

## REPORT ON CORPORATE GOVERNANCE

### COMPANY'S PHILOSOPHY ON CODE OF GOVERNANCE

Corporate Governance is a set of systems and practices to ensure that the affairs of the company are being managed in a way which ensures accountability, transparency and fairness in all its transactions in the widest sense and meet its stakeholder's aspirations and societal expectations. The Corporate Governance framework of your Company enjoins the highest standards of ethical and responsible conduct of business to create value for all its stakeholders.

Your Company's philosophy on Corporate Governance envisages the attainment of the highest levels of transparency, accountability and ethics, in all facets of its operations, with the primary objective of enhancing shareholder value.

In commitment to practice sound governance principles, your Company is guided by the following core principles:

- Proactive flow of information to the members of the Board and Board Committees to enable effective discharge of fiduciary duties.
- To comply with all the applicable laws, rules and regulations.
- Ethical business conduct by the Board management and employees
- Well developed systems and processes for internal controls throughout organizational structure
- Strategic supervision by the Board of Directors

The Board of your Company constantly endeavors to set goals and targets aligned to the Company's Vision and Mission.

### BOARD OF DIRECTORS

The Board of Directors of your Company consists of whole-time Directors including CMD, Part-time Government Nominee Directors and Part-time non-official (Independent) Directors. Whole-time Directors are involved in day-to-day management of the Company. Government Nominee Directors are representative of administrative Ministry of Government of India to take care of interest of Government of India. Independent Directors are appointed by Government of India to take care of interest of all stakeholders including minority shareholders. Your Board is responsible for defining Company policies and overseeing their implementation.

Apart from statutory sub-committees viz. Audit Committee, Shareholders/Investors Grievance Committee and Remuneration Committee, there are further 12 Board level Committees for implementing the overall business strategy and creating value for the stakeholders, as approved by the Board of Directors. The minutes of sub-committees of the Board are also placed before the Board from time to time. Details of various sub-committees of the Board are forming part of Annual Report.

In line with sound Corporate Governance framework all statutory, significant and material information are placed before the Board to enable to review the performance of the Company.

#### • Composition

Your Company, being a Government Company, appointment/ nomination of all the Directors is being done by the President of India, through the Ministry of Petroleum & Natural Gas (MoPNG). The Articles of Association of the Company stipulates that the number of Directors shall not be less than three and not more than twenty.

As on 31<sup>st</sup> March, 2013, there were 11 (Eleven) Directors on the Board comprising of 6 (Six) Whole-Time Directors including the Chairman & Managing Director, 2 (Two) Part-time Directors (Government Nominee) and 3 (Three) Part-time non-official (Independent) Directors. The details w.r.t. attendance, number of other Directorships and Chairmanship/ Memberships of Committees of each Director are as under:

Name and Designation of the Director	No. of Board Meetings attended during the Tenure	Attendance at last Annual General Meeting	Directorships held in other Public Limited Companies	Committee Membership in other Companies	Chairperson of Committees of other Companies
<b>I. Whole-time Directors</b>					
Sh. B. C. Tripathi Chairman and Managing Director	11	Yes	04	01	Nil
Sh. R. D. Goyal Director (Projects)	11	Yes	Nil	Nil	Nil
Sh. S. L. Raina Director (HR)	11	Yes	03	02	Nil
Sh. Prabhat Singh Director (Marketing)	11	Yes	01	Nil	Nil
Sh. S. Venkatraman Director (Business Development)	11	Yes	03	01	Nil
Sh. P. K. Jain Director (Finance)	11	Yes	02	01	01
<b>II. Part-time Directors (Government Nominee)</b>					
Sh. Sudhir Bhargava	09	No	02	Nil	Nil
Dr. Neeraj Mittal	09	No	01	Nil	Nil
<b>III. Part-time non-official (Independent) Directors</b>					
Sh. Arun Agarwal	11	Yes	03	01	02
Smt. Shyamala Gopinath	07	No	08	03	02
Dr. A. K. Khandelwal	08	No	04	Nil	Nil
Sh. Mahesh Shah (upto 10.08.2012)	02	No	02	01	Nil
Sh. R. M. Sethi (upto 10.08.2012)	02	No	Nil	Nil	Nil
Dr. Vinayshil Gautam (upto 10.08.2012)	02	No	05	02	Nil
Sh. R. P. Singh (upto 09.08.2012)	01	N.A.	Nil	Nil	Nil
Sh. Vivek Mehrotra (upto 14.05.2012)	N.A.	N.A.	Nil	Nil	Nil

**Notes:**

1. During the year 2012-13, 11(Eleven) Board Meetings were held.
2. 28th Annual General Meeting was held on 05.09.2012.
3. Based on disclosures received from concerned Director(s):
  - i. Directors inter-se are not related to each other.
  - ii. None of the Director(s) on the Board is a Member of more than 10 (Ten) Committees or Chairman of more than 5(Five) Committees across all the companies in which he/she is a Director. Membership/Chairmanship in Committee is reckoned pertaining to Audit Committee and Shareholders/ Investors Grievance Committee.
  - iii. None of non-executive Director hold any Equity Shares in the Company.
  - iv. None of the non-executive Directors have any pecuniary relationship or transactions with the Company during the FY ending on 31<sup>st</sup> March, 2013.

**• Meeting Details**

During 2012-13, 11 (Eleven) meetings of the Board were held in 2012- 30<sup>th</sup> May, 30<sup>th</sup> July, 18<sup>th</sup> August, 26<sup>th</sup> September, 26<sup>th</sup> October, 16<sup>th</sup> December and 2013- 14<sup>th</sup> February, 11<sup>th</sup> March, 19<sup>th</sup> March, 26<sup>th</sup> March and 28<sup>th</sup> March.

**AUDIT COMMITTEE**

**• Terms of Reference**

The terms of reference of Audit Committee is in accordance with Companies Act, existing Listing Agreement and Guidelines on Corporate Governance for Central Public Sector Enterprises, 2010 formulated by Department of Public Enterprise (DPE guidelines on Corporate Governance) which, inter-alia, include oversight of financial reporting process, recommending the appointment of and fixation of fees for auditors, approval of payment to auditors for payment of any other services rendered, reviewing annual and quarterly financial statements, reviewing performance of statutory / internal auditors and adequacy of internal control system, reviewing adequacy of internal audit function, discussion with internal auditors, reviewing findings of internal investigations, discussion with statutory auditors and reviewing whistleblower mechanism etc.

**• Composition**

As on 31<sup>st</sup> March, 2013, the Audit Committee comprised of Sh. Arun Agarwal as the Chairman, Sh. Prabhat Singh, Director (Marketing), Smt. Shyamala Gopinath and Dr.A.K. Khandelwal as the members.

Director (Finance), Statutory Auditors of your Company and Head of Internal Audit are the permanent invitees to the meetings of Audit Committee. Audit Committee hold post-audit discussions with joint statutory auditors on accounting practice, policies followed by the Company etc. Other Functional Directors and other senior functional executives are also invited, as and when required, to provide necessary information/clarification to the Committee. The Company Secretary acts as the Secretary to the Committee.

**• Meeting Details**

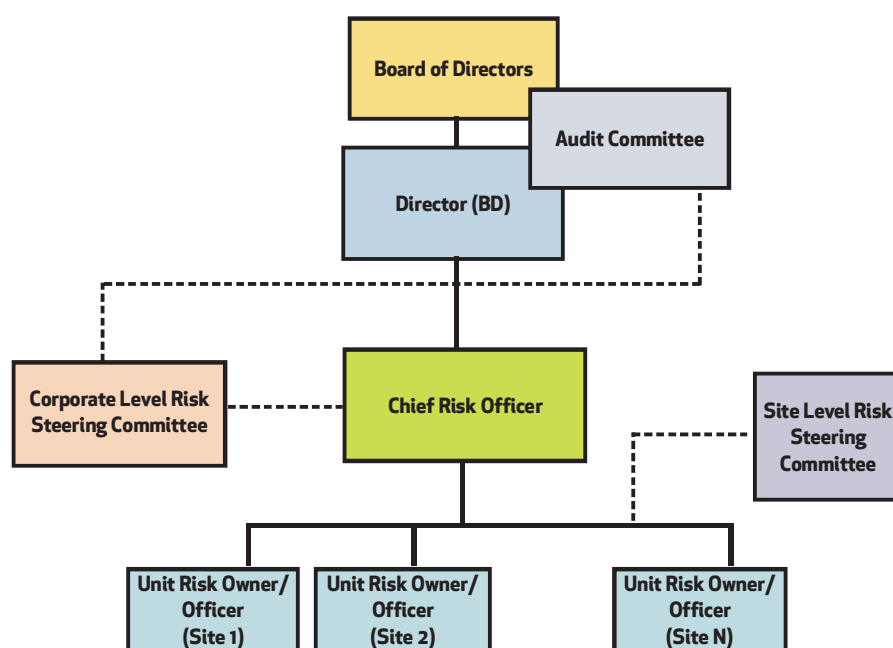
During 2012-13, 11 (Eleven) meetings of Audit Committee were held in 2012- 20<sup>th</sup> April, 30<sup>th</sup> May, 14<sup>th</sup> June, 25<sup>th</sup> July, 30<sup>th</sup> July, 18<sup>th</sup> October, 25<sup>th</sup> October, 12<sup>th</sup> December and 2013- 24<sup>th</sup> January, 14<sup>th</sup> February and 6<sup>th</sup> March. The attendance of the Members at the meetings was as follows:

S. No.	Members	No. of Meetings	
		Held during the tenure	Attended
1.	Sh. Mahesh Shah	05	05
2.	Sh. R. M. Sethi	05	05
3.	Sh. Arun Agarwal	11	11
4.	Smt. Shyamala Gopinath	06	03
5.	Dr. A.K. Khandelwal	06	06
6.	Sh. Prabhat Singh Director (Marketing)	04	03

**• Risk Management Framework**

Risk Management Framework was institutionalized in your Company in the year 2007. A robust Risk Management Framework supports your Company's business strategy and operations. Risk Management Framework is constantly updated for new and emerging risks emanating from business expansions and interests. During the year, the key business areas and risks were reviewed by your Company with assistance of M/s Deloitte Haskins & Sells.

The Risk Management Organization structure is as under:





Risk Management Framework key risks are reviewed by CMD & Functional Directors, before putting up the same to Audit Committee on quarterly basis. The Board along with the Audit Committee oversees the effectiveness and performance of risk management framework.

#### • Policy on Whistle Blower and Fraud Prevention

In order to ensure greater transparency in all aspects of your Company's functioning, your Company has adopted resolution no. 89 of Government of India pertaining to 'Public Interest Disclosure and Protection of Informer' and implemented the same as 'Whistle Blower Policy' in your Company. It, inter-alia, covers employees to report to the management in writing complaints or disclosure on any allegation of corruption or mis-use of office. The policy provides for adequate safeguards against victimization of employees who avail of the mechanism.

The policy allows direct access to the Chairperson of the Audit Committee in exceptional cases. No employee has been denied access to the Audit Committee. Audit Committee reviews the complaints received under whistle blower mechanism on quarterly basis.

"Excellence with Ethics" is the mantra of your Company in conduct of its business. Your Company has established various preventive and predictive measures to detect fraudulent activity (ies). To enhance stakeholders' confidence in the Company, your Company has framed the Fraud Prevention Policy to further foster an honest and transparent environment amongst the employers and other stakeholders dealing with the Company. The policy will endeavor to prevent, detect and allow for speedy disposal of fraud or suspected fraud.

A report on status of fraud is put up to Audit Committee on quarterly basis and Fraud Risk Assessment Report, which is reviewed by Corporate level Committee consisting of senior officials, is also put up to Audit Committee on half yearly basis.

#### SHAREHOLDERS/INVESTORS GRIEVANCE COMMITTEE

##### • Terms of Reference

The terms of reference of the Committee is

to, inter-alia, look into investor's grievances and matters relating to R&TA.

##### • Composition

As on 31<sup>st</sup> March, 2013, the Shareholders/ Investors Grievance Committee comprised of Smt. Shyamala Gopinath, as the Chairperson, Sh. S. L. Raina, Director (HR) and Sh. Prabhat Singh, Director (Marketing) as the member(s). The Company Secretary acts as the Compliance Officer of the Company.

##### • Meeting & Other Details

During 2012-13, a meeting of Committee was held on 30<sup>th</sup> July, 2012, which was attended by then Members viz. Sh. Mahesh Shah, Chairman, Sh. S.L. Raina & Sh. Prabhat Singh.

Letters of shareholders received through SEBI/Stock Exchanges/MCA/Depositories/ other statutory authorities are considered as 'Complaints'. The day to day requests received from the shareholders are taken up by MCS Ltd., Registrar & Share Transfer Agent (R&TA) directly and are not included in the complaints. Status of the Complaints received and redressed during the respective quarters is being placed periodically to the Audit Committee and Board.

During the year 2012-13, 26 complaints were received from the shareholders/investors through SEBI/Stock Exchanges and other statutory bodies, which pertained to matters like non-receipt of dividend, annual report, etc. All the 26 complaints were resolved, therefore, as on 31<sup>st</sup> March, 2013 there were no investor complaints pending.

Government of India came out with 'Offer for Sale' of shares of your Company in the year 2004. As per information made available by MCS Ltd., as on 31<sup>st</sup> March, 2013, there were 25 pending cases for share credit consisting of 1,312 equity shares (including 437 bonus shares). Your Company has sent communication(s) to said shareholders for the share credit.

The R&TA/Company has taken various steps to ensure that the shareholder related matters/issues are given due priority and are resolved within a reasonable period of time except the grievance relating to 'Offer for Sale' of equity shares by Government of India and/or grievance constrained by

incomplete documentation and/or legal impediments against the Company.

R&TA has designated exclusive e-mail id(s) viz., admin@mcsdel.com and mcsgail@mcsdel.com to facilitate investors to register their complaints, requests etc if any. There is a separate dedicated section on the Company's website www.gailonline.com captioned 'Investor Zone' to make aware the shareholders about latest developments and updated information about shareholding pattern, dividend declaration, IEPF transfer etc.

#### REMUNERATION COMMITTEE

Your Company being a Government Company, the remuneration of its Whole-time Directors is determined by the President of India, through Ministry of Petroleum & Natural Gas. The Part-time Director(s) (Government Nominee) do not receive any remuneration from the Company. Further, the Part-time non-official (Independent) Directors are being paid sitting fee of ₹ 20,000/- and ₹ 15,000/- for attending each meeting of the Board and Committee respectively in addition to expenses incidental thereto.

##### • Terms of Reference

The terms of reference of this Committee is to deliberate and decide on Performance Related Pay (PRP) pool and policy of distribution of PRP to employees in the pay structure and examination of issues relating to pay and perks other than PRP prior to consideration by the Board.

##### • Composition

As on 31<sup>st</sup> March 2013, the Remuneration Committee of the Company comprised of Dr. A. K. Khandelwal as the Chairman, Smt. Shyamala Gopinath and Sh. Arun Agarwal, as the member(s). Director (HR) and Director (Finance) are the permanent invitees to the meetings of Remuneration Committee.

##### • Meeting & Other Details

During 2012-13, a meeting of Remuneration Committee was held on 5<sup>th</sup> October, 2012, which was attended by Dr. Khandelwal, Chairman and Sh. Arun Agarwal, Member.

The details of remuneration paid to Whole-time Directors of the Company for 2012-13, are as below:



(₹. in Lakhs)

S. No.	Name of the Director	Salary & Allowances	Contribution to PF	Other Benefits and Perquisites	Performance Related Payment	Total
1.	Sh. B. C. Tripathi Chairman and Managing Director	27.85	4.71	6.65	14.81	54.02
2	Sh. R. D. Goyal Director (Projects)	35.72	4.51	6.95	10.63	57.81
3	Sh. S.L. Raina Director (HR)	26.82	4.31	5.54	10.15	46.82
4	Sh. Prabhat Singh Director (Marketing)	22.98	4.24	5.29	9.99	42.50
5	Sh. S. Venkatraman Director (Business Development)	27.36	4.27	6.41	10.07	48.11
6	Sh. P.K. Jain Director (Finance)	26.30	4.35	5.72	10.24	46.61

The payment made to Whole-time Directors did not include provision for leave, gratuity and post retirement benefits as per AS-15 since the same were not ascertained for individual employee (Refer note no. 38). During the year under review, your Company had not introduced any stock-options scheme.

The service contract of Whole-time Directors is for five years (or till superannuation, whichever is earlier) and is subject to extension by MoPNG. The notice period of three months or salary in lieu thereof is required in case of severance of service. Part-time non-official (Independent) Directors are usually appointed for three years period by Government of India.

The details of sitting fees paid to the Part-time non-official (Independent) Directors, for attending the meetings of the Board of

Directors and Committee(s) thereof, is given below:

(₹. in Lakhs)

S. No.	Name of the Independent Director(s)	Amount
1	Sh. Mahesh Shah	1.75
2	Sh. R.M. Sethi	1.45
3	Dr. Vinayshil Gautam	1.00
4	Sh. Arun Agarwal	7.45
5	Smt. Shyamala Gopinath	2.45
6	Shri R.P. Singh	0.20
7	Dr. A.K. Khandelwal	3.85

#### GENERAL BODY MEETINGS

##### • Location and Time

The location, time and details of special resolutions passed during last three AGMs are as follows:

Year	2009-10	2010-11	2011-12
AGM	26th	27th	28th
Date & Time	22.09.2010 10:30 am	07.09.2011 10:30 am	05.09.2012 10:30 am
Venue	Air Force Auditorium, Subroto Park, New Delhi-110010	Air Force Auditorium Subroto Park, New Delhi-110010	Air Force Auditorium Subroto Park, New Delhi-110010
Special Resolution passed	Appointment of Ms Esha Goel, daughter of Shri R.K. Goel, Director (Finance) to hold an office or place of profit in the Company	None	None
Details	To appoint Ms Esha Goel, daughter of Shri R.K. Goel, Director (Finance) to hold an office or place of profit in the Company as Deputy Manager (BIS) at E-3 level	N.A.	N.A.

Apart from above, no item warranted the postal ballot as stipulated under the Companies Act, 1956. No special resolution is proposed to be passed by postal ballot at the ensuing Annual General Meeting.

#### DISCLOSURES

- Annual Financial statements 2012-13 are in conformity with applicable Accounting Standards. During the year, there have been no materially significant related party transactions that may have potential conflict with the interest of your Company at large. The details of "Related Party Disclosures" are being disclosed in Note no. 43 to the accounts in the Annual Report.
- Your Company has filed report on Corporate Governance in specified format(s) to Stock Exchanges, MoPNG/ DPE within stipulated time.
- The CEO/CFO of the Company have certified the specified matters to the Board and Audit Committee, as required under clause 49 of the Listing Agreement.
- Board Members and Senior Management Personnel have affirmed compliance with the Code of Conduct of your Company for the financial year ending on 31<sup>st</sup> March, 2013.
- In pursuance of the Securities Exchange Board of India (Prohibition of Insider Trading) Regulations, 1992, the Board has laid down "Code of Conduct for Prevention of Insider Trading" with an objective of preventing purchase and/or sale of shares of the Company by an Insider on the basis of unpublished price sensitive information. Under this Code, Directors/ Officers/ Designated Employees are prevented to deal in the Company's shares during the closure of Trading Window.
- Your Company has implemented online Legal Compliance Management System which covers the compliance of all the applicable legislative categories and laws (Central and State) to your Company.
- Your Board has approved the Training Policy for Board Members and the same has been implemented. Your Company's Directors are nominated to attend conferences on corporate governance and other industry related matters conducted by DPE, SCOPE and other reputed Institutes at regular intervals.
- Your Company has complied with all the mandatory and non mandatory requirements of Clause 49 of the Listing Agreement except composition of Board of Directors, as



specified in clause 49 (1A) (ii) of the Listing Agreement with respect to required number of Independent Directors on the Board. There has been no instance of non compliance with any stock exchange, SEBI on any matter relating to capital market over the last 3 years.

Your Company is regularly taking up the matter with Ministry of Petroleum & Natural Gas, Government of India for appointment of requisite number of Independent Directors on the Board of the Company. The Government of India is in the process of selecting Independent Directors through a process of Search Committee and will take some time before the Government nominates requisite number of Independent Directors on the Board of your Company.

- i. During the year under review, no Presidential Directives has been received by the Company and Presidential Directives issued by MoPNG in 2009 with respect to pay revision of employees has been complied with.
- j. Department of Public Enterprise has formulated Guidelines on Corporate Governance for Central Public Sector Enterprises, 2010. Your Company is complying with these guidelines except composition of Board of Directors.

No item of expenditure has been debited in books of accounts, which are not for the purposes of the business and no expenses, which are personal in nature, have been incurred for the Board of Directors and Top Management.

The administrative & office expenses and financial expenses constitutes 2.79 % and 0.46 % respectively of total expenses for 2012-13 as against 2.67% and 0.33 % in 2011-12.

- k. Your Company nominates its representatives on the Board of subsidiary companies and monitors the performance of such companies periodically. In terms of Clause 49 of the Listing Agreement and DPE guidelines on Corporate Governance, performance of the subsidiary companies is, inter-alia, reviewed by the Audit Committee and the Board as under:
  - (i) Consolidated financial statements comprising of financial statements of subsidiary companies etc., are reviewed by the Audit Committee and Board.
  - (ii) Minutes of the meetings of the Board of Directors are put up to the Board, from time to time.
  - (iii) Investments made by unlisted subsidiary companies are also reviewed by the Audit Committee and Board.
  - (iv) A statement of all significant transactions and arrangements periodically entered into by the Subsidiary(ies) Company are also reviewed by the Audit Committee and Board.

The Company does not have any material unlisted subsidiary companies in terms of the Clause 49 of the Listing Agreement.

#### MEANS OF COMMUNICATION

Timely disclosure of consistent, relevant and reliable information on financial performance is at the core of good governance. Towards this end, major steps taken are as under:

- The unaudited and audited quarterly results of your Company were announced within stipulated 45/ 60 days respectively from the end of respective quarter. In order to attain maximum shareholder reach, the financial results of the Company during the year 2012-13 were published in leading English and Vernacular dailies having wide circulation across the country.
- Updated information relating to shareholding pattern, financial results

etc. is available on Corporate Filing and Dissemination System in addition to the website of your Company.

- Official news/press releases and presentations made to analysts are also hosted on your Company's website from time to time.
- The website of your Company contains dedicated section 'Investor Zone' having updated relevant information for shareholders.
- Printed copy of 'Chairman Speech' is distributed to all the shareholders at the Annual General Meetings. The same is also placed on the website of your Company.
- Reminders for unclaimed shares, unpaid dividend are sent to the shareholders as per records every year.

#### CORPORATE BENEFITS

##### • Dividend

During the 2012-13, the Board of Directors approved the payment of dividend, for which the Record Date / Book Closure and dividend payment dates were fixed, as per the following details:

S. No.	Dividend Declared	Dividend (%)	Record Date / Book Closure	Dividend Payment Date
1.	Interim Dividend	40% (₹ 4/- per share)	20.02.2013	22.02.2013
2.	Final Dividend (Proposed)	56% (₹ 5.60/- per share)	07.09.2013 to 25.09.2013	03.10.2013

With this, your Company has proposed a total dividend of 96% (₹ 9.6/- per equity share each) on the paid-up equity share capital, for the year ended 31<sup>st</sup> March, 2013.

##### • Investor Education and Protection Fund (IEPF)

Pursuant to Section 205C of the Companies Act, 1956, dividend amount(s) remaining unclaimed and unpaid for a period of seven years, from the date they became due for payment, is required to be transferred to IEPF established by the Central Government in this behalf.

During the year, your Company had transferred an amount of ₹ 18.17 lacs, ₹ 19.27 lacs and ₹ 7.24 lacs in IEPF for unclaimed/unpaid final dividend for FY 2004-05, interim dividend and special interim dividend for FY 2005-06 respectively.

The subsequent due dates of transfer of unpaid/ unclaimed dividend to IEPF for the imminent financial year are as under:

S. No.	FY	Type of Dividend	Dividend (%)	Last date for claiming Unpaid Dividend	Due date for transfer to IEPF
1	2006-07	INTERIM SPL INTERIM FINAL	55 25 20	19.12.2013 05.03.2014 02.09.2014	19.01.2014 05.04.2014 02.10.2014

After the transfer of unpaid/unclaimed amount to IEPF, no claim shall lie against Company/R&TA/Fund, Members who have not yet encashed their Dividend Warrant(s) may approach the R&TA/Company for issuance of demand draft(s) upon completion of necessary formalities in the said behalf in lieu of such warrant.



**Other Details**

For change of address/bank details/dividend mandate/email Id, if any, Members may approach-

- i) if shares are held in physical mode, to the R&TA/Company.
- ii) if shares are held in electronic mode, to their Depository Participant (DP). The R&TA/Company will not entertain such requests, if any.

Bank Account details and 9-digit MICR Code of their Bankers, as noted in the records of their DP are used for the purpose of overprinting on Dividend Warrants or remittance of dividend through National Electronic Clearing Service (NECS), wherever applicable. A detailed reference note on dividend related activities is also available at Company's website under 'Investor Zone'.

**GENERAL SHAREHOLDER INFORMATION**

**Forthcoming AGM: Date, Time and Venue**

29<sup>th</sup> Annual General Meeting of the Company is scheduled for **Wednesday, the 25<sup>th</sup> day of September, 2013 at 10.30 a.m.** at Manekshaw Centre, Parade Road, Delhi Cantonment, New Delhi-110010.

**Financial Year**

The Company's Financial Year is from 1<sup>st</sup> April to 31<sup>st</sup> March.

**Listing on Stock Exchanges**

Stock Exchange	Security Code	Type of Security
Bombay Stock Exchange Limited (BSE)	532155	Equity Shares
National Stock Exchange of India Limited (NSE)	GAIL-EQ	Equity Shares
London Stock Exchange	GAIDL1 GAILY US	GDRs

Further, the Non-Convertible Redeemable Bonds - Series - I (6.10%), Series - II (5.85%), Bond Series - I, 2010 (8.80%) and Bond Series - I, 2012 (9.14%) of your Company are listed at the Wholesale Debt Market (WDM) segment of NSE. State Bank of India, Mumbai is the Bond Trustee for the Bonds - Series - I (6.10%) and Series - II (5.85%) and IDBI Trusteeship Services Limited, Mumbai is the Bond Trustee for the Bond Series - I, 2010 (8.80%) Bond Series - I, 2012 (9.14%). During the year, second series of Bond Series - I (6.10%) having ISIN code

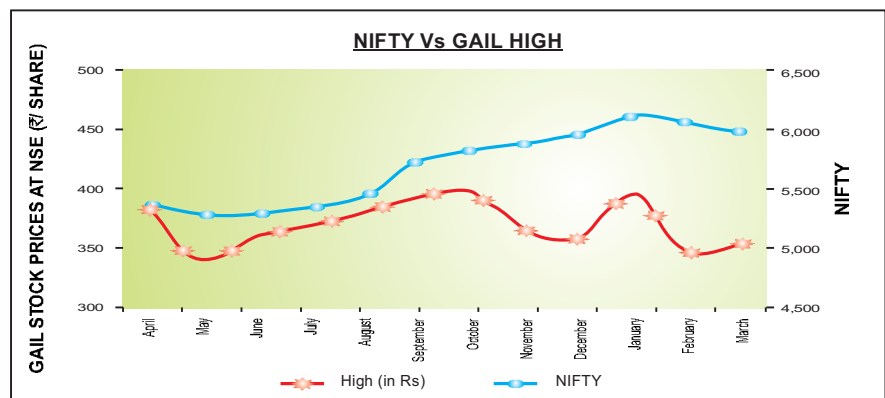
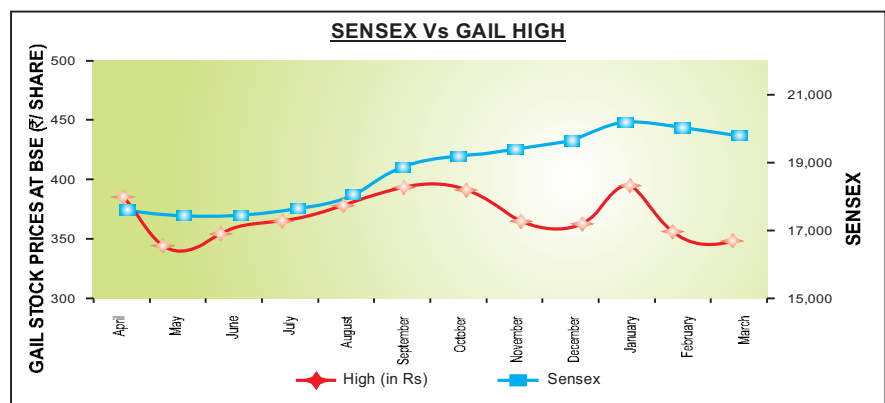
INE129A07024 and fourth series of Bond Series - II (5.85%) having ISIN code INE129A07099 were redeemed on 22<sup>nd</sup> August, 2012 and 25<sup>th</sup> March, 2013 respectively.

The Annual listing fees for the listed equity shares and Bonds of your Company, pertaining to the year 2013-14 has been paid to the concerned Stock Exchanges. Your Company has also made the payment of the Annual Custody Fees to National Securities Depository Limited (NSDL) and Central Depository Services (India) Limited (CDSL), for 2013-14, based on the average folio/ISIN positions during 2012-13.

**Market Price Data**

**Market Price Data for FY 2012-13**

Months	BSE			NSE			Market Capitalization (₹ In Crores)		Market Index	
	High (in ₹)	Low (in ₹)	Volume (No. of Shares)	High (in ₹)	Low (in ₹)	Volume (No. of Shares)	BSE	NSE	SENSEX	NIFTY
April	385	323	1,697,865	385	322	26,362,539	41,910	41,917	17,664	5,379
May	340	303	1,271,908	341	302	25,598,812	40,902	40,718	17,432	5,280
June	360	314	1,891,922	360	314	28,762,600	44,606	44,650	17,448	5,286
July	367	337	1,376,657	367	337	16,035,077	44,891	44,904	17,631	5,349
August	380	350	1,189,717	381	349	19,635,998	44,600	45,031	17,972	5,449
September	393	345	1,231,641	393	346	19,898,024	48,589	48,583	18,869	5,735
October	396	348	1,732,022	397	321	20,930,118	44,244	44,270	19,137	5,815
November	367	336	758,032	368	336	17,509,078	44,695	44,777	19,372	5,885
December	359	343	1,114,256	358	343	14,037,684	45,170	45,285	19,612	5,965
January	395	336	2,362,320	396	335	34,028,416	43,439	43,382	20,203	6,112
February	348	325	1,334,056	348	325	23,254,690	42,190	42,240	19,966	6,053
March	350	300	1,301,363	351	300	21,417,596	40,483	38,562	19,754	5,971





### Share Transfer System

The shares of your Company are being compulsorily traded in dematerialized form and are available for trading under both the depositories in India viz. NSDL and CDSL. MCS Ltd. is the depository interface of your Company.

Your Company has a Share Transfer Committee in place which considers the requests for transfer/transmission of shares, issue of duplicate share certificates, re-materialization etc. All transfer/remat/transmission request(s) have complied with KYC norms.

### Distribution of Shareholding

The distribution of shareholding of your Company as on 31<sup>st</sup> March, 2013 is detailed below:

No. of Equity Shares held	No. of Shareholders	% to Total	No. of Shares	% to Total
1	6,410	3.30	6,410	0.00
2-10	21,661	11.14	1,48,676	0.01
11-50	74,437	38.29	23,59,580	0.19
51-100	36,814	18.94	30,00,023	0.24
101-200	26,582	13.81	41,13,460	0.32
201-750	23,190	11.93	80,19,446	0.63
751-5000	4,074	2.10	65,66,409	0.52
5001-10000	293	0.15	21,26,517	0.17
10001-15000	101	0.05	12,62,835	0.10
15001 and above*	549	0.29	1,24,08,74,044	97.82
<b>TOTAL</b>	<b>1,94,381</b>	<b>100.00</b>	<b>1,26,84,77,400</b>	<b>100.00</b>

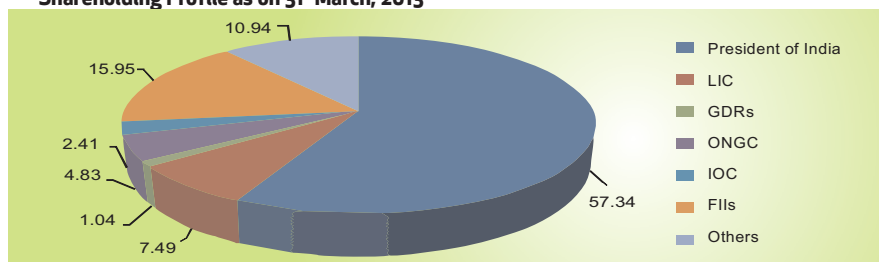
\* includes holding of President of India

### Geographical Distribution of Shareholders as on 31<sup>st</sup> March, 2013

S. No.	City	No. of Shareholders	% to Total	No. of Shares	% to Total
1	Delhi*	20,568	10.58	79,28,67,749	62.51
2	Chandigarh	1,011	0.52	1,44,241	0.01
3	Kanpur	1,341	0.69	1,57,187	0.01
4	Jaipur	2,632	1.35	2,42,909	0.02
5	Ahmedabad	10,416	5.36	18,41,598	0.15
6	Mumbai	43,597	22.43	45,47,63,498	35.85
7	Nagpur	1,057	0.54	1,07,348	0.01
8	Hyderabad	4,847	2.49	5,96,496	0.05
9	Bangalore	9,262	4.76	9,95,529	0.08
10	Chennai	7,263	3.74	30,56,821	0.24
11	Trivandrum	599	0.31	97,411	0.01
12	Kolkatta	9,187	4.73	46,61,173	0.37
13	Bhubaneswar	427	0.22	34,937	0.00
14	Guwahati	474	0.24	60,794	0.00
15	Patna	745	0.38	71,350	0.01
16	Others	80,955	41.66	87,78,359	0.68
<b>Grand Total</b>		<b>194,381</b>	<b>100.00</b>	<b>1,26,84,77,400</b>	<b>100.00</b>

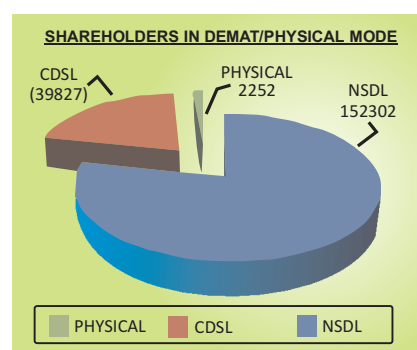
\* President of India holds 72,73,90,047 Equity shares of the Company in electronic mode, which constitutes 57.34% of total paid up equity capital.

### Shareholding Profile as on 31<sup>st</sup> March, 2013



### Dematerialization of Shares and Liquidity

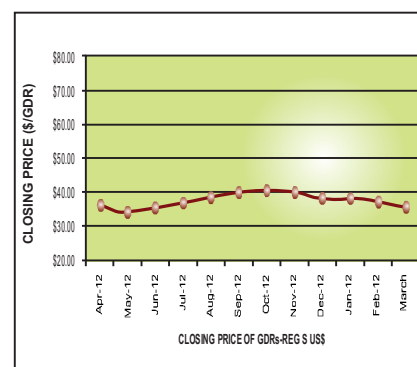
As on 31<sup>st</sup> March, 2013, your Company has 1,94,381 no. of shareholders, out of which 1,92,129 shareholders were holding equity shares in demat mode and 2,252 shareholders were holding equity shares in physical mode. The demat ISIN of your Company's equity shares is INE129A01019 and Corporate Identification Number of Company is L40200DL1984GO1018976. The trading in equity shares of your Company is permitted only in dematerialized form.



### Outstanding GDRs/ADRs/Warrants or Convertible Instruments

The Government of India had disinvested 135 million equity shares out of its holding in the international market through GDR mechanism in 1999-2000. Total 22.5 million GDRs were issued, one GDR representing six underlying equity shares. As on 31<sup>st</sup> March, 2013, a total number of 22,16,437 GDRs representing 1,32,98,622 (1.04%) number of equity shares were outstanding. The conversion of GDRs into equity shares has no impact on total equity capital.

The performance of GDRs indicating the closing price of GDRs listed at London Stock Exchange is given as under:





Dr. M. Veerappa Moily, Hon'ble Minister of Petroleum & Natural Gas and Shri B.C. Tripathi, CMD, GAIL at Carizzo Shale Gas site at Texas, USA

- **Major Plant Locations**

The following are the major plant locations of your Company:-

- **U. P. Petrochemical Complex, PATA**

P.O. Pata - 206241  
Distt. Auraiya (U.P)

- **LPG Recovery Plant, Usar**

P.O. Malyan - 402203  
Tal. Alibagh  
Distt. Raigad (Maharashtra)

- **LPG Recovery Plant, Vijapur**

GAIL Complex  
Vijapur - 473112  
Distt. Guna (M.P)

- **LPG Recovery Plant, Vaghodia**

GIDC Industrial Estate  
Vaghodia - 391760  
Distt. Baroda (Gujarat)

- **LPG Recovery Plant, Lakwa**

Sivasagar - 785688 Assam

- **LPG Recovery Project, Gandhar**

Village Rozantankaria Tal. AMOD  
Distt. Bharuch - 392140  
(Gujarat)

- **Address for Correspondence**

**GAIL (India) Limited**

16, Bhikaiji Cama Place  
R.K. Puram  
New Delhi - 110066  
Phone: 91-11-26172580/26182955  
Fax No.: 91-11-26185941  
Website: www.gailonline.com

**INVESTOR MANAGEMENT AND ENGAGEMENT**

The relationship with domestic and foreign investors is of significant importance for your Company. Your Company regularly organize analyst meets for investors. Your Company participated in a number of investor conferences and meets to strengthen communication and interaction with the financial community. The details of the same are mentioned in the Management Discussion & Analysis section of the Annual Report.

Shareholders correspondence may be directed to the Company's Registrar and Share Transfer Agent, whose contact details are mentioned as under:

**MCS Ltd.**

Unit: GAIL (India) Limited  
F-65, Okhla Industrial Area Phase-I  
New Delhi - 110020  
Phone: 91-11-41406149/50/51/52  
Fax: 91-11-41709881  
Website: www.mcsdel.com  
E-mail: admin@mcsdel.com & mcsgail@mcsdel.com

**COMPLIANCE CERTIFICATE**

The statutory auditors of your Company have examined and certified your Company's compliance with respect to conditions enumerated in clause 49 of the Listing Agreement and DPE guidelines on Corporate Governance. The certificate forms part of this Report.

Secretarial Compliance Report confirming compliance by Practicing Company Secretary of the applicable provisions of Companies Act, 1956, Listing Agreement, Guidelines on Corporate Governance for Central Public Sector Enterprises, 2010 issued by DPE and all other related rules and regulations relating to capital market forms part of the Directors' Report.





## AUDITOR'S CERTIFICATE ON CORPORATE GOVERNANCE

TO THE MEMBERS OF GAIL (INDIA) LIMITED

We have examined the compliance of conditions of Corporate Governance by GAIL (India) Ltd. for the year ended 31<sup>st</sup> March, 2013 as stipulated in Clause 49 of the Listing Agreement of the said Company with Stock Exchanges and Guidelines on Corporate Governance for Central Public Sector Enterprises, 2010 issued by DPE.

The compliance of conditions of Corporate Governance is the responsibility of the management. Our examination was limited to the procedure and examination thereof, adopted by the Company for ensuring the compliance of the conditions of Corporate Governance. It is neither an audit nor an expression of opinion on financial statements of the Company.

In our opinion and to the best of our information and according to the explanations given to us, we certify that the Company has complied with the conditions of Corporate Governance as stipulated in clause 49 of the Listing Agreement and in DPE guidelines, subject to that requisite number of the Independent Directors on the Board which was less than half of the total strength of the Board as required under clause 49 of the Listing agreement and in DPE guidelines. The Company has informed that the Government of India is in process of selecting requisite number of Independent Directors, since GAIL is a Government Company. We state that no investor grievance(s) is pending for a period exceeding one month against the Company as per the records maintained by the Company.

We further state that such compliance is neither an assurance as to the future viability of the Company nor efficiency or effectiveness with which the management has conducted the affairs of the Company.

**For M.L. Puri & Co.**  
**Chartered Accountants**  
**Firm No.: 002312N**

**For Rasool Singhal & Co.**  
**Chartered Accountants**  
**Firm No.: 500015N**

**Navin Bansal**  
**Partner**  
**Membership No.: 091922**

**Sandeep Gupta**  
**Partner**  
**Membership No.: 413890**

**Place: New Delhi**  
**Dated: June 13, 2013**

**Place: New Delhi**  
**Dated: June 13, 2013**



## SECRETARIAL AUDIT REPORT

ANNEXURE - D

The Board of Directors  
**GAIL (India) Limited**  
16, Bhikaji Cama Place  
R.K. Puram  
New Delhi-110066

We have examined the registers, records, books, papers and minutes of GAIL (India) Limited for the FY ended on 31.03.2013 maintained as per the provisions of:

- The Companies Act, 1956 (the Act) and the Rules made under that Act;
- The Depositories Act, 1996 and the Regulation and Bye-laws framed under that Act;
- The Securities Contracts (Regulation) Act, 1956 and Bye-laws framed under that Act;
- Securities and Exchange Board of India (Buy Back of Securities) Regulations, 1998
- Securities and Exchange Board of India (Issue of Capital and Disclosure Requirements) Regulations, 2009
- Securities and Exchange Board of India (Issue of Sweat Equity) Regulations, 2002
- Securities and Exchange Board of India (Employee Stock Option Scheme and Employee Stock Purchase Scheme) Guidelines, 1999
- Securities and Exchange Board of India (Issue and Listing of Debt Securities) Regulations, 2008;
- Securities and Exchange Board of India (Substantial Acquisition of Shares and Takeovers) Regulations, 2011;
- Securities and Exchange Board of India (Prohibition of Insider Trading) Regulations, 1992;
- Equity Listing Agreement with BSE Limited and National Stock Exchange of India Limited and Debt Listing Agreement with National Stock Exchange of India Limited;
- DPE guidelines on Corporate Governance for Central Public Sector Enterprises, 2010 and
- Memorandum and Articles of Association of the Company.

**I. Based on examination and verification of the registers, records and documents produced to us and according to the information and explanations given by the Company, we report that the Company has in our opinion, specifically complied with the enabling provisions, inter-alia, with regard to:**

1. Maintenance of various statutory registers and documents and making necessary entries therein;
2. Closure of the Register of Members and Bond holders;
3. Declaration and payment of dividend including interim dividend;
4. Payment of interest on bonds and redemption of bonds;
5. Transfer of unpaid dividend amount as required under the Act to the Investor Education and Protection Funds;
6. Filing of requisite forms and returns with Registrar of Companies within stipulated time;
7. Service of document by the Company to its Members, Bond holders, Bond Trustees and the Registrar of Companies;
8. Convening and holding of Board and its sub-Committee meetings including passing of resolutions by circulation;
9. Appointment retirement and re-appointment of Directors;
10. Directors' Report including notice of AGM, annual account etc. within the stipulated time;
11. Convening and holding of Annual General Meeting;
12. Transfers and transmissions of the Company's shares;

13. Registration and modification of charges;
14. Investment of the Company's funds including guarantee, inter corporate loans & investments; and
15. Remuneration of statutory auditors, appointment and remuneration of cost auditors.

**II. We further report that the Company has complied with:**

1. Equity Listing Agreement with NSE & BSE, Debt Listing Agreement with NSE, GDR Listing Agreement with London Stock Exchange and DPE Guidelines on Corporate Governance for CPSE including filing of report on Corporate Governance in specified format(s) to Stock Exchanges, MoPNG and DPE within stipulated time; save and except composition of Board of Directors, with respect to required number of independent Directors on the Board.

The Company has informed that GAIL being a Government Company, appointment/ nomination of all the Directors is being done by the President of India, through the Ministry of Petroleum & Natural Gas (MoPNG). The Government of India is in process of selecting requisite number of Independent Directors.

2. Depositories Act, 1956 and Regulations framed there under with regard to dematerialization/rematerialization of securities and reconciliation of records of dematerialized securities with all securities issued by the Company;
3. Securities and Exchange Board of India (Substantial Acquisition of Share and Takeovers) Regulations, 2011;
4. Securities and Exchange Board of India (Prohibition of Insider Trading) Regulations, 1992 and
5. Securities and Exchange Board of India (Issue and Listing of Debt Securities) Regulations, 2008; and
6. The Company has not bought back and not issued any shares.

**III. We further report that:**

1. Directors have complied with the requirements as to disclosure of interests and concerns in contracts and arrangements;
2. Board Members and Senior Management Personnel have affirmed compliance with the Code of Conduct of the Company for the financial year ending on 31st March, 2013;
3. CEO/CFO of the Company has certified the specified matters to the Board and Audit Committee, as required under clause 49 of the Listing Agreement.
4. Observed the Secretarial Standards issued by the Institute of Company Secretaries of India although recommendatory in nature; and
5. There was no prosecution initiated against or show cause notice received by the Company and no fines or any other punishment was imposed on the Company, its Directors and Officers during the FY 2012-13 for any offences under the Act.

**For Agarwal S. & Associates  
Company Secretaries**

**Sachin Agarwal**  
Proprietor  
CP No. 5910

**Place : New Delhi  
Date : May 16 , 2013**



## ANNEXURE TO THE DIRECTORS' REPORT ON CONSERVATION OF ENERGY, TECHNOLOGY ABSORPTION AND FOREIGN EXCHANGE EARNINGS & OUTGO AS PER COMPANIES (DISCLOSURE OF PARTICULARS IN THE REPORT OF BOARD OF DIRECTORS) RULES, 1988

### A. CONSERVATION OF ENERGY

#### (a) Energy conservation measures taken:

1. **Waste heat recovery from GTC Exhaust (HRSG):** Recovery of waste heat from exhaust of Gas Turbine Compressor (GTC) at Vaghodia has been carried out by setting up of Waste Heat Recovery Steam Generation system (WHRSG) with an investment of ₹ 62 Crore. It is operational since August, 2012 and leading to generation of super-heated steam to the tune of 52 MT/ Hr which is equivalent to recovery of 3,86,837MWH/annum energy. The approximately revenue generation is ₹15.65Crore/annum.
2. **Feed Gas cooling from Cold generated due to pressure reduction of RLNG:** A scheme has been developed to utilize the cold generated due to pressure reduction of RLNG supplied to South Gujarat pipeline, for cooling of feed gas supplied to GPU Vaghodia with an investment of approx ₹ 2.35 Crore. This scheme is resulting in saving of approximately 5,600 MWH/annum energy required through conventional mode of refrigeration and resulting in additional recovery of 1,340 MTPA of LPG equivalents to ₹1.94Crore.
3. **Switching over of CCVT power to Grid/solar Power:** CCVT installed at remote RR stations to ensure reliable electrical power supply are less efficient source of power supply. Accordingly, CCVT/TEG has been replaced by Grid/Solar supply at some of RR/SV station in HVJ where reliable power is available. This has resulted in saving of around ₹ 63 Lac in addition to reduced carbon footprint.
4. **Automation of Burner Management System in Hot Oil Heater:** Improved automated Burner management system has been installed in Hot Oil Heaters to replace earlier inefficient burners with manual control at GPU Vaghodia in month of June, 2012 with an investment of around ₹ 84.33 Lac. The new automated Burner management system will result in fuel saving due to stoppage of pilot burner and enhances efficiency due to better Air Fuel Ratio control. It

additionally enhances operational safety and environment friendliness. The reduction in fuel gas consumption is 12.79 % which corresponds to energy saving of 2957 MWH/Annum. Monetary benefit is ₹28Lac/Annum.

5. **Installation of Energy Efficient UPS:** At Dibiyapur Compressor Station old thyristor based UPS having efficiency of 70% is replaced with energy efficient IGBT based UPS having efficiency of ~90%. This will result in saving of around 53200 KWH/annum which corresponds to ₹2.9Lac.
  6. **Modification done in lighting system:** The conventional lighting systems HPMV/T8/GLS are being replaced by more energy efficient T5/ LED lighting systems and automation carried out for outdoor lighting across your Company's installations to achieve energy conservation.
  7. **Installation & Commissioning of Mist Cooling System:** Installation & commissioning of a 3,000 m<sup>3</sup>/hr capacity Mist Cooling system at Pata with an investment of ₹12.4Crore has been done to meet the post debottlenecking increased cooling requirement of certain heat exchangers of GCU.
  8. **Modification in Pata Nitrogen Plant:** Modification has been carried out in Pata Nitrogen plant to reduce the frequency of de-riming. The implementation of this project has resulted in annual savings of 448560 KWh of precious electrical energy which translates into ₹ 22.43 Lac annual savings. It has also reduced De-riming frequency from earlier eight to three times per year and saving equivalent production loss of 900 MT of Liquid Nitrogen.
- (b) **Additional investments and proposals, if any, being implemented for reduction of consumption of energy:**
1. **Blinding of HRSG-1/2 duct to stop seal air fan at Pata:** Seal air fans have been provided there for sealing of the gate of FD fan. As HRSG is running in GT-Mode and running in FD fan mode is highly unlikely, it is proposed to blind the duct of FD Fan, so that there is no requirement

for running of seal air fans & fans will be stopped. This modification will be done in forth coming shutdown. The expected saving will be ₹13.26Lac per annum.

2. **Implementation of Automatic blow down system in HRSG-2 at Pata:** An automatic blow down system will be implemented in HRSG-2 of GPU plant to switch over from manual blow down to automatic blow down, which will result in reduction of blow down quantity due to better control of TDS level in steam drum water. The expected monetary savings due to this modification will be around ₹18.00Lac per annum.
- (c) **Impact of the measures at (a) and (b) above for reduction of energy consumption and consequent impact on the cost of production of goods**
- Energy conservation measures taken so far have resulted in an improvement in energy efficiency as detailed at (a) and (b) above
- (d) **Total energy consumption and energy consumption per unit of production**
- As per **Form A** annexed.

### B. TECHNOLOGY ABSORPTION

- (e) **Efforts made in technology absorption**
- As per **Form B** annexed.

### C. FOREIGN EXCHANGE EARNINGS AND OUTGO

- (f) **Activities relating to exports; initiatives taken to increase exports; development of new export markets for products and services; and export plans**
- There had been no exports during 2012-13. However, your Company is planning to export polymers for 2013-14 for development of foreign markets like Pakistan, Bangladesh, Myanmar, Nepal etc. in anticipation of availability of greater volumes from next year onwards.
- (g) **Total foreign exchange used and earned**
- During the year, foreign exchange earnings were ₹ 32.02 Crore. Expenditure in foreign currency was ₹1708.92Crore.



## FORM A

### FORM FOR DISCLOSURE OF PARTICULARS WITH RESPECT TO CONSERVATION OF ENERGY

#### A. POWER & FUEL CONSUMPTION

	2012-13	2011-12
<b>1. ELECTRICITY</b>		
a. Purchased		
Unit (KWH)*	31,60,93,396.56	32,32,31,115.22
Total Amount (₹ in lacs)	18,339.70	15,638.48
Rate/Unit (₹/KWH)	5.80	4.84
b. Own Generation		
(i) Through Diesel Generator		
Unit (KWH)	8,61,259.55	7,49,766.00
Units per liter of Diesel Oil (KWH/Litres)	2.70	2.65
Cost/Unit (₹/KWH)	17.75	16.92
(ii) Through Steam/Gas Turbine/Generator		
Units (KWH)	19,61,98,159.00	20,53,38,676.00
Unit per 1000 SCM of Gas (KWH/1000 SCM)	2,891.02	2,683.32
Cost/Unit	5.54	4.73
<b>2. COAL</b>	<b>NIL</b>	<b>NIL</b>
Quantity (tonnes)		
Total cost		
Average rate		
<b>3. FURNACE OIL</b>	<b>NIL</b>	<b>NIL</b>
Quantity (K. ltrs.)		
Total amount		
Average rate		
<b>4. OTHERS/INTERNAL GENERATION</b>		
Natural Gas Consumption (SCM / Year)	26,74,296.00	34,04,830.00
Total Amount (₹ in lacs)	306.24	409.63
Cost of natural gas / SCM (₹/ SCM)	11.45	12.03

#### B. CONSUMPTION PER UNIT OF PRODUCTION

	2012-13	2011-12
<b>ETHYLENE</b>		
Production (MT)	4,48,534	4,57,080
Electricity (KWH/MT)	54.79	57.48
Furnace Oil	Nil	Nil
Coal	Nil Nil	
Others - Fuel Gas (MT/MT)	0.252	0.258
- Steam (MT/MT)	0.95	1.030
<b>HDPE &amp; Low Polymers</b>		
Production (MT)	2,30,616	2,23,347
Electricity (KWh/MT)	327.07	338.87
Furnace Oil	Nil	Nil
Coal	Nil	Nil
Others - Steam (MT/MT)	0.7794	0.70
<b>LLDPE &amp; Polymer Shreds</b>		
Production (MT)	2,10,386	2,22,637
Electricity (KWh/MT)	246.678	239.97
Furnace Oil	Nil	Nil
Coal	Nil Nil	
Others - Fuel Gas (MT/MT)	0.0376	0.036
- Steam (MT/MT)	0.670	0.75

#### Note:-

Actual figures have been noted for Total Polymer which includes

1. HDPE production-HDPE Pellet, low polymer wax and poly lumps for HDPE-I&II
2. LLDPE production-LLDPE pellets+ Polymer shreds

## FORM B

### FORM FOR DISCLOSURE OF PARTICULARS WITH RESPECT TO ABSORPTION

#### 1. Specific areas in which R&D carried out by the Company

- Setting-up a unique first-of-its-kind Pilot Project for extraction of Land Fill Gas (LFG) from an un-scientifically managed landfill site in Delhi. Subsequently, the LFG shall be purified for use as CNG.
- Bench-scale study on continuous phase operation for conversion of Plastic Waste to hydrocarbons.
- Development of novel Nano-Composite materials for Hydrogen storage.
- Development of light-weight Composite Cylinders for storage of CNG.
- Development of new polymer grade
- 2D and 3D Seismic data processing and interpretation, unconventional resource exploration and exploitation, formation evaluation & field studies, oil and gas production, oil & gas field development etc. in E&P blocks where your Company has participating interest.

#### 2. Benefits derived as a result of the above R&D

- The extraction and flaring of LFG shall help to reduce the emissions of methane that has a global warming potential of 21 times of CO<sub>2</sub>. The purification of LFG to CNG shall provide a source of fuel from waste.
- It shall help in proper disposal of waste plastics by improving its economic value and also generate fuel from the same.
- It would help to reduce the storage pressure of Hydrogen and would be a step towards commercialization of 'Hydrogen as fuel' in the future.
- Light-weight cylinders shall help to improve the utilization of natural gas in vehicles.
- The new polymer grade is for manufacture of drip irrigation pipes and has helped your Company to enter a niche market.
- To improve the prospects of discovery during drilling.

#### 3. Future plan of action

- Many new R&D projects in the company's business areas like Natural Gas Transportation & storage fuel sales nano composit, CO<sub>2</sub> and unconventional energy utilization etc. are being pursued at various Engineering Institutes/Laboratories.
- Setting-up of Pilot Project on 'Waste Plastics to Hydrocarbons' for validating the bench-scale results for eventual commercial-scale operations.
- Setting-up of Pilot Project on Underground Coal Gasification (UCG) to recover energy from un-mineable high ash content coal/lignite in an economic and environmentally benign manner.
- Development of Solid Oxide Fuel Cell under the New Millennium Indian Technology Leadership Initiative of CSIR.

#### 4. Expenditure on R&D

a. Capital	: ₹ 32.14 crore (*)
b. Recurring	: ₹ 18.56 crore (**)
c. Total	: ₹ 50.70 crore
d. Total R&D expenditure as a percentage of total turnover	: 0.11%
(Turnover 2012-13 : ₹ 47,333 crore)	

(\*) This amount includes an expenditure of ₹ 7.16 Crore towards R&D in E&P as per DPE Guidelines.

(\*\*) This amount includes an expenditure of ₹ 5.65 Crore towards R&D in E&P as per DPE Guidelines.

#### TECHNOLOGY ABSORPTION, ADAPTATION AND INNOVATION

##### 1. Efforts, in brief, made towards technology absorption, adaptation and innovation

###### a. Upgradation of PLC and DCS system in LPG Train-12 of GPU Vijapur

Obsolete models of PLC and DCS of Train-12 of GPU Vijapur were replaced with new advance versions of these systems.

###### b. Upgradation of Rail and Truck loading control system at GPU Vijapur

Rail and Truck loading control system based on PD meter system were replaced with more reliable and accurate mass flow meter based control system.

###### c. Installation of LPG Vapor Recovery Compressor

GPU Vijapur has total eight number of LPG storage Horton Spheres (A to H) with the capacity of 1000 MT each. As per the statutory requirement of PESO, the inspection of these LPG spheres is carried out at an interval of every five years. For the inspection, spheres are isolated, emptied out, depressurized, and purged before being handed over to Maintenance department for Hydro test and other inspections.

For depressurization of the LPG Spheres, the LPG vapors left out in the spheres after liquid emptying out were used to be vented to flare, however after installation of LPG vapour recovery compressor, LPG Vapours are now compressed and sent to vapour balance line of LPG spheres.

##### 2. Benefits derived as a result of the above efforts, e.g., product improvement, cost reduction, product development, import substitution, etc.

###### a. Upgradation of PLC and DCS system in LPG Train-12 of GPU Vijapur

- Quick and Accurate Diagnosis:* Sequence of Event -SOE scan time is better than 10 milliseconds in the present PLC system and hence cause of plant trip can immediately be identified.
- Fast Troubleshooting:* Quick and accurate diagnosis of reason of plant trip helps in troubleshooting in very short time.



Shri B.C. Tripathi, CMD, GAIL at Dominion Cove Jetty, USA

- 3) *Reliability*: System is Redundant and Chances of spurious plant trips are reduced.
- 4) *Power Saving*: New versions of the control systems are energy efficient and run on low power consumption.

**b. Upgradation of RAIL and Truck loading control system at GPU Vijaipur**

- 1) *More Reliable*: Mass Flow Meter based system is more reliable in terms of accuracy and maintenance.
- 2) *Less downtime*: Availability of system is increased due to its reliability.
- 3) *Accuracy*: Wagon/ Tanker Filling with mass flow meter based system are more accurate ensuring filling of Wagon/Tanker up to the safe filling level accurately resulting in correct loading by minimizing overfilling/under filling and thus improving safety.
- 4) *Low maintenance*: The system is prone to less wear and tear as no rotating parts is involved in the system hence less maintenance is required.

**c. Installation of LPG Vapor recovery compressor**

With the installation of Portable LPG vapour Recovery Compressor, recovery of LPG vapours from isolated sphere is done. With this measure even based on very conservative estimate. Saving of LPG per Horton sphere was approximately 15 MT. Since, a total of 05 No's LPG Spheres have been inspected in FY 2012-13, hence the total LPG saving from this measure is approximately 75MT of LPG.

**3. In case of imported technology (imported during the last five years reckoned from the beginning of the financial year), following information may be furnished:**

- a. Technology imported :** i. Ethylene Cracker Technology, from Shaw

Energy & Chemicals International Inc. (now Technip Stone & Webster Process Technology), USA for GAIL Petrochemical Complex II at Pata for addition of 450 KTA ethylene capacity.

- ii. LLDPE/HDPE Swing Technology, from Univation Technologies, USA for GAIL Petrochemical Complex II at Pata for addition of 400 KTA polyethylene capacity
- iii. Butene-1 Technology, from Axens (IFP Group Technologies), France for GAIL Petrochemical Complex II at Pata for addition of 20000 TA Butene-1 production capacity

**b. Year of import :** 2010 for (a)(i) & (a)(ii) and 2011 for (a)(iii)

**c. Has technology been fully absorbed? :** In process

**d. If not fully absorbed, areas where this has not taken place, reasons therefore and future plans of action :** N.A.