers who have choices such as other types of fuels than gas or to be supplied gas from more than one supplier, have some bargaining power. However, small consumers may need some protection by regulators from the monopoly or market buyer of utilities. In Mumbai, the Committee felt that the domestic consumers and the transport sector need a certain degree of price protection (i.e. price discrimination) for some more time till the gas market is totally de-regulated. This perception of the Committee was strengthened by prevalent situation in other countries.

6.4 COMPARISON WITH OTHER ECONOMIES

6.4.1 The basic price of gas in India has remained static at Rs. 2850 / '000 SCM since 2000 – 01. The producer price to ONGCL has dipped to a low of US \$ 1.09 per MMBTU as compared to wellhead price of US \$ 3.01 per MMBTU in U.S – please refer to Annexure 14.

6.4.2 A comparison of sector wise average price of gas since 1996 for some of the developed economies shows that the charges for the residential use ranges from US \$ 8.84 per MMBTU in U.K. to US \$ 15.46 per MMBTU in Italy. In U.S. it was US \$ 8.02 per MMBTU – please refer to Annexure 15.

6.4.3 For developing economies the Committee could not get detailed information over a period. However, for some of the countries in South Asia, for the year 1999, sector wise gas prices show that there exists price discrimination (please refer to Annexure 16).

6.4.4 The following excerpts support these observations.

6.4.5 In Canada and US, there is competition for wholesale gas sales. However, retail gas prices to a large degree continue to be regulated by Provincial State Utilities Boards. Industrial gas pricing policy in most South East Asian economies is not only influenced by economic objectives such as in Singapore and Thailand but also by the social objectives of each economy. Thus generally end use prices are not entirely determined by the market. While different economies in this region employ range of price practices, there is a tendency to move towards the restructuring of the natural gas industries from ones based on regulated pricing, especially in matured gas economies, to a more market based pricing environment.

[Source: APEC Report]

6.4.6 Gas markets in Australia and New Zealand are amongst the most de-regulated in the world. They are essentially all privately owned and prices are set via the inter-play of the cost of resource, transport costs, supply and demand, possible

uses and the availability and prices of competing fuels. End use gas prices in Australia & New Zealand are generally higher than those in USA and Canada.

[Source: APEC Report]

6.4.7 In Korea, the rates are differentiated by end use type and determined by local Government. There have been cross subsidies to gas for commercial building cooling use from other types of end use. In Japan, the gas utility industry law has provisions that protect small consumers from monopoly power.

[Source: APEC Report]

6.5 APPROACH FOR CITY GAS DISTRIBUTION IN INDIA

6.5.1 While examining the Indian scenario, the Committee was handicapped by the limited data and lack of any such studies in India and also in view of the limitation of time could not get adequate response from organizations abroad. Therefore, the Committee had to rely mostly on the data furnished by the MGL and IGL and draw its conclusions. In this, it had kept in mind the grievance of the various sectors of consumers in Mumbai. The Committee also deliberated on the need for a reasonable return on the investment by MGL for which purpose a normative approach was adopted on the expenditure and investment projections.

6.5.2 The Committee would have liked to project a normative tariff sector-wise for Mumbai but for lack of adequate historical data, sector-wise cost and investment, this could not be achieved.

6.5.3 The Committee considered two methods of computing the projected net income. They are :-

a) Cost plus approach – i.e. the need to have a definite return on net invested capital, met out of equity capital and borrowings based on which the gross margin were computed.

b) Co-relative method – whereby the price of gas for different categories of consumers is fixed at a lower level as compared to the corresponding alternative fuel.

6.5.4 The Committee compared the gross margin computed by the cost plus approach by assuming a reasonable rate of return on equity and the prevailing low interest rates for borrowings, with that arrived by way of co-relative method and found that the recommended level of tariffs for the different sectors, as given later in the chapter, not only addresses the consumer grievance with regard to price but also projects adequate and reasonable rate of return to MGL.

6.5.5 As regards the cost plus approach, since the City Gas Distribution system in India is in nascent form, the Committee felt that it may not be truly reflective of the needs of the various sectors. The market value approach co-related to the alternative fuel price thus appeared to be a better alternative for the present.

6.6 ADDITIONAL ISSUES OF IMPORTANCE IN CITY GAS DISTRIBUTION

6.6.1 The committee, while analyzing the data on MGL prices has not looked into certain macro issues, which need to be seen separately by experts. These issues include inter-alia the following :-

- Establishment of a regulatory authority to monitor and oversee the gas markets in particular the City Gas Distribution in India
- Fixation of Transportation Tariff and its periodical revisions and the regulations governing thereon
- Possibilities of deregulation percolating to retail marketing of gas.

6.6.2 The expectation of the committee is that many of these issues would be clearer by March 2004. Therefore, the committee feels that the specific recommendations given below may be considered by the Government for implementation for a period up to 31st March 2004 only.

6.6.3 Major oil and gas transmission pipelines are subjected to Safety Audits by OISD, as per its codes and procedures. City Gas Distribution is not being subjected to any such audit. There is need to study international codes / procedures / practices and adopt best practices. Responsibility can be given either to OISD or Regulatory Board. As City Gas Distribution is expected to expand in near future (please refer to Annexure 18 for a list of the cities where gas distribution is planned), Government needs to examine issues related to Safety, Health and Environment and adopt uniform practices all over the country.

6.6.4 It is pertinent to note that under the recent changes in Companies Act, it has been made mandatory for all organizations, operating in the oil and gas sector, to keep separate cost accounting records sector-wise and to report profitability of each of the products. These rules, called Cost Accounting Records (Petroleum Industry) Rules, 2002 have been made compulsory with effect from April 1st 2003. Once these records are available it would be proper for an appropriate committee to examine these and then decide on the regulation of end consumer prices for MGL. The investment requirements of MGL and the cost projections would be possible to be studied in depth thereafter.

6.7 RECOMMENDATIONS ABOUT DOMESTIC SECTOR

6.7.1 In other countries, the tariff for the household is generally higher than other sectors such as industry and electricity generation, which may not be possible to apply in India. In view of the nascent stage of city distribution system, the Committee took the view that the current system of cross subsidization by the industrial and commercial sector for the domestic sector may continue till a detailed cost analysis is undertaken by another expert body.

6.7.2 The selling price for piped gas is presently pegged at a 17% discount to LPG. This price is very competitive as compared to the selling price of LPG and should continue. As this rate is also satisfying the profitability requirements, the present price should be frozen till March 2004 irrespective of any upward changes in domestic LPG price. In case of decline in LPG price, the same may be passed on to the consumer.

6.7.3 Consumers pay a minimum non-refundable connection charge of Rs.5000 for piped gas as compared to a refundable deposit of Rs.1500 for a double bottle LPG connection. The consumers are finding this charge very high. It wipes out the savings on LPG made by a consumer for a period of about 12 years, assuming monthly savings of Rs. 35. However, MGL is spending a considerable amount of CAPEX for providing the domestic connections. Abolition of this charge would mean increase in the cash requirements of MGL – leading to higher borrowing and costs. MGL's projections show that the company can bear these costs in the long run but require a support in the immediate future. Considering these aspects the committee is of the opinion that a specific compensation scheme could be worked out as follows :-

- In future the deposit requirement should be standardized at Rs. 5000 per connection irrespective of the fact whether the connections are taken by bulk consumers or individual consumers.
- As an incentive to new consumers, 60% of the connection amount i.e. Rs.3000 could be paid back to all the consumers over a 15 year period through a rebate of Rs.22 per month from the monthly bills payable by the consumer. The equated monthly rebate amount has been worked out with the current savings bank interest rate of 4%. This can be done with no additional administrative expenditure by MGL.
- This incentive could be extended to all existing customers, regardless of the amount paid by them as connection charges, they would also get the rebate of Rs. 22 in their monthly bills for 15 years.

- 6.7.4** A proper grievance redressal system should be put in place by MGL in order to deal with consumer complaints effectively. A code of service standards needs to be devised by MGL and published.
- 6.7.5** In the committee's opinion, any minor reduction in the revenue would be more than compensated through an envisaged increase in sales (since the price of NG will remain at significant discount to LPG) .

6.8 RECOMMENDATIONS ABOUT CNG SECTOR

- 6.8.1** Current levels of international fuel prices and high taxes and duties on the alternate fuel viz. MS / HSD make CNG prices extremely competitive.
- 6.8.2** The taxi and auto owners need to make a substantial investment in converting the vehicles from liquid fuel driven to CNG vehicles. CNG pricing, therefore, should be aimed at providing a break-even point of about one year. As can be seen from the comparisons with MS and CNG (please refer Annexure 11), the CNG powered taxi can recover its conversion cost within a year or two. Hence, the committee does not recommend any change in the pricing policy for CNG.
- 6.8.3** However, the concern regarding the long waiting period for filling CNG, needs to be addressed at the earliest. In addition to causing boredom and fatigue, waiting also result in a loss of time available for running the vehicle on the roads. MGL has indicated that they would be commissioning 30 more stations in the current year (2002-03) and 25 more stations in 2003-04. The committee opines that MGL should ensure that these facilities are put up immediately.
- 6.8.4** Another concern expressed was towards the drop in pressure at the MGL stations. The committee appreciates that MGL alone is neither responsible for this problem nor would it be in a position to resolve the same. The committee, therefore, had discussions with MGL's suppliers – M/s GAIL and ONGC. These organizations have indicated to the committee that they have planned action like fortnightly meeting with customers; reduction in supplies to other customers to take care of drops in pressure; installation of flow control valves based on past history to take care of non-compliance, etc. The committee urges these organizations to implement the planned actions immediately.
- 6.8.5** The committee also requested that M/s ONGC and GAIL should have alternate arrangements in place in case of failure of the pipeline. Senior representatives of these organisations met the Committee. ONGC explained that they have two offshore pipelines and as such there is redundancy available in the offshore portion of pipeline. However, in the Uran to Trombay portion, there is one gas pipeline. There is also one 8" LPG pipeline that can be converted to gas pipeline in case of any contingency. In case of supply disruption from the offshore, ONGC

shall immediately inform GAIL regarding quantity and duration (of disrupted supply) so that grid pressure can be monitored and maintained by GAIL. Please refer Annexure 9.

- 6.8.6** MGL should ensure proper service at their outlets and make sure that each customer is given a proper printed invoice.
- 6.8.7** A grievance redressal system for the customers along with a code of service standards needs to be devised by MGL.

6.9 RECOMMENDATIONS ABOUT INDUSTRIAL SECTOR

- 6.9.1** Currently the customer is supplied gas at a price linked to LSHS with a 10% discount. The grievance of industrial customers was that while the basic procurement price for MGL has been retained, the end user's prices have been increased based on the price of the alternate fuel namely LSHS. This hurts the consumers in the high international oil price scenario which drives up their costs, making these units non-competitive in the short run.
- 6.9.2** MGL in their submission before the Committee had projected a gas price of Rs. 6.99 / SCM (before taxes) in 2003-04 for the Industrial sector.
- 6.9.3** For 'cost plus' working as per provision in existing contracts of MGL with some of its consumers, the delivered price of gas to customers works out to Rs. 5.98 / SCM (before taxes) on the basis of present gas price of Rs. 2.68 / SCM charged by GAIL to MGL (including transportation charges) and agreed margin of Rs. 3.30/ SCM (excluding transportation charges).
- 6.9.4** The committee feels that as the basic gas prices are likely to remain constant for some more time or rise marginally, the committee would like to recommend a cap on pricing till March 2004.
- 6.9.5** The Committee observed that in the past three years the price of LSHS was comparatively more stable during the 2001-02. Since the price of LSHS generally moves in tandem with crude oil prices; a stable crude oil price in short / medium term is being predicted as per present indications and the recommended cap on gas pricing is for a limited period up to March 2004, the Committee felt that the average prices prevailing in 2001-02 would be appropriate to adopt for cap in pricing. Average prices for the year 2001-02 were Rs. 8645 / MT for LSHS (inclusive of State Surcharge and Octroi) and corresponding gas price to consumers works out to Rs. 6.82 / SCM (without taxes) – please refer Annexure 17. It may further be noted that as per MGL's submission, the average prices (without taxes) charged were Rs. 6.80 / SCM in 2000-01, Rs. 6.60 / SCM in 2001-02 and Rs. 8.09/SCM for the period April to November 2002.

6.9.6 In light of the limited data and time available, the Committee proposes fixing ceiling of gas price up to March 2004 on the basis of LSHS price of Rs. 8600 / MT (inclusive of State Surcharge and Octroi) and corresponding gas price (after rounding off) of Rs. 6.80 / SCM (before taxes). In the considered opinion of the Committee the proposed gas price ceiling of Rs 6.80 / SCM (before taxes) would balance the requirement of both consumers and MGL.

6.9.7 Apart from the 10% discount on prevailing price of LSHS, the recommended price cap on LSHS would not only protect the consumers in periods of high rise in LSHS price, but would also ensure that the benefit of any decrease in LSHS price below Rs. 8600/- per MT (inclusive of State Surcharge and Octroi) is passed on to the industrial consumers of natural gas.

6.9.8 MGL should put in place a grievance redressal system for the consumers in the industrial sector. The code of service standards should also be published.

6.10 RECOMMENDATIONS ABOUT COMMERCIAL SECTOR

6.10.1 As discussed earlier, the commercial sector has very low volumes and supplies are made based on a contract with prices based on alternate fuels. As the Committee has also restricted its recommendations for a short period, no change is suggested in the prevailing pricing structure for this sector.

6.10.2 MGL to install a grievance redressal system for consumers in commercial sector.

6.11 RECOMMENDATION ON REVISION OF PRICES

6.11.1 As per the terms of reference communicated, the Committee has to recommend on “In-built mechanism for future revision of gas price for the consumers in various sectors taking into account the relevant factors”.

6.11.2 The Committee deliberated at length on whether to suggest a formula which takes into account the likely revisions in various costs such as basic gas price, non-gas cost (such as, cost due to increase in consumer price index, rate of depreciation, interest rate) etc.

6.11.3 In some of the developed economies (including U.K.) all categories of consumers are reportedly charged certain portion of the total cost as ‘capacity charge’ and only the balance is varied depending upon the consumption of gas.

6.11.4 While the U.K. model of revision appears to be a reasonable one for adoption, the Committee felt that given the short time for which the present

recommendation is to be implemented; the change in the consumption pattern among the various categories of consumers in the last few years and further changes likely due to the thrust given to the CNG supply; and the plans to further expand the coverage for the domestic sector, it would not be proper to assume a static figure of contribution of various sectors, for projecting a capacity charge to be levied for different sectors. Such a procedure may be more suited to situations where the market shares of the sectors have stabilized. For a market that is not mature, it would not be advisable to suggest any major structural change or arrive at a formula splitting the cost into 'capacity charge' and 'variable cost' without wider consultations with consumer bodies and experts. The regulatory mechanism, to be set up or any other expert body to be constituted later, should go into the whole aspect of various components of fixed costs and variable costs involved to suggest a comprehensive formula for periodical revision.

6.11.5 In case 'cost plus' prices, any revision in input price of gas is passed through to the consumers. However in case of MGL, price for only CNG sector is on 'cost plus' method whereas for all the other sectors price is co-related to the price of alternate fuels such as LSHS and LPG. Hence, in case of any increase in input price of gas supplied to MGL, there would not be any need to revise the price for domestic, industrial and commercial sectors. For CNG sector, since the current price is computed on 'cost plus' basis, it would be necessary to pass through only this increase in gas price to the consumer and the consequential increase in taxes and levies, if any. Thus the Committee recommends increase in end use price by Government / GAIL only for CNG.

6.12 IMPACT OF SPECIFIC RECOMMENDATIONS

6.12.1 Most of the recommendations of the committee are in the nature of restraining MGL for further increase in the price, which has not been factored by MGL in their projections as well. As such, they would not have any impact on the profitability of MGL.

6.12.2 On gas purchase price, MGL has ensured that it can earn a minimum gross margin of Rs. 3.71 per SCM at all times (for industrial consumers), while there is no cap on the maximum margin which it can earn. The cap fixed by the committee at Rs. 6.80 per SCM (without taxes) will not adversely affect the bottom line of MGL as MGL's own projections state a price of Rs.6.99 per SCM (without taxes) for the year 2003-2004.

6.12.3 The only recommendation which is likely to result in a reduction of revenue for MGL is the partial reimbursement of one time connection charge for domestic consumers, which would reduce MGL's revenues by about Rs. 30 – 35 lakh per month. Actual impact of this suggestion, for the year 2003-04, would be reduction

in revenue by an amount of Rs. 504 lakh and corresponding drop in income before tax. The profit after tax would reduce by Rs. 328 lakh.

6.12.4 However, in case the Gas Purchase Price for MGL remains at current rate of Rs. 2850 / '000 SCM, MGL would still be earning a post tax return of 17.6% on invested capital and 23.3% on net worth. In case the Gas Prices are increased during this period as projected by MGL to is Rs. 4700 / '000 SCM, MGL would still be earning a post tax return of 12% (pre tax return of 18.46%).

6.12.5 In the considered opinion of the committee, MGL can provide the proposed incentive to consumers and can absorb it without any adverse impact on its overall profitability.

6.13 ISSUES TO BE TAKEN UP FURTHER

6.13.1 The committee had a short span to study the whole matter, during the time available it has tried to study the detail information collected from various sources and recommended the path ahead for a short time. It however feels that some of the issues need to be studied in detail at the Government end for examination in depth.

6.13.2 In view of the Supreme Court directive, the town gas – particularly CNG would be extended to many more cities in the days to come. Please refer to Annexure 18 for the Cities where Gas Distribution is being planned. The Government also needs to have well established regulatory norms covering:

- Natural Gas Pricing for these utilities.
- Tariff fixation for transportation of Gas.
- Ownership of gas pipelines and access rights to them.
- Pricing structure for these utilities.
- Nature of contracts from the producer to the consumer and service level agreements
- Safety, Health and Environment related codes, practices and nominated monitoring agency and
- Quality norms for these utilities.

6.13.3 The committee had found it very difficult to gather various statistical data and information from the concerned players despite of the Government's backing.

The Government had in mind that all the statistical information would be available to it through PPAC – statutory provisions for which have been made for petroleum products. However, similar statutory provisions need to be introduced under which PPAC would be empowered to act as a nodal agency for collection of data on a periodical basis for natural gas too.

6.14 CONCLUSION

6.14.1 The committee is hopeful that its recommendations are implemented by the Government including the specific issues to be studied in depth. It is thankful to all the agencies without whose co-operation it would have been impossible for the committee to produce this report.

S. Vijayaraghavan

A. Sinha

H. P.Chandna

ANNEXURES

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ANNEXURE 1

GAZETTE NOTIFICATION DATED 21.11.02

PROFILE OF MUMBAI

General Statistics

Mumbai, Maharashtra & India - A Comparison

- Mumbai has a population of 11.9 million as per the 2001 Population Census.
- The city accounts for about 1.2% of the total population in India and for about 12% of the state of Maharashtra.
- Mumbai's per capita income at current prices is Rs. 48, 954/- which is twice that of Maharashtra and a little more than three times that of India.

Population

- The rate of growth of population in the city has declined since the 1970s. From an annual growth rate of 3.3% during 1971-81, it has decelerated to 1.9% in 1981-91 and has remained more or less stagnant (at about 1.8%) throughout the decade 1991-2001.
- Female literacy is higher in Mumbai at 82.7% compared to the state average of 67.5 per cent.
- Male literacy is also high in Mumbai at almost 90% against the state average of 86.3 per cent.

Employment & Workers

- Of the total 3.43 lakhs main workers employed in the city, more than two-thirds i.e. 68.1% are employed in the service providing industries. Job opportunities in the organized manufacturing sector have been declining since the last few years

Sector-Wise Income

- 33% of the state's income is from Mumbai's registered manufacturing units and 28% from the unregistered manufacturing units.
- Transport, trade and banking are vital services accounting for 33.5%, 32.19% and 42% respectively of the state's income generated in these segments
- The services sector on the whole accounts for 64% of the income generated in Mumbai
- Mumbai accounts for 16% of income tax collections and 35% of corporate tax collection in the country

ANNEXURE 1

GAZETTE NOTIFICATION DATED 21.11.02
ANNEXURE 2

-

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Ø The services sector on the whole accounts for 64% of the income generated in Mumbai

Ø Mumbai accounts for 16% of income tax collections and 35% of corporate tax collection in the country

FDI & MNC's

Ø The city has 75% of foreign collaborations with foreign equity as against 60% in the State.

Ø Mumbai accounts for almost 30% of FDI in the State.

Ø Between August 1991 and December 1998 Mumbai had FDI worth \$1635 millions while Maharashtra had 5554 million dollars worth of foreign investments

Banking and Finance

Ø In terms of banking transactions, Mumbai's share is much as three-fourth of the total cheque clearances (Rs. 756,000 as in March, 2002).

Ø Mumbai accounts for a significant share in deposits mobilization (14% of total deposits) and deployment of credit (21% of total credit) of scheduled commercial banks.

Ø Nearly 80% of the mutual funds are registered in Mumbai.

Ø Practically, all FII transactions and over 90% of the merchant banking transactions happen in Mumbai.

Education

- Ø There are approximately 42 students per teacher and 35 students per teacher at the primary level and secondary/higher secondary school levels respectively
- Ø The total number of primary schools in Mumbai are 2110 of which 1188 are municipal schools, 342 are private (aided) and 580 are private (non-aided).
- Ø The total number of students enrolled in primary schools in Mumbai is 1.07 lakhs.

Transport

- Ø The Central Railways and Western Railways operate run 1165 and 980 local train services per day respectively.
- Ø Both Central and Western Railways carry 1139 and 1136 mn passengers per year respectively.
- Ø The BEST Road transport carries approximately 43 lakh passenger per day (as per the 1998-99 data available)
- Ø Mumbai handles about 25% of the domestic and 38% of the International air passenger traffic in the country.
- Ø Mumbai handles 26% of the domestic air traffic cargo and an average of 40% of the international air cargo traffic in country

Telecommunications

- Ø The number of telephone connection in Mumbai is estimated to be approximately 2.31 million.
- Ø Of the approximately 7 million cellular subscribers in India, 10% of the subscribers are believed to be in Mumbai

Basic Information on Mumbai

PARAMETER	UNIT OF MEASURE	GREATER MUMBAI	REST OF MAHA - RASHTRA
Area	Sq. Kms.	468	3887
Population – Census 2001 Provisional	Nos. - Million	11.91	5.90
Villages - 1991	Nos.	Nil	982
Municipal Corporation - December 2001	Nos.	1	6
Municipal Councils - December 2001	Nos.	Nil	13
Factories - June 1997	Nos.	7153	4267
Factories Employment - 1997	Nos. in '000	401	196

Industrial Value Added - 1996-97	Rs. in Million	69390	77748
Solid Waste Generation - 1993	Tons / day	6000	1550
Emissions - 1995			
§ SO ₂	Tons / day	180	135
§ NO _x	Tons / day	265	96
§ SPM	Tons / day	90	47
§ HC	Tons / day	199	59
§ Ozone	Tons / day	777	238
Motor Vehicles - March 2000	Nos. in '000	970	N.A.
Mass transport daily one way trips – 1998 -99			
§ Bus	Nos. - Million	4.8	N.A.
§ Rail	Nos. - Million	5.4	N.A.
Air Traffic – 1997-98			
§ Passengers	Nos. in '000	11,010	N.A.
§ Cargo	Tons in '000	254	N.A.
Port traffic – 1999-2000			
§ Cargo	Tons in '000	27.556	N.A.
Telephone lines – 1997-98	Nos. - Million	1.8	N.A.
Metered calls	Nos. - Million	16,623	N.A.

ANNEXURE 3

MUMBAI MAP SHOWING CNG FILLING STATIONS AND PIPELINE NETWORK OF MAHANAGAR GAS LTD.

ANNEXURE 4

PARTICIPANTS IN DELIBERATIONS BY THE COMMITTEE

CONSUMER GROUPS

- MUMBAI TAXI ASSOCIATION
- MUMBAI TAXIMEN'S UNION
- MUMBAI TAXI CHALAK MALAK SENA
- MUMBAI AUTORICKSHAWMEN'S UNION
- MAHARASHTRA RICKSHAW SENA
- MUMBAI GRAHAK PANCHAYAT
- FORUM OF NATURAL GAS INDUSTRIAL CONSUMERS, MUMBAI

COMPANIES RELATED TO CITY GAS DISTRIBUTION IN MUMBAI

- MAHANAGAR GAS LIMITED
- GAIL (India) LTD
- ONGC LTD

EXPERTS

- T.L.SHANKAR
- E.A.SARMA
- KIRIT PAREKH

OTHERS

- GOVERNMENT OF MAHARASHTRA
- MCKINSEY & CO, SINGAPORE

ANNEXURE 5

**ORGANISATIONS CONTACTED
BY THE COMMITTEE**

CONSUMER GROUPS

- MUMBAI TAXI ASSOCIATION
- MUMBAI TAXIMEN'S UNION
- MUMBAI TAXI CHALAK MALAK SENA
- MUMBAI AUTORICKSHAWMEN'S UNION
- MAHARASHTRA RICKSHAW SENA
- FORUM OF NATURAL GAS INDUSTRIAL CONSUMERS

COMPANIES RELATED TO GAS BUSINESS IN INDIA

- MAHANAGAR GAS LIMITED
- GAIL (India) LTD
- ONGC LTD
- INDRAPRASTHA GAS LIMITED
- GUJARAT GAS COMPANY LIMITED
- GAZ de FRANCE
- BG INDIA
- SHELL INDIA (PVT.) LTD.
- TOTAL INDIA (PVT.) LTD.

OTHERS

- GOVERNMENT OF MAHARASHTRA
- MCKINSEY & CO, SINGAPORE
- A.T.KEARNEY

ANNEXURE 6

DATA RELATED TO NATURAL GAS SCENARIO IN INDIA

Gas Supply – Demand Scenario

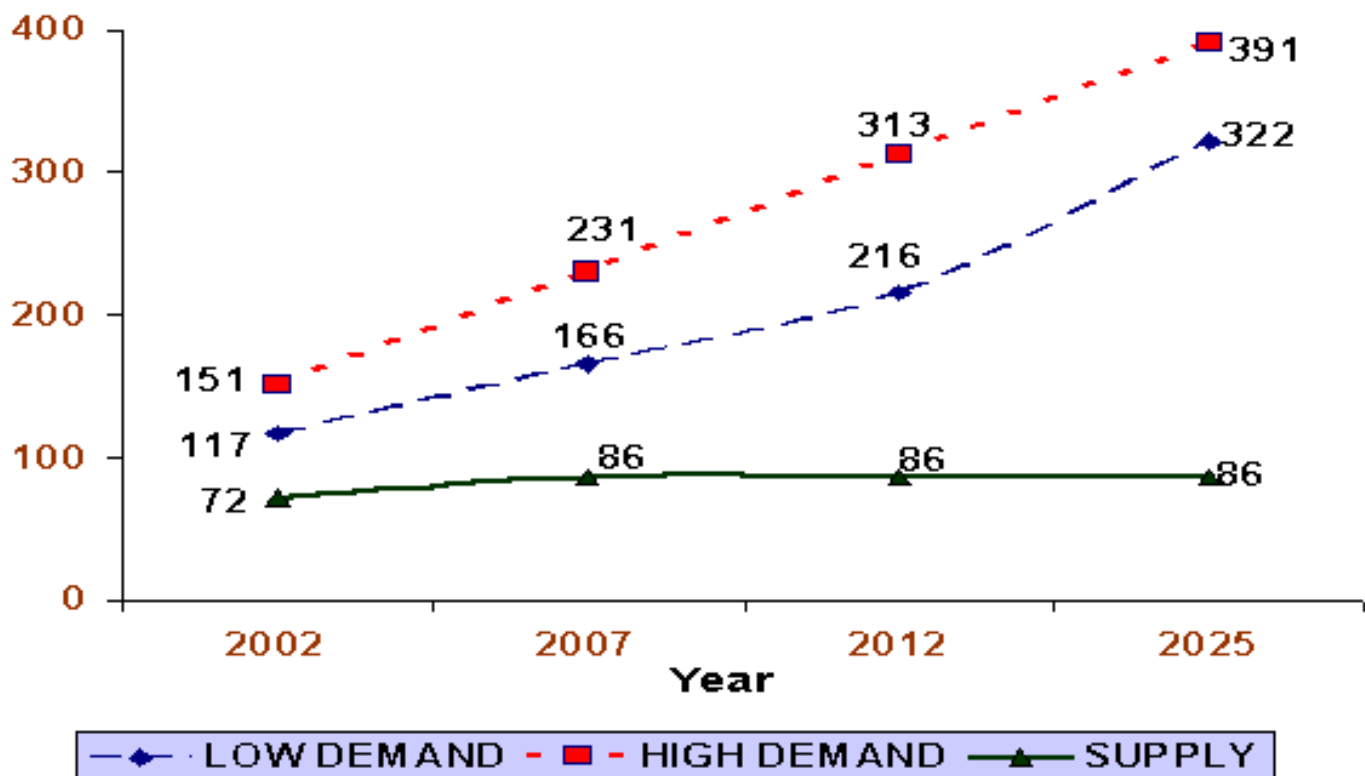
Data from GAIL

Figures in MMSCMD

Area	Allocation	Availability (2004-05)	Deficit (2004-05)
HBJ	44.0	33.5	10.5
HBJ Fallback	2.4	-	2.4
Gujarat	11.0	5.0	6.0
Uran	16.0	9.0	7.0
KG Basin	16.0	7.0	9.0
Cauvery	6.0	3.0	3.0
Assam	5.2	4.0	1.2
Tripura	7.3	4.0	3.3
Total	107.9	65.5	42.4

Data from India Hydrocarbon Vision 2025

Figures in MMSCMD



Uran Sector Gas Availability

Data from GAIL & ONGCL LTGP – 2K

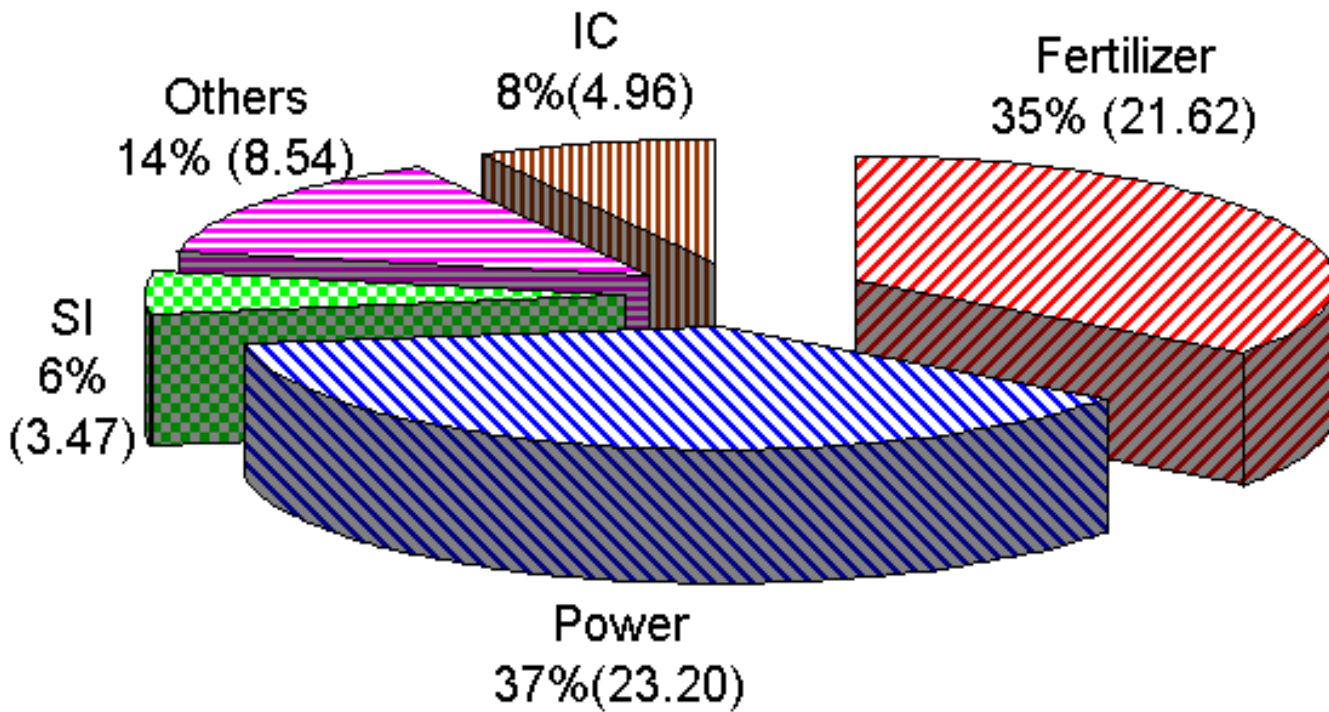
Figures in MMSCMD

Year	Allocation (Considered constant)	Availability (as per ONGCL LTGP – 2K)	Deficit
2004-05	16.0	9.0	7.0
2005-06	16.0	8.0	8.0
2006-07	16.0	7.2	8.8
2007-08	16.0	4.9	11.1
2008-09	16.0	3.2	13.8
2009-10	16.0	1.8	14.2
2010-11	16.0	0.7	15.3
2011-12	16.0	0	16.0

Pattern of Gas Use

All India (Total : 61.59 MMSCMD in 2001 -02)

Data from GAIL

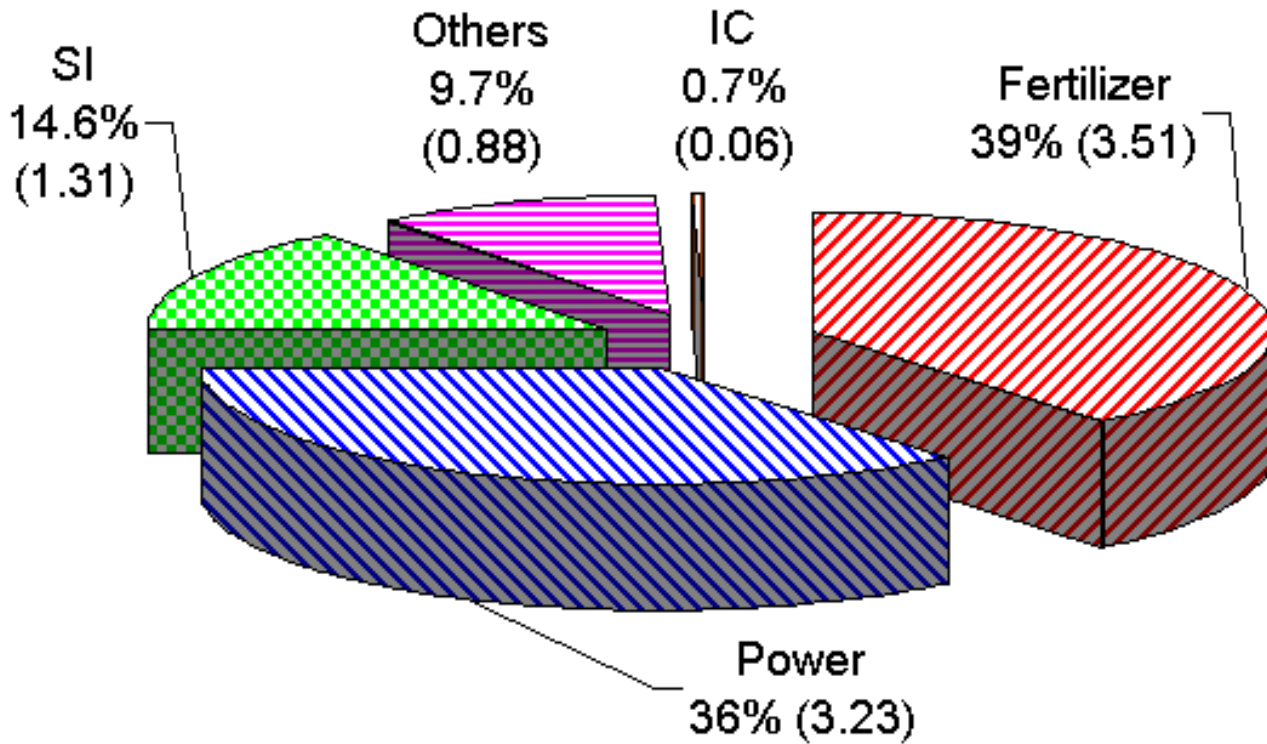


(Figure within Bracket indicate average gas consumption during the year in MMSCMD)

Uran Sector (Total : 9 MMSCMD in 2001 -02)

Data from GAIL

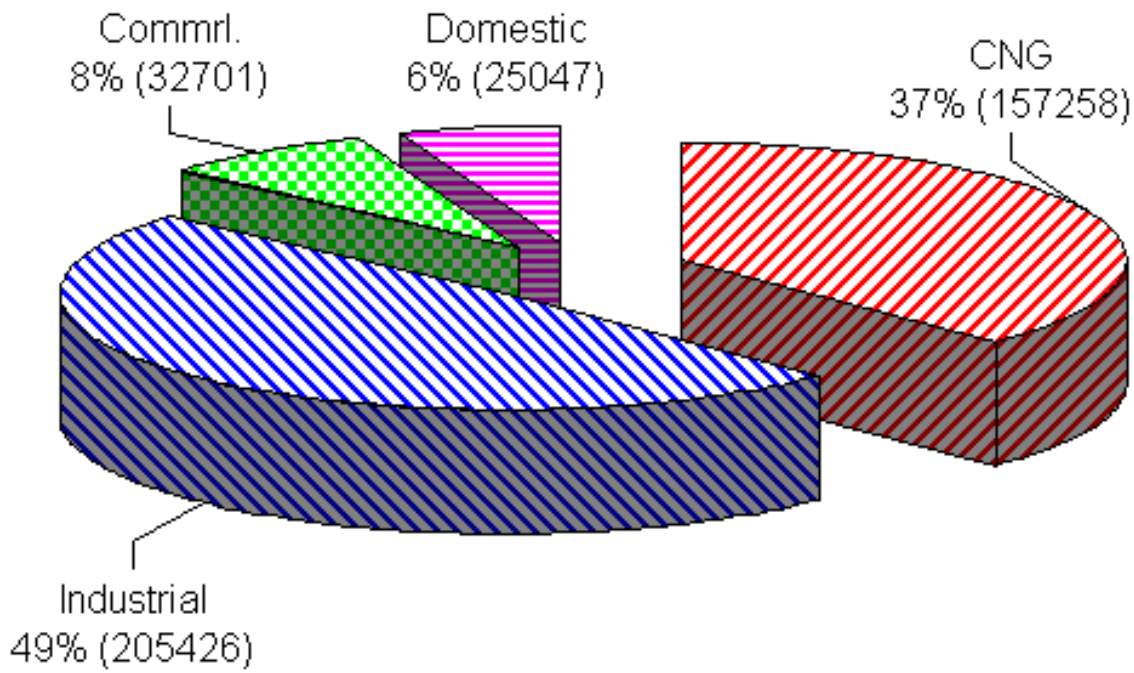
(Figure within Bracket indicate average gas consumption during the year in MMSCMD)



Mumbai (MGL) (Total : 420434 SCMD in 2001 -02)

Data from MGL

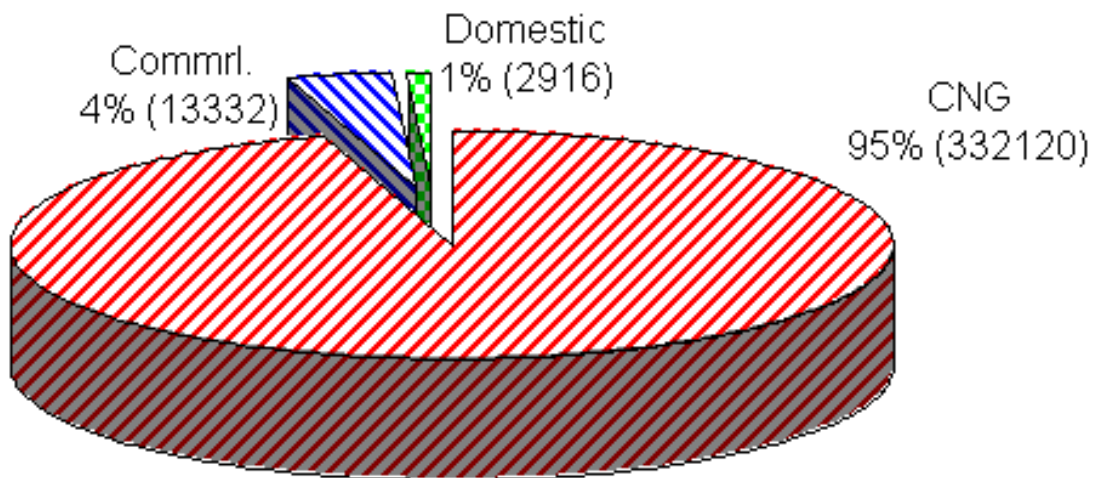
(Figure within Bracket indicate average gas consumption during the year in SCMD)



Delhi (IGL) (Total : 348369 SCMD in 2001 -02)

Data from IGL

(Figure within Bracket indicate average gas consumption during the year in SCMD)



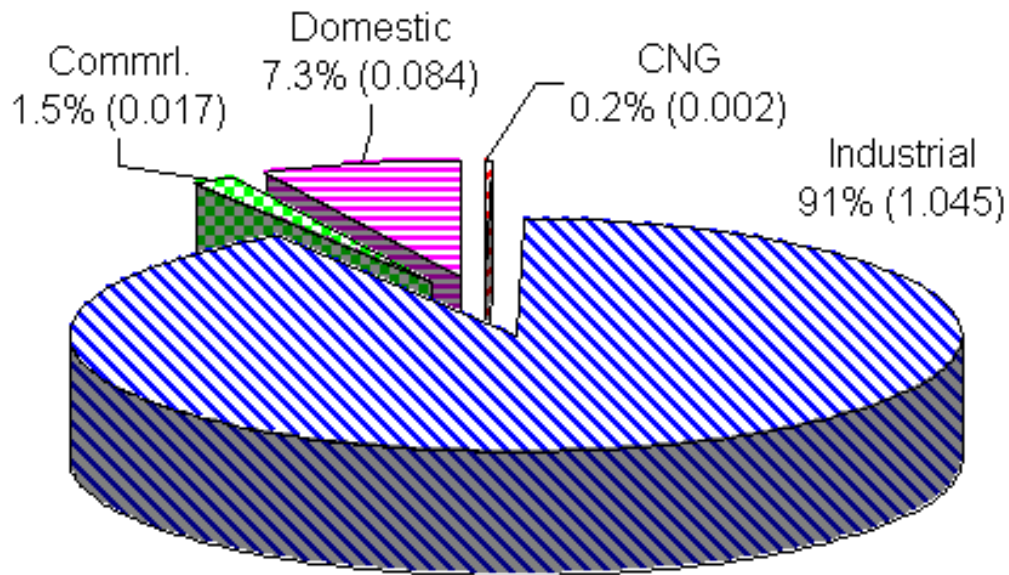
-

Surat, Bharuch & Ankleshwar (GGCL) (Total:1.148 MMSCMD in '01)

Data from GGCL Annual Report

(Figure within Bracket indicate average gas consumption during the year in MMSCMD)

-



ANNEXURE 7

REPRESENTATIONS BY CONSUMER GROUPS

- A. MUMBAI TAXIMEN'S UNION
- B. FORUM OF NATURAL GAS INDUSTRIAL CONSUMERS, MUMBAI
- C. MUMBAI GRAHAK PANCHAYAT
- D. MUMBAI TAXI CHAALAK – MAALAK SENA

ANNEXURE 8

**VIEWS OF GOVERNMENT
OF MAHARASHTRA**

ANNEXURE 9

SUBMISSION OF GAIL & ONGC

ANNEXURE 10

EXCERPTS FROM SUBMISSION BY MGL

- A. PLAN OF ACTION WITH RESPECT TO CONSUMERS'
FEEDBACK TO THE COMMITTEE**

- B. LSHS AND GAS PRICES FOR INDUSTRIAL CONSUMERS
- NOVEMBER '99 TO DECEMBER '02**

- C. SECTORWISE BASIC PRICE - 1996-97 TO NOV. '02**

- D. MOP&NG LETTER DATED 26.11.1996**

- E. MOP&NG LETTER DATED 31.7.1997**

- F. MOP&NG O/M DATED 3.12.1998**

- G. MOP&NG LETTER DATED 1.6.2000**

- H. MOP&NG LETTER DATED 19.9.2000**

ANNEXURE 11

-
ANALYSIS OF MGL DATA BY THE COMMITTEE
-

Break Even Point for CNG Vehicles

Description		MS	CNG		
			Current Pricing	Based on a CAP of Rs. 5800 per '000 SCM for GAS	Based on a Gas price of Rs. 8730 per '000 SCM
For Taxis					
Mileage	KM / SU	12.00	17.00	17.00	17.00
Conversion Cost	Rs.	-	35000.00	35000.00	35000.00
Fuel Price	Rs. / SU	35.18	19.79	24.86	29.54
Cost Per KM	Rs.	2.93	1.16	1.46	1.74
Savings	Rs. / KM		1.77	1.47	1.19
Break Even Point	KM		19801.00	23821.00	29313.00
For Auto Rickshaws					
Mileage	KM / SU	22.00	28.00	28.00	28.00
Conversion Cost	Rs.	-	17000.00	17000.00	17000.00
Fuel Price	Rs. / SU	35.18	19.79	24.86	29.54
Cost Per KM	Rs.	1.60	0.71	0.89	1.06
Savings	Rs. / KM		0.89	0.71	0.54
Break Even Point	KM		19052.00	23902.00	31245.00

Analysis of Balance Sheet

(in Rupees Lakhs)

	1997	1998	1999	2000	2001	2002	Avg- 5 yrs	Avg- 3 yrs
Current Assets								
Cash, Advances and Deposits	425	1087	597	2387	2928	4710	2342	3341
Accounts Receivable	20	107	205	502	1399	1907	824	1269
Inventory	0	0	0	0	43	40	17	28
Others	0	0	0	0	0	0	0	0
Total Current Assets (A)	445	1194	802	2889	4369	6656	3182	4638
Marketable Securities					0	0	0	0
Fixed Assets								
Operating Fixed Assets	1225	2864	4060	9663	12593	16154	9067	12804

Construction in Progress / Cap. Inventory	3750	4281	5640	1892	3619	5403	4167	3638
Total Fixed Assets (B)	4975	7145	9700	11555	16212	21558	13234	16441
Total Assets (A) + (B)	5420	8339	10502	14444	20581	28214	16416	21080
Current Liabilities								
Accounts Payable	1217	1357	2684	1601	1356	2080	1816	1679
Others	291	364	22	137	859	2071	691	1022
Total Current Liabilities (C)	1508	1721	2706	1738	2215	4151	2506	2701
Long term Debt (D)	32	93	595	3383	6510	8720	3860	6204
Trade & Security Deposits (E)	60	116	361	803	1374	1910	913	1910
Total Liabilities (F) = C+D+E	1600	1930	3662	5924	10099	14781	7279	10268
							Contd Avg- 3 yrs	
	1997	1998	1999	2000	2001	2002	Avg- 5 yrs	yrs
Equity								
Capital	4459	7643	8934	8934	8934	8934	8676	8934
Retained Earnings/Cap Reserves	-349	-931	-1826	-225	1736	4717	694	2076
Misc. Expenses not written off	-290	-303	-268	-189	-189	-218		
Total Equity (G)	3820	6409	6840	8520	10481	13433	9137	10811
Total Liabilities and Equity (F)+(G)	5420	8339	10502	14444	20580	28214	16416	21079

-

Analysis of Income Statement

-

(in Rupees Lakhs)

	1997	1998	1999	2000	2001	2002	Avg- 5 yrs	Avg- 3 yrs
Total Rev. (Income from Sales)	396	844	1618	3075	8418	14248	5641	8580
Other Inc. (excl. Interest Income)	16	14	29	1609	179	199	406	662
Total (A)	412	858	1647	4684	8597	14447	6047	9243
Variable Costs								

REPORT OF COMMITTEE ON TOWN GAS PRICING IN MUMBAI

Gas Purchase Cost	161	624	1267	1227	2948	4576	2128	2917
Traded items	12	9	11	95	19	3	27	39
Other Variable Costs	108	275	351	651	1452	2777	1101	1627
Total Variable Costs (B)	281	908	1629	1973	4419	7356	3257	4583

	1997	1998	1999	2000	2001	2002	Avg- 5 yrs	Contd Avg- 3 yrs
Fixed Costs								
Labor & Overhead	75	76	110	133	211	232	152	192
Maintenance	55	63	159	154	174	252	160	193
General, Admin. & Others	199	180	284	167	339	533	301	346
Miscellaneous expenses w. off / prior period	46	67	38	22	29	53	42	35
Depreciation & Amortization	119	171	329	467	720	961	530	716
Total Fixed Costs (C)	494	557	920	943	1473	2031	1185	1482

Gross Profit (D)=(A)-(B)-(C)	-363	-607	-902	1768	2705	5060	1605	3178
Finance Charges								
Interest Income	25	44	36	36	88	189	79	104
Interest Expenses	11	18	29	70	112	569	160	250
Total Finance Charges (E)	-14	-26	-7	34	24	380	81	146
Income before Tax (F) = (D)-(E)	-349	-581	-895	1734	2681	4680	1524	3032
Income Tax	0	0	0	133	230	365	146	243
Net Income (G)	-349	-581	-895	1601	2451	4315	1378	2789
Less: Dividend	0	0	0	0	490	1334		
Retained Earnings	-349	-581	-895	1601	1961	2982	1014	2181

Sales volume per day (SCMD)	14779	31507	59512	100600	259452	420434	174301	260162
Annual Sales volume (Lakh SCM)	53.94	115.0	217.22	367.19	947.00	1534.58	636.20	949.59

	1997	1998	1999	2000	2001	2002	Avg- 5 yrs	Contd Avg- 3 yrs
Per unit measures (Rs. / SCM)								
Sales	7.34	7.34	7.45	8.37	8.89	9.28	8.27	8.85
- Purchases	3.21	5.50	5.88	3.60	3.13	2.98	4.22	3.24
= Gross Contribution	4.13	1.83	1.57	4.77	5.76	6.30	4.05	5.61

- Variable costs	2.00	2.39	1.62	1.77	1.53	1.81	1.82	1.71
= Net Contribution	2.13	-0.56	-0.05	3.00	4.22	4.49	2.22	3.91
- Service costs	5.08	2.23	1.81	0.82	0.58	0.50	1.19	0.63
- Cost of Assets	3.23	2.03	2.25	1.69	0.94	0.79	1.54	1.14
= PBIT	-6.17	-4.82	-4.11	0.49	2.70	3.20	-0.51	2.13

Per unit measures (Rs. / KG)

Sales	9.54	9.54	9.68	10.89	11.56	12.07	10.75	11.51
- Purchases	4.17	7.16	7.65	4.68	4.07	3.88	5.49	4.21
= Gross Contribution	5.37	2.39	2.03	6.21	7.48	8.19	5.26	7.29
- Variable costs	2.60	3.11	2.10	2.30	1.99	2.35	2.37	2.21
= Net Contribution	2.77	-0.72	-0.07	3.90	5.49	5.84	2.89	5.08
- Service costs	6.60	2.89	2.36	1.06	0.76	0.65	1.54	0.82
- Cost of Assets	4.19	2.65	2.92	2.20	1.23	1.03	2.01	1.49
= PBIT	-8.02	-6.26	-5.34	0.64	3.51	4.16	-0.66	2.77

Computation of Ratios

	1997	1998	1999	2000	2001	2002	Avg-5 yrs	Avg- 3 yrs
Balance Sheet Ratios								
Current Ratio	0.30	0.69	0.30	1.66	1.97	1.60	1	2
LT Debt/(LT debt + Equity)(%)	2	3	12	33	43	44	27	40
LT Debt1/(LT Debt1+Equity) (%)	0.8	1.4	8.0	28.4	38.3	39.4	23	35
Debt / Equity ratio	0.02	0.03	0.14	0.49	0.75	0.79	0	1
Income Ratios								
Income before Tax/Sales (%)	-88.1	-68.8	-55.3	56.4	31.8	32.8	-0.61	40.36
Income before Tax/Fixed Assets (%)	-28.5	-20.3	-22.0	17.9	21.3	29.0	5.17	22.73
Net Income/Equity (%)	-9.1	-9.1	-13.1	18.8	23.4	32.1	10.43	24.77
Interest Coverage	-22	-24	-20	32	31	11	5.82	24.36
Book Value	8.6	8.4	7.7	9.5	11.7	15.0	10.47	12.10
Earning per share	-0.78	-0.76	-1.0	1.8	2.7	4.8	1.52	3.12
Operations								
Revenue Growth %		108.3	92.0	184.4	83.5	68.0	107.24	111.99
Op. Ex./Revenue %	159.2	150.8	134.8	52.3	60.2	58.3	91.27	56.92
Gross Margin %	-59.2	-50.8	-34.8	47.7	39.8	41.7	8.73	43.08
Depreciation/revenues %	28.9	19.9	20.0	10.0	8.4	6.7	12.98	8.33
EBIT/Revenues	-88.1	-70.7	-54.8	37.7	31.5	35.0	-4.26	34.74

Working Capital /**Revenues**

Operating Cash %	103.2	126.7	36.2	51.0	34.1	32.6	56.11	39.20
Trade Receivables %	4.9	12.5	12.4	10.7	16.3	13.2	13.02	13.40
Inventories %	0.0	0.0	0.0	0.0	0.5	0.3	0.15	0.26
Accounts Payable %	295.4	158.2	163.0	34.2	15.8	14.4	77.09	21.45

Contd
Avg-

	1997	1998	1999	2000	2001	2002	Avg-5 yrs	3 yrs
Other Current Liabilities %	70.6	42.4	1.3	2.9	10.0	14.3	14.20	9.08
Net Working Capital %	-258.0	-61.4	-115.6	24.6	25.1	17.3	-22.01	22.32

Per Share Measures

EPS	-0.78	-0.76	-1.0	1.8	2.7	4.8	1.52	3.12
Dividend	0.0	0.0	0.0	0.0	0.5	1.5	0.41	0.68
Book Value	8.6	8.4	7.7	9.5	11.7	15.0	10.47	12.10
Cash Flow	-0.52	-0.54	-0.6	2.3	3.5	5.9	2.12	3.92

Growth Rates %

Sales		113.1	91.7	90.0	173.8	69.3	107.6	111.02
EPS		2.9	-31.8	278.9	53.1	76.1	75.8	136.01
CPS		-4.0	-18.1	465.4	53.3	66.4	112.6	195.03

Financing

Coverage(EBIT/Interest)	-33.0	-33.7	-31.1	25.3	24.2	8.9	-1.30	19.43
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Working Capital

Day's Sales Outstanding Op. Work Cap /Sales in Days	18.4	46.3	46.2	59.6	60.7	48.8	52.32	56.36
	-979.8	-227.9	-429.5	136.6	93.4	64.2	-72.64	98.07

Revenue Items/ Sales**Volume**

(Rupees per SCM)

Sales	7.34	7.34	7.45	8.37	8.89	9.28	8.27	8.85
Gas Purchase Cost/ SCM	2.98	5.43	5.83	3.34	3.11	2.98	4.14	3.15
Traded items/ SCM	0.22	0.08	0.05	0.26	0.02	0.00	0.08	0.09
Labor & Overhead/ SCM	1.39	0.66	0.51	0.36	0.22	0.15	0.38	0.25
Other Variable Expenses/ SCM	2.00	2.39	1.62	1.77	1.53	1.81	1.82	1.71
Maintenance/ SCM	1.02	0.55	0.73	0.42	0.18	0.16	0.41	0.26

Contd
Avg-3
yrs

	1997	1998	1999	2000	2001	2002	Avg-5 yrs	3 yrs
General, Admin. & Others/ SCM	3.69	1.57	1.31	0.45	0.36	0.35	0.81	0.39
Depreciation & Amortization/ SCM	2.21	1.49	1.51	1.27	0.76	0.63	1.13	0.89
Total	13.51	12.16	11.56	7.88	6.19	6.08	8.77	6.72
EBIT	-6.17	-4.82	-4.11	0.49	2.70	3.20	-0.51	2.13

PRICE OF GAS AT CITY GATE SUPPLIED BY GAIL VIS-À-VIS SECTORWISE PRICE CHARGED BY MGL

Price in Rs. / SCM without taxes

	1996 -	1997 -	1998 -	1999 -	2000 -	2001 -	2002 (Apr. to Nov.)
	1997	1998	1999	2000	2001	2002	
City Gate	2.98	5.43	5.83	3.34	3.11	2.98	2.68
Domestic		5.97	5.97	6.39	8.49	8.62	9.92
Industrial		5.92	5.66	6.59	6.80	6.60	8.09
CNG	7.21	6.94	7.10	7.37	8.23	7.98	8.36
Commercial A		10.39	10.41	11.74	12.63	12.71	12.82
Commercial B				7.52	7.03	6.85	8.37

Commercial C / Contract				6.98	9.58	9.74	10.65
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Source : MGL

ANNEXURE 13

**EXCERPT FROM SUNDARARAJAN COMMITTEE REPORT
‘Hydrocarbon Perspective: 2010 – Meeting the Challenges’**

Section 5.11.1**Pricing of Gas For Household Use**

In principle, the gas pricing mechanism for household sector should be based on three sets of objectives :

(c) **Economic Efficiency** : The real cost of energy should be reflected in the prices. This will guide the decisions of producers and consumers of that energy. Violation of this principle results in energy consumption getting out of hand.

(c) **Financial Viability** : A financially viable gas utility is one that has the capacity to finance any required expansions through its own resources and also has the ability to service borrowing.

(c) **Social Equity** : It may be possible to devise a set of tariffs and subsidies which satisfy the efficiency criteria and the average levels of which also meet the financial viability criteria. However, subsidy, if allowed, must be limited in order to safeguard the objective of financial viability. Also it must be carefully designed to be efficient and satisfy, as far as possible, the objectives of economic efficiency and social equity; e.g. rebates on the connection charge make up a subsidy that is more visible and more efficient than reduction in the unit price of gas.

ANNEXURE 16**SECTORWISE NATURAL GAS PRICES IN SOME
DEVELOPING ECONOMIES IN SOUTH ASIA**Prices in US \$ / MMBTU

	Indonesia	Malaysia	Thailand	Viet Nam
Power Generation	2.5 – 3.0	3.4	2.69	1.75
Residential	3.46	6.8		
Commercial	3.46	6.4		
Industry		4.3		
§ Fertiliser	1.0 – 1.5		2.69	
§ Petrochemical	2.0		2.69	
§ Steel	0.65 – 2.0			

§	Cement	3.0		3.17	
§	Ceramic			4.91	
§	Others			4.22	

Source : APEC Energy Pricing Practices Research Report for Natural Gas, Asia Pacific Energy Research Centre, March 2001

ANNEXURE 18

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CITIES WHERE GAS DISTRIBUTION IS BEING PLANNED

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As per directive of the Supreme Court dated 5.4.2002, in order to control heavy air pollution due to vehicular traffic, the following cities in India have been identified for developing infrastructure for distribution of alternative fuel like Gas :-

1. Lucknow
2. Kanpur
3. Agra
4. Faridabad

5. Patna
6. Pune
7. Varanasi
8. Jodhpur
9. Jharia

The Committee has been informed that GAIL (India) Ltd. has already taken up the CNG / City Gas Distribution project in Lucknow and also preliminary studies for the cities of Kanpur, Agra, Faridabad & Pune.

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ANNEXURE 20

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NATURAL GAS PRICE IN USA

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SPOT PRICES – HENRY HUB

MONTHLY AVERAGE

US \$ / MMBTU

APRIL 2002

4.13

MAY 2002	4.06
JUNE 2002	4.06
JULY 2002	4.08
AUGUST 2002	4.09
SEPTEMBER 2002	4.07
OCTOBER 2002	4.13
NOVEMBER 2002	4.13
DECEMBER 2002	4.20
JANUARY 2003 (TILL 20 TH)	5.03

CITY GATE PRICES – CHICAGO

MONTH	RANGE US \$ / MMBTU	AVERAGE US \$ / MMBTU
DECEMBER 2002	4.13 – 5.14	4.27
JANUARY 2003 (TILL 20 TH)	4.70 – 5.21	4.9

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FORMAT USED FOR SEEKING INFORMATION

- Ø Annual Reports for last 5 years (including all supporting schedules and details / documents covering pricing, cost of service, volume sold and capital investment in each category of consumer).
- Ø Capital assets deployed (original value of assets, date of commencement and depreciation policy and written down value of assets) in servicing various categories of consumers i.e. industrial, commercial, CNG and domestic – apportionment of common services to different consumer categories along with basis thereof.
- Ø Plan for investments over next five years and a breakdown of the asset categories to be acquired i.e. low pressure distribution mains, pressure reduction facilities, connecting to the consumers etc.
- Ø Number of consumers in different categories and the corresponding investment in each category – year-wise for last five years.
- Ø Details and quantum of Operation & Maintenance costs incurred with respect to above four categories of consumers – apportionment of common services to different consumer categories along with basis thereof.
- Ø Details and quantum of Administrative / General expenses (including overheads, costs related to levies / royalties etc.) and the manner in which these are apportioned to different consumer categories along with basis thereof.
- Ø Details and quantum of Retailing Costs (Metering; Billing; Promotional Expenses etc.) and the manner in which these are apportioned to different consumer categories along with basis thereof.
- Ø The volumes of gas supplied (in lakh SCM and SCMD), price applicable (Rs. / SCM separately for basic price and including taxes) and revenue generation (Rs. lakh separately for basic price and including taxes) with respect to each category of above consumers over the last 3 years, the current year (till November '02) and projected supply volumes and revenue for the next 3 years -- revenue streams separately for all categories of consumers covering above period.

Ø Basis of the price charged from different categories of consumers and linkage if any between the price charged and a reference / alternative fuel.

Ø Return of Capital taking into account capital structure of the company and methodology being followed to work out - expected IRR along with justification of the same.

Ø Grades / scales of pay in the organisation, average emoluments in each grade / scale and no. of persons in each grade / scale.

Ø Any other information which may be helpful to work out cost of services / return to the company.

ANNEXURE 22

ABBREVIATIONS USED

APEC	Asia Pacific Energy Research Centre
BPCL	Bharat Petroleum Corporation Limited
BRS	Bulk Registration Scheme (for domestic consumers of MGL)
CAPEX	Capital Expenditure
CNG	Compressed Natural Gas
FO	Furnace Oil
FOB	Free on Board
IGL	Indraprastha Gas Limited
GAIL	GAIL (India) Limited (Formerly Gas Authority of India Limited)
GGCL	Gujarat Gas Company Limited
GOI	Government of India
GOM	Government of Maharashtra

HBJ	Hazira – Bijaipur (Vijaipur) – Jagdishpur
HSD	High Speed Diesel Oil
IRR	Internal Rate of Return
IRS	Individual Registration Scheme (for domestic consumers of MGL)
KCal	Kilo Calories
KG	Kilo Gram
KM	Kilo Meter
LPG	Liquefied Petroleum Gas
LSHS	Low Sulphur Heavy Stock
MGL	Mahanagar Gas Ltd.
MMBTU	Million British Thermal Unit
MMSCM	Million (Standard) Cubic Meters
MMSCMD	Million (Standard) Cubic Meters per Day
MOP&NG	Ministry of Petroleum and Natural Gas, Government of India
MS	Motor Spirit
MT	Metric Tons
NG	Natural Gas
OIL	Oil India Limited
ONGC	Oil and Natural Gas Corporation Limited (Formerly Oil and Natural Gas Commission)
OPEC	Organisation of Petroleum Exporting Countries
OPEX	Operating Expenditure
PNG	Piped Natural Gas
SCM	(Standard) Cubic Meters
SCMD	(Standard) Cubic Meters per Day
SKO	Kerosene Oil
US \$	United States Dollar

ANNEXURE 23

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Annexure 14

COMPARISON OF GAS PRICES IN INDIA & USA												
Year	FO PRICES						US Well Head Price	US Wellhead price	% of US wellhead price to average FO price	ONGC's Producer Price	% of US Well Head Price to average FO price	% of ONGC's Producer Price to average FO price
	HSFO 3.5% FO FOB Arab Gulf	HSFO 3.5% FO Singapore	1% FO CIF NWE Cargo	1% FO FOB Med Cargo	Average FO rate	Average FO price						
	US\$/MT	US\$/MT	US\$/MT	US\$/MT	US\$/MT	US\$/mmbtu						
1997-98 (From Oct'97)	75.63	83.86	98.38	91.71	87.40	2.27	2.31	2.24	98.8	1.26	99	56
1998-99	62.22	68.90	74.92	68.06	68.53	1.78	1.89	1.84	103.2	1.12	103	63
1999-2000	116.70	122.81	120.19	111.50	117.80	3.06	2.30	2.24	73.1	1.32	73	43
2000-01	139.77	154.38	156.87	147.13	149.54	3.89	4.62	4.50	115.7	1.24	116	32
2001-02	121.50	130.67	124.42	115.14	122.93	3.19	3.11	3.03	94.8	1.16	95	36
2002-03 (upto Dec'02)	149.30	157.48	153.18	144.99	151.24	3.93	3.09	3.01	76.6	1.09	77	28
Average Oct'97-Dec'02	112.38	121.30	121.99	113.61	117.32	3.05	2.93	2.85	94.0	1.20	94	42

SOURCE

FO prices - Platts

Wellhead prices from US Government official site www.eia.gov

Published wellhead US prices in US\$/cubic feet have been converted to US\$/mmbtu based on published data on the calorific value of US gas production.

SECTORWISE NATURAL GAS PRICES IN SOME DEVELOPED ECONOMIES																					
(US \$ / MMBTU)																					
Country	Electricity Generation							Households							Industry						
	1996	1997	1998	1999	2000	2001	Avg.	1996	1997	1998	1999	2000	2001	Avg.	1996	1997	1998	1999	2000	2001	Avg.
US	2.86	3.06	2.64	2.86	4.82	4.90	3.52	7.40	7.47	7.34	7.20	8.36	10.35	8.02	3.62	3.81	3.33	3.32	4.80	5.39	4.05
MEXICO	2.50	2.78	2.28	2.47	4.20	4.73	3.16								2.50	2.78	2.28	2.47	4.20	4.73	3.16
BELGIUM	3.41	3.71					3.56	12.65	11.58	11.47	10.73	11.42		11.57	3.71	3.68					3.70
CZECH REPUBLIC	4.60	4.26	4.47	4.00	4.10	4.25	4.28	3.68	3.60	4.96	5.18	6.00	6.52	4.99	4.60	4.26	4.47	4.00	4.13	4.36	4.30
FINLAND	4.17	3.59	3.36	3.02	3.17	3.05	3.39	5.08	4.77	4.73	4.38	4.47	6.19	4.94	4.17	4.02	3.88	3.59	3.66	3.53	3.81
GERMANY	4.84	4.43	4.13	3.91	4.30		4.32	12.30	11.66	11.34	10.70	10.46		11.29	5.65	5.31	4.97	4.53	5.26		5.14
HUNGARY	2.53	3.50	3.50	3.76	2.80	4.35	3.41	3.82	4.64	5.67	5.18	4.66	5.11	4.85	2.97	4.06	4.05	3.78	4.06	4.77	3.95
IRELAND	3.15	2.94	2.90	2.84	2.77	3.56	3.03	13.23	12.52	11.77	12.19	9.68	9.88	11.55	8.89	8.42	4.80	4.62	4.06	4.77	5.93
SPAIN	4.92	3.97	3.59	3.36	4.62		4.09	17.19	15.34	14.93	13.47	13.76	14.22	14.82	4.73	4.36	3.86	3.68	4.91	4.93	4.41
TURKEY	4.80	5.27	4.64	4.43	4.73	5.51	4.90	5.86	6.68	6.10	6.32	7.22	6.92	6.52	5.26	5.58	4.82	4.55	4.91	5.61	5.12
UK	3.19	3.45	3.54	3.21	2.91	3.13	3.24	9.12	9.47	9.26	8.99	8.20	8.02	8.84	2.58	2.85	3.04	2.88	2.93	3.74	3.00
CANADA								4.75	4.78	4.76	5.95	5.58		5.16	1.99	2.03	1.98	2.23	2.52		2.15
ITALY								20.53	19.56	19.34	17.89			19.33	5.54	5.37	4.80				5.24

Source:

IEA, FRANCE STATISTICS, NATURAL GAS INFORMATION 2002

Annexure 17

**PRICE OF LSHS (INCL. STATE SURCHARGE & OCTROI) AND
RELATED GAS PRICE (W/O TAXES) TO INDUSTRIAL CUSTOMERS**

FY 2000 - 01		Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01
LSHS price	Rs/ MT.	10179.9	9964.2	10219.9	10621	9247	9545.3	9936.4	9979.9	9105.8	7789.9	7791	8149.9
Gas Price	Rs/ SCM	8.03	7.86	8.06	8.38	7.29	7.53	7.84	7.87	7.18	6.14	6.14	6.43
FY 2001 - 02		Apr-01	May-01	Jun-01	Jul-01	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02
LSHS price	Rs/ MT.	8349.3	9079.6	9519.94	8661.2	8819.6	9438.6	9366.71	8470.27	7603.17	7869.9	7976.73	8582.8
Gas Price	Rs/ SCM	6.58	7.16	7.51	6.83	6.96	7.44	7.39	6.68	6.00	6.21	6.29	6.77
FY 2002 -03		Apr-02	May-02	Jun-02	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02				
LSHS price	Rs/ MT.	9754.94	10561	10774.9	10623	10960	11325	11689.9	10350				
Gas Price	Rs/ SCM	7.69	8.33	8.50	8.38	8.64	8.93	9.22	8.16				

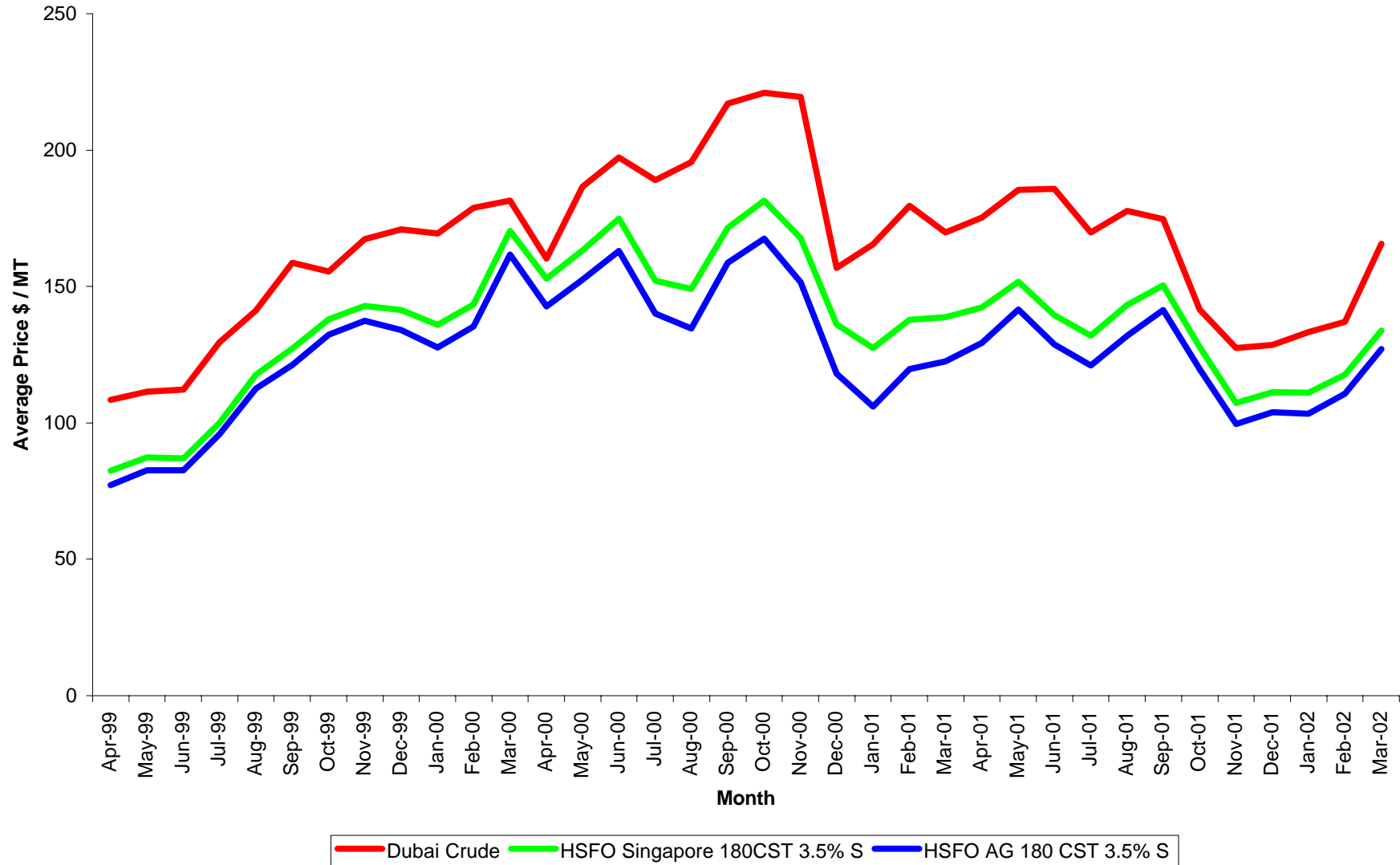
FROM DATA AS GIVEN ABOVE

SIMPLE AVERAGE FOR PERIOD	LSHS Rs/ MT.	Gas	
		W/O TAX Rs/ SCM	INCL. TAX Rs/ SCM
FY 2000 - 01	9378	7.40	8.56
FY 2001 - 02	8645	6.82	7.90
FY 2002 - 03 (TILL NOV'02)	10755	8.48	9.82

FROM DATA SUBMITTED BY MGL

WEIGHTED AVERAGE FOR PERIOD	Gas	
	W/O TAX Rs/ SCM	INCL. TAX Rs/ SCM
FY 2000 - 01	6.80	7.84
FY 2001 - 02	6.60	7.61
FY 2002 - 03 (TILL NOV'02)	8.09	9.37

COMPARISON OF CRUDE AND FO PRICES (FOB)



**PRICE OF GAS TO INDUSTRIAL CUSTOMERS VIS-A-VIS PRICE OF LSHS
AND BASIS OF PROPOSED CAP ON GAS PRICES**

FY 1999 - 00										Nov-99	Dec-99	Jan-00	Feb-00	Mar-00
LSHS price	Rs/ MT.									9229.9	9005.3	9345.7	9519.9	9863.8
Gas Price	Rs/ SCM									7.28	7.10	7.37	7.51	7.78
(Industrial)	(w/o taxes)													

FY 2000 - 01		Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01
LSHS price	Rs/ MT.	10179.9	9964.2	10219.9	10621	9247	9545.3	9936.4	9979.9	9105.8	7789.9	7791	8149.9
Gas Price	Rs/ SCM	8.03	7.86	8.06	8.38	7.29	7.53	7.84	7.87	7.18	6.14	6.14	6.43
(Industrial)	(w/o taxes)												

FY 2001 - 02		Apr-01	May-01	Jun-01	Jul-01	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02
LSHS price	Rs/ MT.	8349.3	9079.6	9519.94	8661.2	8819.6	9438.6	9366.71	8470.27	7603.17	7869.9	7976.73	8582.8
Gas Price	Rs/ SCM	6.58	7.16	7.51	6.83	6.96	7.44	7.39	6.68	6.00	6.21	6.29	6.77
(Industrial)	(w/o taxes)												

FY 2002 -03		Apr-02	May-02	Jun-02	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02
LSHS price	Rs/ MT.	9754.94	10561	10774.9	10623	10960	11325	11689.9	10350	10500
Gas Price	Rs/ SCM	7.69	8.33	8.50	8.38	8.64	8.93	9.22	8.16	8.28
(Industrial)										

FROM DATA AS GIVEN ABOVE

SIMPLE AVERAGE FOR PERIOD	LSHS Rs/ MT.	Gas	
		W/O TAX Rs/ SCM	INCL. TAX Rs/ SCM
FY 1999 - 00			
FY 1999 - 00 (NOV - MAR)	9393	7.41	8.58
FY 2000 - 01	9378	7.40	8.56
FY 2001 - 02	8645	6.82	7.90
FY 2002 - 03 (TILL DEC '02)	10726	8.46	9.80
FY 2002 - 03 (TILL NOV'02)	10755	8.48	9.82

FROM DATA SUBMITTED BY MGL

WEIGHTED AVERAGE FOR PERIOD	Gas	
	W/O TAX Rs/ SCM	INCL. TAX Rs/ SCM
FY 1999 - 00	6.59	7.6
FY 1999 - 00 (NOV - MAR)		
FY 2000 - 01	6.80	7.84
FY 2001 - 02	6.60	7.61
FY 2002 - 03 (TILL DEC '02)		
FY 2002 - 03 (TILL NOV'02)	8.09	9.37

	Actual Price	Cost plus price	Crude
Apr-99	7842.99	6560	14.72
May-99	8251.3	6560	15.13
Jun-99	8319.3	6560	15.24
Jul-99	8895.56	6560	17.57
Aug-99	9638.8	6560	19.14
Sep-99	10365.4	6560	21.53
Oct-99	11036.39	6560	21.1
Nov-99	11367.63	6560	22.72
Dec-99	11466.43	6560	23.21
Jan-00	11520.18	6560	22.99
Feb-00	12318.19	6560	24.26
Mar-00	13363.87	6560	24.63
Apr-00	12803.43	6560	21.73
May-00	13699.68	6560	25.31
Jun-00	13767.71	6560	26.77
Jul-00	13196.56	6560	25.63
Aug-00	13901.16	6560	26.54
Sep-00	14490.52	6560	29.45
Oct-00	14654.49	6560	30
Nov-00	14174.55	6560	29.8
Dec-00	11926.3	6560	21.28
Jan-01	11666.75	6560	22.46
Feb -01	11947.67	6560	24.38
Mar -02	11858.17	6560	23.05
Apr -02	13322.33	6560	23.77
May -02	13429.66	6560	25.16
Jun -02	13167.32	6560	25.22
Jul -02	12710.91	6560	23.04
Aug -02	11507.13	6560	24.11
Sep -02	11963.07	6560	23.71
Oct -02	10125.95	6560	19.21
Nov -02	9070.01	6560	17.28
Dec -02	9043.97	6560	17.44
Jan 02	9421.93	6560	18.08
Feb 02	9792.34	6560	18.61
Mar 02	11262.2	6560	22.47