Report of the Committee on Gas Pricing - 2014
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CHAPTER-1

1.1 Introduction:

The Government of India had constituted a Committee under the Chairmanship of Dr. C. Rangarajan, the then Chairman of the Economic Advisory Council to the Prime Minister, in May 2012 to look into the Production Sharing Contract (PSC) mechanism in Petroleum Industry. One of the terms of reference (ToR-v) of the Committee was to suggest structure and elements of the guidelines for determining the basis or formula for the price of domestically produced gas, and for monitoring actual price fixation. A copy of the above mentioned ToR is at Annexure-I.

In December 2012, the Committee submitted its report on Production Sharing Contract (PSC) mechanism in Petroleum Industry. The report, inter-alia, recommended a formula for pricing of domestically produced gas. The relevant Chapter (24) dealing with the recommendations on the above ToR is at Annexure-II.

This issue was considered by the Cabinet Committee on Economic Affairs twice, on 27th June, 2013 and 19th December, 2013. Thereafter the Government notified the Domestic Natural Gas Pricing Guidelines, 2014 on 10th January, 2014 (Annexure-III) setting out the formula for the price of domestically produced natural gas, based on the recommendations of the Rangarajan Committee.

The Notification was to be implemented with effect from 1st April, 2014. But the same could not be implemented as the Election Commission deferred the notification of Gas Price till the completion of 2014 Lok Sabha General Election process. After the new Govt. assumed office, it was decided that the whole issue of gas pricing be comprehensively re-examined and directed that the Domestic Natural Gas Pricing Guidelines, 2014 be kept in abeyance up to 30 September, 2014, and till that time, the domestically produced gas may continue to be priced at the rate prevailing on 31st March, 2014.

1.2 Constitution of the Committee:

On 13th August, 2014, the Ministry of Petroleum and Natural Gas constituted a Committee comprising the following members:
The Terms of Reference (ToR) of the above Committee was to undertake a comprehensive re-examination of the issue of Gas Pricing. The Committee was also mandated to consult the major stakeholders before submitting its recommendations.

The Committee deliberated upon the scope of its ToR, keeping in view the limited time available to it. In the backdrop that this issue has already been considered twice by the CCEA, the Committee felt that all the issues that arise out of the Rangarajan Committee's recommendation on gas pricing be examined in detail, along with other related issues.

1.3 Issues before the Committee:

The Committee discussed the issues related to domestic gas pricing on 19.08.2014, 22.08.2014, 28.08.2014, 03.09.2014, 05.09.2014, 09.09.2014, 11.09.2014, 14.09.2014 and 15.09.2014 in the light of the Terms of Reference (ToR) mentioned above. The Committee met with the representatives of the major producers and consumers of gas in India, including their Associations, on 25.08.2014 and subsequently reviewed the representations made by them. The comments from the Department of Economic Affairs, Department of Micro, Small and Medium Enterprises, Department of Heavy Industries and Public Enterprises, Department of Steel and Department of Chemical and Petrochemicals were also invited. The Committee also considered/ deliberated in detail on specific issues on gas pricing as suggested by Ministry of Petroleum and Natural Gas. It also considered the views expressed by the Parliamentary Standing Committees relating to Ministry of Petroleum and Natural Gas and the Ministry of Finance on the subject (Annexure-IV) and also the comments by various Ministries / Departments at the time of consideration of Rangarajan Committee Report by the CCEA.
Natural Gas Price Regimes in India

The issue of gas pricing has been examined over the years by a number of Committees. The position of gas produced under different regimes and its supply to different sectors during 2013-14 may be seen at Annexure-V. The prevalent pricing regimes for gas in the country are detailed below:

The natural gas produced by ONGC and OIL from nominated blocks comes either from existing or from new fields (i.e. the ones which went into production after May, 2005). There are separate price regimes for these two, viz., Administered Pricing Mechanism (APM) and Non Administered Pricing Mechanism. Of the 80.02 Million Standard Cubic Meters per day (MMSCMD) of total supply of domestic gas in 2013-14, 47.18 MMSCMD (58.96%) was under the Administered Price Mechanism (APM), while 9.12 MMSCMD (11.40%) was under Non-APM mechanism.

2.1 Administered Pricing Mechanism (APM)

Gas produced from existing fields of the nominated blocks of National Oil Companies (NOCs), viz., OIL & ONGC, is covered under this mechanism. These gas-producing blocks were allotted to National Oil Companies on a nomination basis under the tax-royalty regime. This gas is being supplied predominantly to fertilizer plants, power plants, court-mandated customers, and customers having a requirement of less than 50,000 standard cubic metres per day at APM rates. The price for APM gas was initially fixed on cost plus basis. However, with effect from 01.06.2010, the Government fixed APM gas price in the country at $ 4.2/mmbtu (inclusive of royalty), except the Northeast, where the APM price is $ 2.52/mmbtu, (60% of the APM price elsewhere). The balance 40% is paid to the NOCs as subsidy from the Government Budget. The price of APM gas supplied to customers not entitled for APM gas is being notified by the Ministry of Petroleum and Natural Gas from time to time. This price, effective from 1.7.2010, is as below:
<table>
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<th>Area / Zone</th>
<th>Price ($/mmbtu)</th>
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<tr>
<td>Western &amp; Northern Zones (covering Maharashtra, Gujarat and other States</td>
<td>5.25</td>
</tr>
<tr>
<td>covered by HVJ/ DVPL, viz., Rajasthan, M.P., U.P., Haryana &amp; Delhi)</td>
<td></td>
</tr>
<tr>
<td>Southern Zone – KG Basin</td>
<td>4.5</td>
</tr>
<tr>
<td>Southern Zone – Cauvery Basin</td>
<td>4.75</td>
</tr>
<tr>
<td>North-East</td>
<td>4.2</td>
</tr>
<tr>
<td>Identified onshore fields in Gujarat &amp; Rajasthan</td>
<td>5.0</td>
</tr>
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Owing to existing supply linkages and operational requirements, it would happen that customers entitled for APM gas physically get market priced gas and vice versa. It was decided to have a Gas Pool Account mechanism with inflows coming from sale of APM gas to consumers not entitled for APM gas at market price and outflow being for purchase of non-APM gas for supply to customers entitled for gas at APM price.

2.2. Non-APM Gas produced by NOCs from Nominated Fields

National Oil Companies (NOCs), viz., ONGC & OIL, are in principle free to charge a market-determined price for gas produced from new fields in their existing nominated blocks. However, Government has issued a pricing schedule & guidelines for commercial utilization of non-APM gas produced by NOCs from such new fields in their nominated blocks. Four supply zones have been identified in the guidelines. The prices of non-APM gas sold by NOCs in these four zones are the same as in the table above.

Further, a premium of $ 0.25/mmbtu for production of non-APM gas from offshore fields has been provided, as higher investment is required for development and production from offshore fields.

2.3 Pre-NELP Gas

Certain blocks where discoveries were made by NOCs were auctioned under a Production Sharing Contract (PSC) to private sector E&P companies to overcome funding constraints and lack of advanced technologies. In 2013-14, these blocks
supplied 9.85 MMSCMD (12.31% of the total) gas to various customers. Under these PSCs, viz., Panna-Mukta, Tapti (PMT) and Ravva, the entire gas produced has to be sold to the GOI nominee (viz., GAIL), as per the price formula specified in the PSC. It may be noted that the prices of gas for these PSCs were discovered through limited tender and GAIL as Government nominee, in every case, matched the highest price bid. The PSCs for Panna-Mukta & Tapti were executed on December 12, 1994 and that of Ravva on October 28, 1994. In case of Panna-Mukta & Tapti PSCs, the price formula for gas is linked to an internationally traded fuel oil basket, with a specified floor and ceiling price of US$ 2.11/mmbtu and US$ 3.11/mmbtu respectively. These PSCs further have a provision to revise the ceiling price after 7 years from the date of first supply. With this revision, the revised ceiling price in case of Panna-Mukta gas is US$ 5.73/mmbtu and in case of Tapti, it is US$ 5.57/mmbtu. GAIL, as the Government nominee, is buying gas from the PMT JV at this rate. Out of the total allocation 17.3 mmscmd, 5 mmscmd of PMT gas has been allocated to power & fertilizers sectors, which is being supplied at the APM rate to consumers. The difference in price is recovered from the gas pool account.

As regards Ravva & Ravva Satellite fields, under the provisions of their PSC, on expiry of five years from the date of first delivery of gas, the JV and the Government were required to enter into good-faith negotiations to determine the basis for calculation of the purchase price, taking into account all reasonably relevant factors. The present price of the Ravva field is US$ 3.5/mmbtu and that of Ravva satellite is US$ 4.3/mmbtu. Revision of the prices is due, and GAIL & the JV are in negotiations. The gas from Ravva field is being supplied at the APM rate to consumers and the difference in price is being recovered from the gas pool account.

2.4 Pricing under Small-sized Discovered Fields & Pre-NELP Exploratory Blocks

24 small-sized discovered fields and 28 pre-NELP exploratory blocks (of which 17 are in operation) were settled under a Production Sharing Contract (PSC) with private E&P companies (viz. Hazira, RJ-ON-90/1 etc.). These provide for the sale of gas in the domestic market at prices obtained on arm's length principle, in case the gas is sold other than to the Government nominee. There is no price formula specified under
the PSCs and unlike NELP, the price formula does not require prior approval of the Government before sale of gas by the Contractor.

2.5 New Exploration and Licensing Policy (NELP):

The following provisions of the PSC (for NELP I) are relevant in the context of sale of natural gas and the price to be adopted for valuation purposes to calculate cost petroleum, profit petroleum share and royalty:

**Articles 21.6 Valuation of Natural Gas**

21.6.1 The Contractor shall endeavour to sell all Natural Gas produced and saved from the Contract Area at arm's length prices to the benefits of Parties to the Contract.

21.6.2 Notwithstanding the provision of Article 21.6.1, Natural Gas produced from the Contract Area shall be valued for the purposes of this Contract as follows:

(a) Gas which is used as per Article 21.2 or flared with the approval of the Government or re-injected or sold to the Government pursuant to Article 21.4.5 shall be ascribed a zero value;

(b) Gas which is sold to the Government or any other Government nominee shall be valued at the prices actually obtained; and

(c) Gas which is sold or disposed of otherwise than in accordance with paragraph (a) or (b) shall be valued on the basis of competitive arm's length sales in the region for similar sales under similar conditions.

21.6.3 The formula or basis on which the prices shall be determined pursuant to Article 21.6.2 (b) or (c) shall be approved by the Government prior to the sale of Natural Gas to consumers/buyers. For granting this approval, Government shall take into account the prevailing policy, if any, on pricing of Natural Gas, including any linkages with traded liquid fuels, and it may delegate or assign this function to a regulatory authority as and when such an authority is in existence.
2.6 Evolution of Gas Prices under NELP Regime: Under NELP, gas pricing has formally been approved only in case of RIL's KG Basin discovery, which supplied 13.53 MMSCMD (16.91% of the total) of domestic gas in 2013-14.

In May 2007, the Contractor of KG-DWN-98/3 block, viz., RIL submitted a proposal of price formula/basis for approval by the Government. In the proposal, the price formula was benchmarked to international crude price, with a floor and a ceiling price, and also with a constant factor 'C' to take care of bidding. The price formula proposed was as under:

\[
SP (Rs./mmmbtu) = 112.5^*K + (CP-25)^{0.15}*ER + C
\]

Where

- \( SP \) is the sale price of gas in Rs/mmmbtu.
- \( CP \) is the annual average Brent crude price for the previous financial year, with a cap of $65/bbl and a floor of $25/bbl.
- \( ER \) is the average $/Rs. exchange rate for the previous financial year.
- \( K \) is 1 for ER between 25 and 65, or ER/25 when ER is less than 25 or ER/65 when ER is more than 65.
- \( C \) is the premium quoted by the customer.

RIL, in its proposal, stated that bids were received from 10 customers (5 each from the power and fertilizer sectors), and based on the bids received, at a value of \( C=4 \), most of the gas stood picked up by the bidders.

The above price proposal was initially considered by the Economic Advisory Council to the Prime Minister (EAC), chaired by Dr Rangarajan, which examined the pricing formula and made important recommendations. The Government also constituted a Committee of Secretaries (COS) under the Cabinet Secretary to consider the gas supply and pricing issues. This committee recommended that the Government may consider framing a Gas Pricing and Gas Utilization Policy, before considering the price proposal. Finally, the matter was considered by an Empowered Group of Ministers (EGoM), constituted on 13th August 2007 to examine and decide issues relating to gas pricing and commercial utilization of gas under the New Exploration & Licensing Policy.
(NELP). The EGoM, after taking into account the reports submitted by the said two committees and representations made by various stakeholders, at its meeting held on 12th September 2007, took the following decisions:

"(i) It will not be in the country's interest to renege from PSCs entered into in good faith under the New Exploration & Licensing Policy (NELP). Sanctity of the contracts signed should be maintained.

(ii) The price basis/formula submitted by M/s. RIL-Niko under Article 21.6.3 for valuation of natural gas may be accepted with modifications as per the recommendations of the EAC, including denomination of the entire formula in US Dollars. However, for all NELP-I to NELP-VI, contracts, for natural gas price calculation, the constant will be pegged at $2.50. Since C is the only biddable component, assigning a value of zero to this component in the present case will adequately take care of the transparency aspect of the bidding process as the price will be determined by the Government only on the basis of a formula. This should bring the price down by about 8%. Under Article 21.6 of the PSC, this price basis/formula will be valid for five years from the date of commencement of supply. The decisions taken in this EGoM meeting will be without prejudice to the NTPC vs. RIL and RNRL vs. RIL cases which are separately sub judice.

(iii) The cap for CP in the formula would be frozen at US$ 60 per barrel.

(iv) Though in the present instance the value of C is to be retained at zero, for the purpose of retaining the biddable character of the formula and allocation of gas amongst priority sectors, the formula must retain C as a positive non-zero integer.

(v) The price discovery process on arm's length basis will be adopted in the future NELP contracts only after the approval of the price basis/formula by the Government. The price discovered through this process would be applicable to all sectors, uniformly."

The price formula finally approved by the EGoM is given below:

\[
\text{SP (US$/mmbtu) = 2.5 + (CP-25)^{0.15}}
\]

Where,
SP is the sales price in $/mmbtu (on Net Heating Value / NHV basis) at the delivery point at Kakinada.

CP is the average price of Brent crude oil in US$/barrel for the previous financial year, based on the annual average of the daily high and low quotations of the FOB price of dated Brent quotations as published by Platts Crude Oil Market wire. CP is capped at US $ 60/bbl, with a floor of US$ 25/bbl. CP is fixed for each contract year and is based on the CP for the preceding financial year.

FY means the financial year, which commences each year on 1st April and ends on the following 31st March.

The selling price comes to US$ 4.2/mmbtu for crude price greater than or equal to US$ 60/barrel. This is equivalent to Rs. 7,500/mmscm at an exchange rate of US$ 1 = Rs. 45.

The above Gas Pricing Framework under NELP was examined by the Hon’ble Supreme Court. Implications of this judgement relating to PSC provisions are mentioned later in Chapter-3.

2.7 Pricing of CBM:

The sale and pricing of Natural gas from CBM Blocks is defined under Article 18 of the CBM Contract. As per Article 18.1 of the Contract, the Contractor shall have the freedom to sell CBM at arm’s length prices in domestic market. The relevant Articles 18.5 and 18.6 of the Contract deal with valuation of CBM.

18.5 Valuation of CBM

18.5.1 The Contractor shall endeavour to sell all CBM produced and saved from the Field/Development Area at Arms-Length Prices to the benefit of Parties to the Contract.

18.5.2 Notwithstanding Article 18.5.1, CBM produced from the Field/ Development Area shall be valued for the purpose of this Contract as follows:

(a) CBM which is used as per Article 18.2 or flared with the approval of the Government or re-injected shall be ascribed a zero value;
(b) CBM which is sold to the Government or to the State Government(s) in lieu of either Production Level Payments (PLP) or Royalty shall be valued at the prices actually obtained; and

(c) CBM which is sold or disposed of otherwise than in accordance with paragraphs (a) or (b) above shall be valued on the basis of competitive Arms Length Sales in the region for similar sales under similar conditions.

18.6 The formula or the basis on which the CBM prices shall be determined pursuant to Article 18.5.2 (c) shall be approved by the Government prior to the sale of the CBM to consumers/buyers within sixty (60) Business Days from the receipt of proposal or from the date of receipt of clarification/additional information, where asked for by the Government.

Such approval(s) from the Government shall be required to be obtained by the Contractor on one time basis prior to execution of such sale/purchase agreement(s) for the CBM and subsequent modification(s), if any, in this regard.

For granting this approval, the Government shall take into account the prevailing policy, if any, on pricing of CBM including any linkages with traded liquid fuels, and it may delegate or assign this function to a regulatory authority as and when such an authority is in existence and in place.

Present Status:

The approval for the gas price formula / basis for valuation of CBM has been issued in the following three cases:

i) Raniganj (South) CBM Block: The Block is operated by M/s Great Eastern Energy Corporation Limited (GEECL) and commercial production of CBM has commenced from July 2007 (0.3 Million m3 /day). GOI has on 14.02.2008 approved the formula/basis for valuation of CBM gas at a sale price of US$ 6.79/mmbtu.

ii) Raniganj (East) CBM Block: The Block is operated by M/s Essar Oil Limited (EOL). GOI has on 29.03.2011 approved sale of incidentally produced CBM gas
at a price of US $ 6.25 / mmbtu for a short period up to the end of Phase-II (01.05.2012). Further, for Phase-III (Development Phase and Commercial Production), GOI vide letter dated 17.05.2013 approved CBM gas price of US $ 4.2 / mmbtu at the well-head.


The CBM supplies in 2013-14 were limited to only 0.34 MMSCMD (0.42% of the total domestic gas).

2.8 Pricing formula based on Rangarajan Committee Report:

Based on the Rangarajan Committee's recommendations on domestic gas pricing, MOPNG notified the Domestic Natural Gas Pricing Guidelines, 2014 on 10th January, 2014. Para 1.1 of the Guidelines (Annexure-III) states that the guidelines will be applicable to all natural gas produced domestically, irrespective of the source, whether conventional, shale, CBM etc. Under Para 1.2 it is also mentioned that these guidelines shall not be applicable where prices have been fixed contractually for a certain period of time, till the end of such period.

Discussions regarding gas pricing formula recommended by the Rangarajan Committee is in Chapter-4.

2.9 Pricing of Imported LNG:

During 2013-14, 41.11 MMSCMD of LNG supplemented the domestic production of 80.02 MMSCMD of natural gas. The imported LNG sourced from the international markets can be divided into following three categories:

i) Long Term

ii) Medium and Short Term

iii) Spot

The price of imported LNG is not controlled / fixed by the Government. The price of Long Term, Medium Term and Short Term R-LNG is based on the pricing formula
agreed between the buyer and the seller, whereas the price of Spot LNG varies from cargo to cargo depending on international demand supply position.

2.10 Pricing of Small / Isolated fields

The Government on 8th July, 2013 issued “Guidelines for Selection of Customers for Domestic Gas available from Small / Isolated Fields” (Annexure-VI). Definition of the fields to which these Guidelines will apply is the Gas produced from fields of Nominated Blocks of National Oil Companies (NOCs), viz. ONGC & OIL, whose peak production is less than 0.1 MMSCMD and which are situated more than 10 km away from gas grid or Fields whose peak production is less than 0.1 MMSCMD and have a gas pressure less than grid pressure. Allocation of Gas, from these fields is done by NOCs through open competitive bidding and awarded to highest price bidder. The base price of the bid is equal to Non-APM price of gas in that zone.

2.11 Summary of Gas Prices under different regimes in India

1. APM
   - $4.2/mmbtu

2. APM to Non APM Customers
   - $4.2 to $5.25/mmbtu

3. Non APM
   - $4.2 to $5.0/mmbtu

4. APM – North East Price
   - $2.52 / mmbtu

5. Pre-NELP
   a) Panna Mukta
      - $5.73/mmbtu
   b) Tapti
      - $5.57/mmbtu
   c) Ravva
      - $3.50/mmbtu
   d) Ravva Satellite
      - $4.30/mmbtu

6. NELP
   - $4.20/mmbtu

7. Small Sized Discovered Fields (24) –
   - No formula;
   - No prior Approval;

8. Pre NELP Exploratory Blocks
   - Sale on Arms-Length Principle
CHAPTER-3

Government's role in PSC regime after the Judgment of Hon’ble Supreme Court in Reliance Industries Ltd. (RIL) vs. Reliance Natural Resources Ltd. (RNRL) case (Civil Appeal no 4274 of 2010)

Special Leave Petitions were filed by the Union of India, Reliance Industries Ltd. (RIL) and Reliance Natural Resources Ltd. (RNRL) before the Hon’ble Supreme Court against the order of the Division Bench of the Bombay High Court in the matter arising out of a MOU/family agreement between the members of the Ambani family. The judgment in this case has a bearing on the gas allocation and pricing issues under the NELP contracts.

In brief the position which emerged from the judgment of the Hon’ble Supreme Court on these issues is as follows (Para 91 of the judgment):

i) The natural resources are vested with the Government as a matter of trust in the name of the people of India. Thus, it is the solemn duty of the State to protect the national interest.

ii) Even though exploration, extraction and exploitation of natural resources are within the domain of governmental function, the Government has decided to privatize some of its functions. For this reason, the constitutional restrictions on the government would equally apply to the private players in this process. Natural resources must always be used in the interests of the country and not private interests.

iii) The broader constitutional principles, the statutory scheme as well as the proper interpretation of the PSC mandates the Government to determine the price of the gas before it is supplied by the contractor.

iv) The policy of the Government, including the Gas Utilization Policy and the decision of EGoM would be applicable to the pricing in the present case.

v) The Government cannot be divested of its supervisory powers to regulate the supply and distribution of gas.
Proper Interpretation of the PSC (Para 92 D of the Judgement):

The objective of the PSC inter-alia is to regulate the supply and distribution of gas. Keeping this objective in mind, Article 21 of the PSC must be interpreted to give the power to the Government to determine both the valuation and pricing of gas. It is not feasible to restrict the power of the Government in such matters of national importance, especially when the governing contract, the PSC also provides for it.

Role of the Government (Para 92 E of the Judgement):

In a Constitutional democracy like ours, the national assets belong to the people. The Government holds such natural resources in trust. Legally, therefore, the Government owns such assets for the purposes of developing them in the interests of the people. In the present case, the Government owns the gas till it reaches its ultimate consumers. A mechanism is provided under the PSC between the Government and the contractor (RIL, in the present case). The PSC shall override any other contractual obligation between the contractor and any other party.

The relevant extracts of the judgment are at Annexure-VII.
4.1 **Discussion regarding Rangarajan Committee Report**

As stated earlier, in December 2012, the Rangarajan Committee submitted its report on “Production Sharing Contract (PSC) Mechanism in Petroleum Industry”. The report, inter-alia, recommended a formula for pricing of domestically produced gas.

The Rangarajan Committee made the following observations in para 24.2 of their report while discussing “An Approach to Gas Pricing till Such Time When Gas–on–Gas Competition Becomes Feasible.”

"24.2.1 As discussed above, it may not be feasible to introduce gas-on-gas competition at this juncture. Therefore, a policy for pricing natural gas, till such time when gas-on-gas competition becomes feasible, is discussed below. However, it is recommended that Government review the situation after five years to examine the feasibility of introduction of gas-on-gas competition.

24.2.2 In the light of the discussion in § 24.1, a policy on pricing of natural gas for India is proposed. Since a competitive domestic price for gas does not currently exist and may not be expected to come about for several more years, the policy will have to be based on searching out from global trade transactions of gas the competitive price of gas at the global level. As the global market is not fully integrated in terms of physical flows and is also not everywhere liquid enough, it is proposed to combine two methods of search for such prices.”

The Rangarajan Committee had recommended that their gas pricing formula shall apply uniformly to all sectors, while allocation of gas will be as per the prevailing Gas Utilization Policy (GUP) of the Government (Para 24.5 of the Rangarajan Committee Report).

The report further stated that the proposed formula would only apply prospectively and would not be applicable to cases where gas prices have already been approved (Para 24.4 of the Rangarajan Committee Report).
The Government subsequently vide its Domestic Natural Gas Pricing Guidelines, 2014 made the pricing formula, based on the Rangarajan Committee recommendations, applicable for all natural gas produced domestically, irrespective of the source, whether conventional, shale, CBM etc. from 1st April 2014 with the following exceptions:

i) where prices have been fixed contractually for a certain period of time, till the end of such period.

ii) where the production sharing contract provides a specific formula for natural gas price indexation / fixation.

iii) pricing of natural gas from small / isolated fields in the nomination blocks of NOCs will be governed by the extant policy in respect of these blocks issued on 8th July, 2013.

The prices calculated and determined were to be applicable to all consuming sectors uniformly and these guidelines were also applicable for natural gas produced by ONGC/OIL from their nominated fields.

Para 1.10 of the Domestic Natural Gas Pricing Guidelines, 2014 provides as below:

"In respect of D1 and D3 gas discoveries of block KG-DWN-98/3, these guidelines shall be applicable subject to submission of bank guarantees in the manner to be notified separately."

The Committee has dealt with this specific issue relating to production of gas from KG-DWN-98/3 block under NELP-I separately in Para 5.2 (iv) later.

After consideration of the matter twice by the CCEA, the Guidelines on Domestic Gas Pricing Policy were issued. Hence, the Committee inferred that the issue of legal feasibility and applicability of Natural Gas Pricing Guidelines, 2014(except for categories mentioned in Para 1.2 of the Notification dated 10th January, 2014) to different categories of producers may have already been examined by the Administrative Ministry at that time.
4.2 The formula recommended by Rangarajan Committee is as under:

Netback price, \( N = A - B - C \)  

\[ P_{IAV} = \frac{(N_1 \cdot V_1 + N_2 \cdot V_2 + \ldots)}{(V_1 + V_2 + V_3 + \ldots)} \]  

Where:

\( A = \) Imported LNG Price on Netback FOB

\( B = \) Liquefaction costs at the respective loading port

\( C = \) Transportation and Treatment cost of natural gas from well head to liquefaction plant

\( P_{IAV} = \) Average Producers Netback Price for Indian Imports for trailing 12 months.

\( N_1, N_2, \ldots = \) Producers Netback Price

\( V_1, V_2, \ldots = \) the volumes corresponding to \( N_1, N_2, \ldots \) etc.

\( V_1, V_2, V_3 \) and \( A \) shall be for trailing 12 months period

Prices and volumes shall be for trailing 12 months, and \( P_{IAV} \) shall be arrived at for every month.

\[ P_{WAV} = \frac{(A_1 \cdot P_{HH} + A_2 \cdot P_{NBP} + A_3 \cdot P_{JAV})}{(A_1 + A_2 + A_3)} \]  

\( P_{WAV} = \) Weighted average price to producers in the global markets

\( A_1 = \) Total Volume consumed in North America at average Henry Hub prices on yearly basis

\( P_{HH} = \) Annual average of daily prices on Henry Hub for the relevant year

\( A_2 = \) Volume consumed through various hubs in Europe/Eurasia in the relevant year (entire consumption of Europe and FSU)

\( P_{NBP} = \) Annual average of daily prices on National Balancing Point (NBP) in the UK for the relevant year

\( A_3 = \) Volume imported by Japan in the relevant year

\( P_{JAV} = \) Yearly weighted average producers netback price of gas in Japan for the relevant year (weighted by the total volume of long term and spot imports)

\( P_{JAV} \) shall also be calculated as \( P_{IAV} \) is calculated.

\[ P_{AV} = \frac{(P_{IAV} + P_{WAV})}{2} \]  

\( P_{AV} = \) Simple average of Producer's Netback Price for Indian Imports and Weighted average price to producers in the global markets.
Based on the observations/comments of the Parliamentary Standing Committees, various stakeholders and the views of the concerned Ministries/Departments, the Committee deliberated on the different components of the formula in detail and felt that certain aspects of the Rangarajan formula need to be reconsidered. These are mentioned below:

a) **Consideration of Simple average of Producer's Netback Price for Indian Imports and World Average Producer's Net Back Price:**

The Rangarajan Committee recommended consideration of simple average of Producer's Netback Price for Indian Imports and World Average Producer's Netback Price (Para 24.3 of the Report) without giving due justification for using the simple average here, although weighted averages are used for every other component of the formula. The volume of Indian LNG imports as per the formula works out to be less than 1% of the total volume considered in the formula. Hence, it would seem that use of weighted average of Producer's Netback Price for Indian Imports and World Average Producer's Netback Price may perhaps be more appropriate.

b) **Consideration of Henry Hub price for volume of consumption in Canada:**

The Canadian consumption is approximately 11% - 12% of the total volume of North American basket (Source: BP Statistical Review of World Energy June 2014). A reference price for Canadian market i.e. Alberta Gas Reference Price is available in the public domain according to which the natural gas prices at Canada’s Alberta Hub are approx. 20% lower than the Henry Hub price. (Source: Alberta Reference Price). In this background, it may perhaps be appropriate to account for the Canadian volumes at Alberta Reference Prices rather than at the Henry Hub prices.

c) **Consideration of NBP price for consumption in Russia:**

In the Rangarajan Committee formula, it was recommended to consider NBP Price for volume consumed in EU and FSU countries. The sale price of gas within Russia (Source: Russian Govt. website) which is part of FSU countries is substantially lower than the price quoted at NBP hub. Therefore the well head
prices for Russian gas producers would be less to that extent. This view is also reflected in the Rangarajan Committee Report at Para 24.2.10.

In 2013, the total consumption in Europe was 533.8 BCM (15% of World Consumption), while the consumption in the same year in Former Soviet Union (FSU) Countries was 656 BCM (19% of world consumption). The average price in FSU countries is around US$ 4/ mmmbtu while it is approximately US$11/ mmmbtu for Europe (Source: IGU-Wholesale Gas Price Survey, 2014) (Annexure-VIII). As a result, the Rangarajan formula would yield a higher price for the FSU volumes. Hence the European volumes and at least the Russian volume, (for which prices are available) could possibly be accounted separately at their respective prices.

d) Consideration of Hub price in calculation of World Average producer's price:

The hub price includes well head price, transportation and treatment cost from well head to trunk pipeline, transportation cost from the trunk pipeline to the respective hub etc. The Rangarajan Committee in its report in Para 24.2.9 has acknowledged that the prices of North American hub and NBP are higher than the well head prices. The post well head components for NBP are comparatively substantial, as it includes long distance pipeline supplies and LNG imports. While deductions for calculating Netback prices for LNG imports have been recommended in Para 24.3.3 of the Rangarajan Committee Report, however, deductions on account of appropriate transportation and treatment charges from different hub prices viz. Henry Hub, NBP has not been recommended. It is suggested that appropriate adjustment for this needs to be considered for all hub prices including HH, NBP, Alberta and Russian volume.

e) Consideration of Japan/Indian LNG import in calculation of World weighted average producers' price.

As Japan sets the benchmark for LNG imports in Asia Pacific region, (Para 24.2.4 of the Rangarajan Report), it recommended the methodology to calculate netback price that estimates the well head producer's price of natural gas in LNG exporting countries (details of deductions at Para 24.3.2 and 24.3.3 of
Rangarajan Report). However, the calculation, based on the above methodology would give the effective FOB realization of an LNG exporter and not the well head producer’s price of the exporting countries. With such a long supply/process chain for LNG, it is difficult to ascertain as to what exactly is the producer’s price considering that profits may be getting booked at every stage of the supply/process chain.

The recent IGU Wholesale Gas Price Survey, 2014 states that the wholesale prices in Japan in 2013 are almost US$ 16/mmbtu compared to approximately US$ 10/mmbtu in UK, US$ 6/mmbtu in India and US$ 4/mmbtu in USA and approximately US$ 3.5 in Russia (Annexure-VIII). Japan’s LNG has been the most expensive in the world. It has negligible domestic production. It may be noted that Japan’s LNG’s prices are structurally expensive as most of the long term contracts the country has entered into, are oil indexed. With steep increase in global crude oil prices over last few years, Japan’s LNG import prices have also increased substantially. The Indian LNG imports are similarly oil indexed and also includes the so called “Asian Premium” on the crude oil imported by India.


In any case, oil indexed LNG term prices do not have much relevance for domestic producers’ price, as pricing of about 90% of all global domestic consumption of gas is based either on Gas-on-Gas competition or is under regulated price regimes. (Source: IGU Wholesale Gas Price Survey, 2014).

Additionally, there are major uncertainties in calculating the netback price whenever LNG is involved due to long supply chain, e.g. for imports from Qatar, a major supplier to both Japan and India has LNG trains which are both pre and
post 2010, (with suggested deductions of US$ 2.501 mmbtu and US$3.501 mmbtu respectively). However, it is understood that due to co-mingling at the time of exports, the vintage of the train cannot be ascertained. Thus there are inherent uncertainties in calculating producer’s price based on LNG prices.

For these reasons, it is suggested by the Committee for consideration of the Government that LNG component in the Rangarajan formula could perhaps be excluded.

f) GCV vs. NCV

In India gas is historically being priced on NCV basis. In this context, it is relevant to point out that it is not clear whether the price to be determined as per Rangarajan formula is on GCV or NCV basis, although the input prices being used in the Rangarajan formula are based on GCV (E-mail message from Platts, Annexure-IX).

The Committee feels that the Administrative Ministry may take an appropriate view in this regard, while considering the modified approach suggested by the Committee in Chapter-5.

g) Determination of Gas Price in INR vs. US$

In this context, the Committee felt that it needs to be pointed out that expenditure in US dollars is incurred by the contractor mostly during exploration and development phase. Therefore, the denomination of gas prices in US $ during the production period also, puts the entire foreign exchange risk on the consumers throughout the life cycle of the project. The Committee felt that the Administrative Ministry may consider this aspect, in the light of the contractual provisions, so that there is more equitable sharing of foreign exchange risk between the producers and consumers.
CHAPTER-5

Suggested Approach For Gas Price Determination

5.1 Suggested modification to the formula

Given the limited time available to the Committee and the complexity of the subject, the Committee held extensive discussions and arrived at a broad approach. The Committee also considered not only the views on record of the Parliamentary Standing Committees, Ministry of Finance and other Ministries of the Government but also those of the various stakeholders, including both producers and consumers. After detailed deliberations, the Committee would like to suggest the following modifications in the Rangarajan formula for further consideration of the Government:

i) Removal of both the LNG import components i.e. \( P_{IAV} \) and \( P_{IAV} \).

ii) Consideration of Alberta Gas Reference price in place of Henry Hub Prices for Canadian consumption.

iii) Consideration of Russian actual price as published by (e.g. Federal Tariff Service of the Russian Government) in place of NBP price for the Russian consumption considered under FSU.

iv) Consideration of appropriate deductions on account of transportation and treatment charges, etc., for different hub prices, i.e., Henry Hub, NBP, Alberta Reference and Russian actual gas prices.

v) Regarding the periodicity of price determination, while the Rangarajan Report had envisaged a monthly adjustment, the Domestic Natural Gas Pricing Guidelines, 2014 provided for a quarterly adjustment. The Committee felt that the Administrative Ministry may also consider examining the pros and cons of the options of bi-annual and annual price notification.

vi) A suitable cap on the price may also be kept, if considered appropriate.
5.2 **Applicability of the Modified Approach:**

i) The Committee was of the view that the suggested modified approach may not be made applicable to the exclusions as specified in Para 1.2 of the Domestic Natural Gas Pricing Guidelines, 2014.

ii) The Committee was also of the view that the suggested modified approach may apply **only prospectively** and would not be applicable to the gas prices already approved by the Government. Also, the suggested modified approach would apply uniformly to all sectors of the economy and the allocation of gas will be as per the Government's prevailing Gas Utilization Policy.

iii) The Committee was of the view that the NOCs may also get the same price as determined under the proposed dispensation, including for the gas from the nomination fields.

iv) The Committee would like to emphasize here that the proposed modified approach would not apply to gas production from D1-D3 discoveries of Block KG-DWN-98/3 till the shortfall quantity of gas is made good. The Committee would like to further suggest that the Administrative Ministry may take suitable action in this regard to safeguard the interest of the Government.

v) The Committee was of the view that the Administrative Ministry may examine the possibility of applying the suggested modified approach to Pre-NELP exploration PSCs also which provide for arm's length pricing but do not provide for any approval of the formula/basis by the Government.

(Rajive Kumar)  
Addl.Secretary  
(P&NG)  
Member Secretary

(J.K.Mohapatra)  
Secretary  
(Fertilizers)  
Member

(Ratan P.Watal)  
Secretary  
(Expenditure)  
Member

(P.K.Sinha)  
Secretary  
(Power)  
Member
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1.5.3 The committee also associated Shri R. N. Choubey, Director General (Hydrocarbons) and Dr Alok Sheel, Secretary, Economic Advisory Council to the Prime Minister with its deliberations, and drew upon their expertise as special invitees.

1.5.4 The terms of reference of the committee were as follows:

(i) Review of the existing PSCs, including in respect of the current profit-sharing mechanism with the Pre-Tax Investment Multiple (PTIM) as the base parameter;

(ii) Exploring various contract models with a view to minimise the monitoring of expenditure of the contractor without compromising, firstly, on the hydrocarbons output across time and, secondly, on the Government's take;

(iii) A suitable mechanism for managing the contract implementation of PSCs, which is being handled at present by the representation of Regulator/Government nominee appointed to the Managing Committee;

(iv) Suitable governmental mechanisms to monitor and to audit Government of India's share of profit petroleum;

(v) Structure and elements of the guidelines for determining the basis or formula for the price of domestically produced gas, and for monitoring actual price fixation;

(vi) Any other issues relating to PSCs.

1.5.5 The committee deliberated on its Terms of Reference (ToRs) and concluded that a careful reading of the ToRs indicates that its recommendations in respect of ToRs (i) and (ii) would apply only to PSCs entered into in future, while its recommendations in respect of ToRs (iii), (iv) and (v) would also be applicable to existing PSCs. However, insofar as ToR (v) is concerned, the committee recommended that the pricing formula proposed by it would only apply prospectively and is not proposed for application to gas prices already approved.

1.5.6 In making its recommendations, the main objectives that the committee kept in view were the following:
24 Recommendations on ToR (v)

24.1 Relevance of Different Price Formations

24.1.1 Gas pricing mechanism in India is presently driven by sectoral prioritization, administered gas allocation and pricing, apart from huge supply-side constraints. While short-term demand changes in international demand due to weather-related causes are quite frequent, the Indian gas market has not seen such volatility in demand in the short-term. This is mainly due to the fact that gas consumption is concentrated in the fertilizer, power and LPG sectors. Other factors resulting in short-term volatility, like business cycles and supply interruptions are also not relevant here. However, all these factors impact international gas price in the spot market and may impact profitability of Indian industry substantially.

24.1.2 Public sector companies producing gas have a highly regulated pricing system in place. Gas prices in India can, in principle, incentivize investment in the Indian upstream sector, so that production in India reaches optimum levels and all exploitable reserves put to production expeditiously. India also needs to ensure that producers don't cartelise as there is a huge unmet demand. The twin objectives of expediting production and avoiding cartelisation can be achieved by ensuring that producers in India get at least the average price of what producers elsewhere are getting.

24.1.3 Long-term prices in competitive markets in the US, the UK, continental Europe and the Asia-Pacific depend on the marginal supply cost curve, the efficiency of monetization of reserves, demand side factors like economic growth, energy intensity of major countries, ability of consumers to switch between fuels, and technological progress. However, there is no global competitive gas market. There are several regional markets in operation, all of which are heavily constrained by infrastructural, tariff and policy barriers.

24.1.4 An attempt is made below to contextualize internationally prevalent gas pricing mechanisms to the Indian market.
24.1.4.1 Gas-on-gas competition is the soundest of all mechanisms when free trade prevails in the gas market. The supply side in India is dominated by two large players, NOCs and RIL. Together they control the entire domestic production. RLNG supplies are again dominated by two entities, PLL and GAIL. The greatest constraint, however, is the lack of infrastructure for importing gas. All these result in a seller's market, with pricing power, which can lead to undue benefits. The consumption side is again dominated by PSU fertilizer units and power sector utilities, which are heavily subsidized by the Union and State Governments. Further, both these sectors have been encouraged through state policy to adopt gas-based technologies and they constitute a huge stranded market vulnerable to exploitation by gas suppliers. Thus, the supply curve at present is almost vertical and demand is highly price inelastic. Therefore, pure gas-on-gas competition will remain an aspiration till supply constraints are remedied substantially.

However, there are suggestions from several market players that sector-wise price discovery may still be possible in India. This idea merits a brief elaboration. Government of India has prioritized fertilizer, LPG, power and city gas distribution sectors for gas allocation. Proponents of this limited gas-on-gas competition model suggest that entities in each of these sectors can compete among themselves for allocation on price basis. Any such process will have two stages: the first stage being allocation of gas produced from the field to different sectors as per the Gas Utilization Policy (GUP), and the second being sector-wise price discovery of gas. For example, if a certain portion of the gas produced from a field is being allocated to the urea producing plants, the producer is supposed to invite bids from all urea producing plants ready to produce urea as on date of gas supply commencement and discover the market price on market-clearing basis and the bids received. All bids from related parties need to be discarded. This has to be repeated for all the sectors. However, this approach may result in two scenarios. In the first scenario, the demand in a particular sector may be high due to investments getting locked into gas-based technology. In such a scenario, price discovery may result in driving up prices to unviable levels. In the second scenario, consumers may cartelise to drive down prices. The process is likely to get deadlocked unless a very elaborate mechanism with checks and balances is set up.
Gas-on-gas competition for price discovery will become feasible once import infrastructure is ramped up and domestic production and transportation infrastructure grow. Therefore, Government may consider reviewing the situation after five years to examine the feasibility of its introduction.

24.1.4.2 Oil price escalation is one of the mechanisms suggested by several stakeholders. This is also in operation in a few long-term contracts for import to India. An EGoM has already approved one such formula for the gas produced in KG Basin by a consortium of RIL, NIKO and British Petroleum. All formulae have a base price for crude, a ceiling, and a factor to dampen volatility. The main reason for adoption of oil price escalation formula in the Asia-Pacific and in continental Europe is that gas replaces oil as fuel for domestic and industrial purposes. The share of gas sold globally under an oil price escalation formula is gradually coming down, from 22% in 2005 to 20% in 2007. For indigenous production, such a linkage is available in only 5% of the 2,048 billion cubic metres of gas produced globally in 2007.

24.1.5 Domestic production, consumed in the country of production, accounted for approx. 2,000 billion cubic metres in 2005, around 70% of total world consumption. The two largest price formation categories were gas-on-gas and regulation below cost, with gas-on-gas accounting for approx. 35% of world consumption (mainly in North America, the UK and Australia) and the regulation below cost accounting for 34% of world consumption (mainly in the former Soviet Union, the Middle East and Africa). Regulation on social and political basis, at 16% of world consumption, is spread across all regions. Regulation on cost of service basis, at 4% of world consumption, is principally in Africa and Asia, while bilateral monopoly pricing at 5% of world consumption is mainly in the former Soviet Union and the Asia-Pacific.

24.1.6 The Government of India has mandated that fertilizer and power sectors get priority in allocation of domestically produced gas. In both these sectors, oil is not the alternative fuel to gas. In the power sector, as gas is mainly replacing coal as a fuel, oil price linkage to indigenously produced gas may not be the most relevant factor. 81% of the existing capacity of urea plants is based on natural gas, while 9% is naphtha-based and 10% is based on fuel oil. Here too replacing gas with oil is not a viable option as urea consumption is highly price-
elastic. Any increase in gas price for urea plants will certainly lead to a huge increase in costs affecting food security.

24.1.7 Further, oil price indexation works on import parity and replacement fuel principle. While it is clear that replacement fuel principle does not apply fully to the Indian market, import parity also has its limitations. Landed price of LNG includes customs duty, shipping, pipeline tariff, liquefaction costs, handling etc. These costs are extraneous to the producing activity and have no relevance to domestic producers. The competitiveness of domestic production will not be affected by the inclusion or exclusion of that component of the price which does not accrue to the producer at the well-head. Hence, "import parity" will give a huge monetary benefit to domestic producers.

24.1.8 Planning Commission has correctly observed that high prices prevalent in LNG trade in the Asia-Pacific region can potentially 'kill the goose that lays the golden eggs'. It is neither in the producer's interest nor in the national interest to take natural gas to unviable levels by linking to crude prices. It is to be borne in mind that fertilizer companies in India were actively encouraged by GOI to convert to gas-based technology, with the expectation of domestic production at cheaper rates, thereby creating a stranded market for gas supplies. Similar promises and gas sales agreements were also entered into with power plants for domestic supply. If the new price becomes unviable to these two sectors, the demand for gas may slump drastically, as happened in 2005 in the US, and this would be against the common interests of producers and consumers alike, apart from not being in the national interest.

24.1.9 Further, oil-linked prices are mainly followed in Brazil and Thailand, for domestic production and consumption. In Brazil, Petrobras, which is a Government of Brazil company, is a major producer and the sole supplier and transmitter of natural gas. The benefit of higher prices directly accrues to the Government of Brazil in substantial proportion, which in turn subsidizes other important sectors. Even in Brazil, power companies get natural gas at regulated prices. Production and consumption in Thailand is too miniscule to serve as a viable model for India. On the other hand, Japan is a major importer of LNG, with large volumes linked to oil prices. Japan has recently decided to delink oil prices

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1 Planning Commission Report of the Inter Ministerial Committee on Policy for Pooling of Natural Gas Prices and Pool Operating Guidelines (page 32)
from gas import prices. Russian export contracts too are increasingly indexed to European hub prices. Gas markets are consistently evolving away from oil price indexation and towards gas-on-gas competition.

24.1.10 **Netback from final product** mechanism works where the final product is traded freely. Fertilizer and power sectors are still subject to an administered price mechanism and hence this mechanism may not be relevant in India.

India has consciously moved away from below-cost pricing and cost-of-service based regulation under NELP.

24.2 An Approach to Gas Pricing Till Such Time When Gas-on-Gas Competition Becomes Feasible

24.2.1 As discussed above, it may not be feasible to introduce gas-on-gas competition at this juncture. Therefore, a policy for pricing natural gas, till such time when gas-on-gas competition becomes feasible, is discussed below. However, it is recommended that Government review the situation after five years to examine the feasibility of introduction of gas-on-gas competition.

24.2.2 In the light of the discussion in § 24.1, a policy on pricing of natural gas for India is proposed. Since a competitive domestic price for gas does not currently exist and may not be expected to come about for several more years, the policy will have to be based on searching out from global trade transactions of gas the competitive price of gas at the global level. As the global market is not fully integrated in terms of physical flows and is also not everywhere liquid enough, it is proposed to combine two methods of search for such prices.

24.2.3 First, the netback price of Indian LNG import at the wellhead of the exporting countries should be estimated. Since there may be several sources of gas imports, the average of such netback of import prices at the wellheads would represent the average global price for Indian imports. It may be assumed that each gas exporting country also faces competition and, therefore, there is no reason to suppose that India faces any bias of being over-charged or under-charged vis-à-vis other competing buyers in the global gas market constructed through such aggregation for averaging. Such a netback average price may be
interpreted as the arm's length competitive price applicable for India, and such price may be estimated on the basis of recent historical transactions.

24.2.4 A second method of searching for a competitive price for India is to take the average of pricing prevailing at trading points of transactions – i.e., the hubs or balancing points of the major markets of continents. Currently, as per British Petroleum statistics, total natural gas consumption across the globe stands at 3.2 trillion cubic metres in the year 2011, of which North America, Europe & Eurasia, and Japan consumed around 65%. The average prices of natural gas consumed in these regions are also publicly available (British Petroleum Statistics / World Energy Intelligence Report, Platts etc.). Therefore, the weighted average of natural gas prices in these three major markets can be used for arriving at the price for domestic gas produced in India. For this, (a) the hub price (at the Henry Hub) in the US (for North America), (b) the price at the National Balancing Point of the UK (for Europe), and (c) the netback price at the sources of supply for Japan (a big buyer treated in the Asia-Pacific region as setting a benchmark for the region) may be taken as the prices most relevant for the purpose of approximating India's average price for producers at their supply points across continents. Such a global average price may also be interpreted as an arm's length competitive price for India.

24.2.5 Finally, the average of the prices arrived at through the aforementioned two methods may be taken. Such an overall average of global prices, derived on the basis of netback and hub / balancing point pricing principles, can be taken as the economically appropriate estimates of the arm’s length competitive prices applicable for India. While the formulae detailed in this section directly or indirectly take into account the data of a wide range of transactions including those with India, the methodology neutralizes any bias for India and ensures the arm's length aspect of pricing, as best as possible.

24.2.6 The approach outlined in this section could be formulated into a Policy for Pricing of Natural Gas in India. The necessary steps for determining the two averages discussed above are presented in § 24.3.

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2 According to International Gas Union (IGU) Report, 2011, the UK and Continental Europe are physically connected by pipelines and prices in European hubs are following NBP very closely. Hence, NBP is a good proxy for entire Europe including UK.
24.2.7 Before that, certain aspects having a bearing on the merits of the recommended pricing formula are discussed below.

24.2.8 Viewed from an investment perspective, it may be noted that the weighted average for gas production at well-head prices of North America, Europe and the exports to the Asia-Pacific shall indicate, by and large, what global gas players are getting from their investments. Hence, from an investment perspective as well, such a price may be considered as an appropriate reference price for domestic gas pricing in India.

24.2.9 It may be noted that although hub prices of natural gas in the US and Europe are slightly higher than well-head prices, since they include pipeline tariffs up to the hub, since such hub prices are readily available from standard sources, these may serve as better benchmarks.

24.2.10 The US and European markets have large volumes contributed by conventional/non-conventional gas sources and they also represent geological situations present in India. Further, the UK, continental Europe and FSU are developing into one single marketplace and hence need not be treated as stranded markets. FSU countries continue to have, by and large, a regulated price lower that the market price, much of the quantity consumed in FSU being below the European hub prices. While using European hub prices for FSU consumption will result in a slightly higher average price, it may be noted that even in FSUs, there is a distinct trend towards alignment of gas prices with European hub prices.

24.2.11 Indian imports of LNG are likely to grow rapidly over the next few years as domestic production is declining and new discoveries are yet to be commercialized. Hence, the netback to producers of LNG from such imports to India (both spot and term) can be used as a basis for deciding domestic gas prices in India. While currently a majority of Indian LNG imports are from the Middle East (mainly Qatar), the LNG import prices may not be a true representation of global gas prices. Since India's LNG imports from international markets are set to grow with time and become a well-diversified portfolio with supplies coming from all parts of the world (the US, Africa, Europe, Middle East and Australia), the recommended methodology of netback pricing may be more suitable.
24.3 Steps for arriving at the recommended pricing

24.3.1 While calculating netback to producers, the following components are deducted from the FOB price as they do not accrue due to production activity:

\[ \text{Netback Price, } N = A - B - C. \]  
\[ P_{\text{AV}} = \left( N_1 \times V_1 + N_2 \times V_2 + \ldots \right) / \left( V_1 + V_2 + V_3 + \ldots \right) \]  

Where:

\( A \) = Imported LNG Price on Netback FOB available from World Energy Intelligence

\( B \) = Liquefaction costs at the respective loading port (source)

\( C \) = Transportation and treatment costs of natural gas from wellhead to liquefaction plant

\( N_1, N_2, \ldots \) are Producers' Netback, calculated as per Formula (I).

\( V_1, V_2, \ldots \) are volumes applicable to \( N_1, N_2, \ldots \) Available from World Energy Intelligence or Platts

\( P_{\text{AV}} \) = Average Producer Net Back for Indian Imports for trailing 12 months

\( V_1, V_2, V_3 \) and \( A \) shall be for trailing 12 months period.

All imports, including term contracts, shall be included in the calculation.

Prices and volumes in the above calculation shall be for trailing 12 months, and \( P_{\text{AV}} \) shall be arrived at for every month.

24.3.2 The average price of liquefaction costs with older plants is of the order of $2.5/mmbtu\(^3\). For plants which started deliveries in 2010 or after, the liquefaction cost is of the order of $3.5 to 4.0/mmbtu. A recent contract signed by GAIL with the Sabine Pass facility in United States of America for supplies to commence in the year 2016 from a brownfield project is around $3.0/mmbtu.

\(^3\) Planning Commission Report of the Inter-Ministerial Committee on Policy for Pooling of Natural Gas Prices and Pool Operating Guidelines
Report of the Committee on the PSC Mechanism in Petroleum Industry

Hence, it is recommended that an average of $2.5/mmbtu may be adopted as the liquefaction cost while calculating the average producer netback for Indian imports and the weighted average price to producers in the global markets for older plants, and $3.5/mmbtu for exports from plants starting deliveries after 2010. These figures may be reviewed after five years.

The trend of liquefaction costs can be ascertained from the data available from the reports of Facts Global LNG and Wood Mackenzie.

24.3.3 The transportation cost from the well-head to the liquefaction plant may be considered as around $0.5/mmbtu. This includes handling charges and sweetening cost of gas.

\[
P_{WAV} = \frac{(A_1 \times P_{HH} + A_2 \times P_{NBP} + A_3 \times P_{JAV})}{(A_1 + A_2 + A_3)}
\]

\(P_{WAV}\) = Weighted average price to producers in the global markets

\(A_1\) = Total volume consumed in North America at average Henry Hub prices on yearly basis

\(P_{HH}\) = Annual average of daily prices on Henry Hub for the relevant year

\(A_2\) = Volume consumed through various hubs in Europe/Eurasia in the relevant year (entire consumption of Europe and FSU)

\(P_{NBP}\) = Annual average of daily prices on National Balancing Point (NBP) in the UK for the relevant year

\(A_3\) = Volume imported by Japan in the relevant year

\(P_{JAV}\) = Yearly weighted average producers netback price of gas in Japan for the relevant year (weighted by the total volume of long term and spot imports)

\(P_{JAV}\) shall also be calculated as \(P_{WAV}\) is calculated in Formula (I).

24.3.4 Prices and volumes used in this formula shall be for trailing 12 months period. It is recommended that \(P_{WAV}\) be calculated every month by the above formula.

24.3.5 The netback price of LNG to be delivered in Japan from various potential sources across the globe can be determined from the FOB price at the loading country. The netback FOB prices and volumes at those prices from various exporting countries are available from LNG Daily and World Energy Intelligence websites. The FOB price includes liquefaction costs of gas at the plant in the
producing country at the loading port, plus the transportation, including handling and sweetening charges of the gas from the producing asset to the liquefaction plant. Thus,

\[
\text{Producer's Netback for LNG Import} = \text{Netback FOB Price} - \text{Liquefaction Cost} - \text{Transportation Cost (including Sweetening and Handling Charges)}
\]

The formulae for \( P_{IAV} \) and \( P_{WAV} \) give an average price which producers across the world are realizing through production of natural gas. \( P_{AV} \) is specific to India as it is calculated from Indian imports. Hence, an average of \( P_{IAV} \) and \( P_{WAV} \) will represent the recommended appropriate price \( P_{AV} \) for domestic producers:

\[
P_{AV} = \frac{(P_{IAV} + P_{WAV})}{2}
\]

24.4 It is clarified that the proposed pricing formula would only apply prospectively and is not proposed for application to gas prices already approved.

24.5 The proposed pricing formula would apply to all sectors uniformly, while allocation of gas will be as per the prevailing Gas Utilization Policy (GUP) of the Government.
NOTIFICATION

MINISTRY OF PETROLEUM AND NATURAL GAS

P = \frac{(P_{\text{AV}} + P_{\text{MW}})}{2}

(A)

\text{if } P = \frac{(P_{\text{AV}} + P_{\text{MW}})}{2} \text{ then } P_{\text{AV}} = P_{\text{MW}} (B)

\text{if } P = \frac{(P_{\text{AV}} + P_{\text{MW}})}{2} \text{ then } P_{\text{AV}} = P_{\text{MW}} (C)

\text{if } P = \frac{(P_{\text{AV}} + P_{\text{MW}})}{2} \text{ then } P_{\text{AV}} = P_{\text{MW}} (D)

\text{if } P = \frac{(P_{\text{AV}} + P_{\text{MW}})}{2} \text{ then } P_{\text{AV}} = P_{\text{MW}} (E)

\text{if } P = \frac{(P_{\text{AV}} + P_{\text{MW}})}{2} \text{ then } P_{\text{AV}} = P_{\text{MW}} (F)

\text{if } P = \frac{(P_{\text{AV}} + P_{\text{MW}})}{2} \text{ then } P_{\text{AV}} = P_{\text{MW}} (G)

\text{if } P = \frac{(P_{\text{AV}} + P_{\text{MW}})}{2} \text{ then } P_{\text{AV}} = P_{\text{MW}} (H)

\text{if } P = \frac{(P_{\text{AV}} + P_{\text{MW}})}{2} \text{ then } P_{\text{AV}} = P_{\text{MW}} (I)

\text{if } P = \frac{(P_{\text{AV}} + P_{\text{MW}})}{2} \text{ then } P_{\text{AV}} = P_{\text{MW}} (J)
These guidelines will be applicable to all natural gas produced domestically, irrespective of the source, whether conventional, shale, CBM etc. These guidelines shall apply from 1st April 2014 with the exception of cases indicated in Para 1.2.

1.2 These guidelines shall not be applicable where prices have been fixed contractually for a certain period of time, till the end of such period. These guidelines shall also not be applicable where the production sharing contract provides a specific formula for natural gas price indexation / fixation. Further, the pricing of natural gas from small/isolated fields in the nomination blocks of NOCs will be governed by the extant policy in respect of these blocks issued on 8th July, 2013.

1.3 The prices determined under these guidelines shall be applicable to all consuming sectors uniformly.

1.4 These guidelines shall also be applicable for natural gas produced by ONGC/OIL from their nominated fields.

1.5 The pricing of natural gas produced domestically shall be based on the following methodology:

1.5.1 First, the netback price of all Indian imports at the wellhead of the exporting countries will be estimated as detailed in Para 1.7 below. Since there may be several sources of gas imports, the weighted average of the netback of import prices at the wellheads would represent the average global price for Indian LNG imports.

1.5.2 Secondly, weighted average of prices prevailing at trading points of transactions i.e., the hubs or balancing points of the major global markets will be estimated. For this, (a) the hub price (at the Henry Hub) in the US (for North America), (b) the price at the National Balancing Point of the UK (for Europe), and (c) the netback wellhead price at the sources of supply for Japan will be taken as the average price for producers at their supply points across continents.

1.5.3 Finally, the simple average of the prices arrived at through the aforementioned two methods will be determined as the price for domestically produced natural gas in India.

1.6 Netback FOB Pricing: Netback FOB, according to Argus, is calculated based on daily spot LNG vessel chartering rates and accompanying shipping related costs. These additional costs shall include:

- Daily spot LNG vessel chartering rates for east and west of Suez voyages based on 138,000 - 155,000 cu m standard size vessel.
- A daily boil off rate of 0.15 % / day based on 98 % vessel capacity utilization rate
- An average 50 pc of fuel consumption based on daily bunker consumption of 150 t based on local rates
- An average of 50 pc of LNG fuel consumption based on the boil-off rate.
- Voyage timing based on a laden leg speed of 19.5 knots.

Netback FOB prices reported in governmental or standard industry sources shall be adopted.

1.7 Producer’s Netback pricing shall be arrived as per the following procedure:

1.7.1 Calculation of Producer’s Netback Price for Indian Imports

(i) While calculating netback to producers, the following components are deducted from the FOB price as they do not accrue due to production activity:

Netback Price, \( N = A - B - C \)

\[
P_{AV} = (N_1 \cdot V_1 + N_2 \cdot V_2 + \ldots \ldots) / (V_1 + V_2 + V_3 + \ldots \ldots)
\]

(ii) Where:

- \( A \) = Imported LNG Price on Netback FOB available from standard industry sources.
- \( B \) = Liquefaction costs at the respective loading port (source)
- \( C \) = Transportation and treatment costs of natural gas from wellhead to liquefaction plant
- \( N_1, N_2, \ldots \) are Producers’ Netback, calculated as per Formula (i).
- \( V_1, V_2, \ldots \) are the volumes corresponding to \( N_1, N_2, \ldots \) etc.

\( P_{AV} \) = Weighted average Producer Net Back for Indian gas imports for trailing four quarters with a lag of one quarter. All imports, term and spot, will be included in the calculation.

\( V_1, V_2, V_3 \) and \( A \) shall be for the trailing four quarters with a gap of one quarter. \( P_{AV} \) shall be calculated on quarterly basis for trailing four quarters with a lag of one quarter. The weighted average of quarterly \( P_{AV} \) shall be the applicable \( P_{AV} \). This data will be made available by Indian importers and confirmed through customs department. This will be further validated from leading industry publications.
(ii) An average of $2.5/mmbtu shall be adopted as the liquefaction cost for plants which have started deliveries in or up to 2010, and $3.5/mmbtu for exports from plants starting deliveries after 2010. These figures will be reviewed after a period of five years.

The trend of liquefaction costs can be ascertained from the data available from the reports of Facts Global LNG and Wood Mackenzie. Where it is not possible by any means (through customs or through industry sources etc.) to ascertain whether a particular shipment is from pre-2010 or post 2010 LNG Train, an average of $3.0/mmbtu will be assumed as the liquefaction cost.

(iii) The transportation cost from the well-head to the liquefaction plant will be considered as $0.5/mmbtu. This includes handling charges and sweetening costs of gas.

II. Calculation of World Average Producer’s Netback Price

\[
P_{\text{WAV}} = \frac{(A_1 \times P_{\text{HH}} + A_2 \times P_{\text{NBP}} + A_3 \times P_{\text{AV}})}{(A_1 + A_2 + A_3)} \quad \text{(III)}
\]

- \( P_{\text{WAV}} \) = Weighted average price to producers in the global markets for trailing four quarters with a lag of one quarter.
- \( A_1 \) = Total volume consumed in North America in the relevant year i.e. trailing four quarters with a lag of one quarter.
- \( P_{\text{HH}} \) = Weighted average of quarterly hub prices at Henry Hub. Quarterly hub prices will be a weighted average of monthly prices. Monthly prices will be based on simple average of daily prices during the month. \( P_{\text{HH}} \) shall be calculated for trailing four quarters with a lag of one quarter.
- \( A_2 \) = Volume consumed in EU and FSU in the relevant year i.e. trailing four quarters with a lag of one quarter.
- \( P_{\text{NBP}} \) = Weighted average of quarterly hub prices at National Balancing Point (NBP) in UK. Quarterly hub prices will be a weighted average of monthly prices. Monthly prices will be based on simple average of daily prices during the month. \( P_{\text{NBP}} \) shall be calculated for trailing four quarters with a lag of one quarter.
- \( A_3 \) = Volume imported by Japan in the relevant year i.e. trailing four quarters with a lag of one quarter.
- \( P_{\text{AV}} \) = Weighted average producer’s netback price of gas imported by Japan for trailing four quarters with a lag of one quarter. All imports, term and spot, will be included in the calculation.

\( P_{\text{AV}} \) shall be calculated in the same manner as \( P_{\text{WAV}} \) is calculated in Formula (I).

(iv) The netback price of LNG to be delivered in Japan from various potential sources across the globe can be determined from the FOB price at the loading country. The netback FOB price and volumes at those prices from various exporting countries are available from LNG Daily and World Energy Intelligence, Argus, Platts etc. The FOB price includes liquefaction costs of gas at the plant in the producing country at the loading port, plus the transportation, including handling and sweetening charges of the gas from the producing asset to the liquefaction plant. Thus,

**Producer’s Netback for LNG Import**

\[
P_{\text{INL}} = \text{Netback FOB Price} - \text{Liquefaction Cost} - \text{Transportation Cost (including Sweetening and Handling Charges)} \quad \text{(IV)}
\]

Liquefaction costs and transportation costs (including sweetening and handling) are same as in the case of Indian average price in Para 1.7 (I) (ii) and 1.7 (I) (iii).

(v) The formulae for \( P_{\text{AV}} \) and \( P_{\text{WAV}} \) give an average price which producers across the world are realizing through production of natural gas. The average of \( P_{\text{AV}} \) and \( P_{\text{WAV}} \) will be the price \( P_{\text{AV}} \) for domestic producers:

\[
P_{\text{AV}} = \frac{(P_{\text{AV}} + P_{\text{WAV}})}{2} \quad \text{(V)}
\]

1.8 Domestic Gas prices shall be notified in advance on a quarterly basis using the data for four quarters, with a lag of one quarter.

1.9 These policy guidelines shall be applicable for a period of five years with effect from 1st April, 2014.

1.10 In respect of D1 and D3 gas discoveries of Block KG-DWN-98/3, these guidelines shall be applicable subject to submission of bank guarantees in the manner to be notified separately.

GIRIDHAR ARAMANE, Jt. Secy.
ANNEXURE-IV
STANDING COMMITTEE ON PETROLEUM & NATURAL GAS
(2013-14)

FIFTEENTH LOK SABHA

MINISTRY OF PETROLEUM & NATURAL GAS

ALLOCATION AND PRICING OF GAS

NINTEENTH REPORT

LOK SABHA SECRETARIAT

NEW DELHI

October, 2013/ Asvina, 1935 (Saka)
Demand and Supply of Natural Gas

The Committee note that Natural Gas has emerged as one of the principal source of energy in the world and accounts for 23.94% of total global energy mix. Due to its inherent advantages over other fossil fuels there is a global trend of shift in energy mix from oil to natural gas. However, in case of India, share of natural gas in total energy mix accounts only 8.7% which is even lower than the Asia Pacific share of 11.27%.

As the Government pursued the economic policy to achieve high growth, the demand for natural gas has also sharply increased in India during the past few years, and expected to escalate further. The Committee are however, constrained to note the widening gap between demand and supply of gas in the country, as during 2012-13 there was only 134 mmcmd of gas available including the imported LNG against the demand of 286 mmcmd. Thus there was huge unmet demand of 152 mmcmd. During the year 2015-16, the expected gap would be to the tune of 300 mmcmd as against the demand of 439 mmcmd the available gas supply would be 139 mmcmd only. The chunk of this growing supply deficit is expected to be met through LNG imports from different countries. However, the Committee note that present LNG terminal capacity is 53 mmcmd only unable to support the increased purchase of LNG. Though the LNG infrastructure is expected to grow to 180 mmcmd by 2016-17, it would not still be sufficient to cater to the increasing LNG import in the coming years.

The Committee are of the view that MoPNG should evolve a plan to explore all possible options to increase the production and supply of natural gas in the country. Towards this end, the Committee desire that the Ministry should increase the blocks awarded for exploration, intensify activities for exploration and production of shale gas, pursue strong diplomatic efforts to expedite construction of transnational pipelines from neighbouring regions to bring gas and try to enter into long term contract for import of LNG at cheaper cost. The Committee further desire that unconventional sources of gas like Gas Hydrates,
CBM, Shale Gas should be seriously monitored for exploitation and development. Therefore, the Committee recommend that Ministry should prepare a blue print to improve the production and supply of natural gas in the country so that there is no deficit in meeting the domestic demand.

Recommendation No.2

**Gas Allocation by EGoM**

The Committee note that domestic production of Natural gas during the 12th plan was projected to be 111.54 mmscmd in the year 2012-13 and is expected to go up to 175 mmscmd by the end of the plan i.e. by 2016-17. The Committee however are surprised to note that the allocations made by EGoM for the year 2012-13 were to the tune of 238.27 mmscmd, which is more than double the projected production during the same period. This shows huge mismatch devoid of any realistic estimations on part of EGoM. Though the Committee understands that the minimal surplus allocations are unavoidable but at the same time such excess allocations is not acceptable.

Further the shortfall in the actual production which plunged to 91.36 mmscmd in 2012-13 forced the Ministry to cut back the allocations to various sectors on pro-rata basis. So much so, that the consistent decline in production of gas from KG-D6 basin ultimately resulted in nil gas supply from the KG-D6 basin to power sector. These developments have an adverse impact on the projects and investment plans of many sectors of the economy which expects assured gas supply on basis of allocations made by the Government. The Committee therefore recommend that the allocations should be made by adopting a more pragmatic approach, and should not be more than 10% of the projected production.
Recommendation No.3

**Allocation of gas to various sectors**

The Committee note that allocation of natural gas is to be made to various consuming sectors as per the priority order decided by EGoM. As per this priority order, fertilizer industry comes at first place followed by LPG plants at the second and power plants at third place. The city gas distribution network rank fourth in priority.

The Committee, however note that due to less supply, allocation to the sectors have been much below the demand. In case of power sector, the allocation has been only 42.53 mmcmd in 2012-13 which is projected to go up to 207 mmcmd in 2016-17. However, large investments have been made in gas based power plants which has become infructuous due to non-availability of gas. The power plants have the option of using imported LNG or coal in place of natural gas. As the cost of imported LNG is high, its use is uneconomical. As regards the usage of coal, the plants which have been designed for using natural gas have to make extra investments for shifting to coal as fuel. The Committee, therefore, recommend the Government to indicate the clear picture regarding the availability of gas for power sector in the next 5 to 10 years so that before making the investments in gas based power plant, the gas availability is factored in by the companies.

The Committee note that during 2012-13, power and fertilizer sectors cumulatively received 61.6% of natural gas whereas CGD sector received only 11.6% of the total available gas. Besides being an efficient environment friendly fuel, natural gas presently used in PNG and CNG does not contain any subsidy element in its cost structure. Even a small quantity of natural gas allocation can cater to a large number of customers in the CGD network. The Committee seriously feel that in order to benefit a wider section of society, expansion of PNG/CNG network will be the way forward as this will also save the subsidy burden of the Government on the use of LPG and diesel. Hence, the Committee recommend that the CGD networks must be allocated an increased
quota of gas due to a slew of benefits that could be achieved by the use of natural gas over the other conventional fuels.

The Committee would also like to point out that requirement of natural gas varies from time to time and hence the allocation policy of Government needs to be dynamic and responsive towards the societal needs and changing economy. Therefore, the Committee desire that the allocation policy should be reviewed to reflect the changing demand supply scenario of the various sectors and the direction in which the Government wants to move forward.

Recommendation No. 4

Production of Natural Gas from KG – D6 Basin

The Committee note that KG-D6 basin is one of the successful discoveries in the NELP regime which gave hope to the country in its quest for exploration of hydrocarbon resources. The Committee note that the planned production as per the approved field development plan (FDP), which was 33.83 mmscmd in 2009-10 was to go up to 86.73 mmscmd in 2012-13. However, the production from the KG-D6 basin started declining as the actual production was 55.89 in 2010-11 to 26.18 mmscmd in 2012-13.

The Committee find that one of the reasons stated by the Ministry for the declining production was due to non-drilling of required number of gas producer wells by the contractor in line with Addendum to Initial Development Plan (AIDP). Whereas according to the contractor, the decline has been due to substantial variance in reservoir behavior and higher pressure decline than envisaged. The Committee have been further informed that the contractor has been advised certain corrective measures to increase natural gas production in KG-D6 block. However, the contractor has failed to adhere to the corrective measures.

The Committee also observe that DGH had commissioned a study by an expert on the decline in production and the expert has concluded that reserves as estimated earlier, which is around 10 TFC are still available and remedial measures will help the production to go up. The expert has also observed that the
shortfall in gas production is due to non-drilling of adequate number of wells as per ADP (Approved Development Plan) and delays in commissioning additional producers would trigger water drive in the reservoir and consequent reduction of the ultimate recovery as a result of water encroachment as well as permanent loss of some of the gas reserves. Based on the aforesaid report the cost disallowance amounting to US $ 1.005 billion has been imposed upon the contractor which the contractor has taken for arbitration.

The Committee are worried and express their unhappiness at the whole series of events. The KG – D6 basin was success story of NELP regime which invited private companies and MNCs in the exploration and production regime which until then was a NOCs forte. However, the contractor has not adhered to the measures suggested by the upstream regulator DGH to drill wells to increase natural gas production. Also coincidentally, the demand for increase in the price of natural gas by the contractor over and above the discovered price by arm length mechanism as provided in the PSC has also brought question mark regarding the interest of contractor to abide in the sanctity and stability of the PSC.

The Committee has taken serious note of the statement made by the Ministry that the contractor (RIL) failed to adhere to the approved field development plan both in terms of gas production as well as drilling and putting on stream the required number of wells, even after repeated reminder. The Committee also note that the action taken by the Ministry in respect of cost disallowance of US$ 1.005 Billion to contractor based on arbitration procedure. In view of the above, the Committee is of the opinion that non-adherence by the contractor to approved field development plan should be construed as ‘default’ and not just failure and remedial action by the Ministry in this regard must be premised on ‘default’ by the contractor and not on ‘failure’.

The Committee would like to point out that Supreme Court has observed that natural resources are national assets and are to be utilized for larger good of the people. Therefore, the Committee would recommend to MoPNG to explore all possible options and take corrective measures to increase the natural gas production from KG-D6 basin, as observed in the study commissioned by DGH.
Recommendation No. 5

Allocation to States

The Committee note that the natural gas produced from different denominated fields like APM, Non-APM, KG D6 and PMT are allocated as per the gas utilization policy by the EGoM. As per the policy the allocation of gas is done sectorwise in the order of priority as decided by EGoM and the geographical location of any oil/gas producing asset does not influence the allocation criteria of Government. Hence, this means that even though natural gas is produced from or adjoining areas of a State, there is no guarantee of any allocation to the State whereas industries in the priority sector in any state including far off ones would get preference in allocation of gas.

The Committee observe that total gas production during 2012-13 was 40678 million cubic metres, out of which the share of private/JV in the KG D6 basin located in coastal area adjoining Andhra Pradesh was 13700 million cubic metres. This accounts for 30% of the total natural gas production of the country. However, the allocation to Andhra Pradesh is pegged at 29.02 mmcmd in 2012-13, out of a total allocation of 216.27 mmcmd which works out to less than 15%. The Committee note that only regional preference given to Andhra Pradesh is that the power plants have been allocated KG D6 gas based on 75% plant load factor whereas power plants outside Andhra Pradesh have been allocated to operate at 70% PLF. The Committee are of the opinion that this is an insignificant privilege given to Andhra Pradesh considering the quantum of gas produced in the State. Further, though the gas producing and nearby states have enough demand for gas, it is transported from East to West Coast and vice-versa thus entailing extra expenditure increasing the cost of gas. The Committee feel that utilization of gas in nearby areas or states, could be more pragmatic and economical than transporting it to longer distances until a nation vide gas Pipeline network is in place.

The Committee are of the strong view that this policy should be re-examined and the industries in the state concerned or in the neighboring regions should be given priority in matter of allocation of gas as the state in which the
field is located will be very eager and interested to use the gas for its economic development. The Committee, therefore recommend MoPNG to supply atleast 50% of the gas produced to industries belonging to the state where the fields are situated.

Recommendation No.6

Royalty to States on Natural Gas Production

The Committee note that oil and natural gas is produced from the fields located in onshore, shallow water and offshore. Some of the fields for exploration and production were awarded under nomination basis and once NELP regime came into being, the fields were awarded under competitive bidding. As per Production Sharing Contract (PSC) the contractor has to pay royalty to the Central/State Government depending on the area from where the natural gas is produced. The royalty rates on natural gas production are 10% of well head value for onland and shallow water areas applicable uniformly for all regime and it is paid to respective states in which the fields are located. The royalty rates applicable for gas produced from deep water fields under NELP is 5% of well head price for first 7 years and 10% thereafter on ex-royalty basis. However, in case of production from deep water, royalty accrues only to Central Government on the consideration that all the resources which are in the offshore areas belong to the Union of India.

The Committee feel that this policy has put the States where the gas is being produced from offshore fields to disadvantageous position as they are being deprived of royalty arising out of the production of natural gas. In the case of KG D 6 basin which is one of the biggest discovery of natural gas in the recent years, the royalty on the production accrues only to Central Government and no revenue is earned by the Andhra Pradesh State Government. As the royalty payments to States where the natural resources are located and produced is substantial as seen in the case of Rajasthan where State Government is earning to the tune of Rs.5000 crore/annum by way of royalty from Barmer fields, depriving other States of its rightful share of royalty from offshore fields is unjustified. Even though, the offshore fields lie in coastal areas, the contractors
would set up offices and source other infrastructure to carry out the work in the adjoining state to the offshore. Hence, it is reasonable for the state to expect some benefits from such economic activities being carried out adjacent to their coast will incentivize the states to extend all cooperation to carry out the exploration and production activities.

As the production of oil and natural gas is expected to increase substantially with the new discoveries from offshore fields being made, the issue relating to non-sharing of royalty from offshore areas with State Governments needs to be revisited and the State Government should also be benefited from the economic activities being carried out in their coastal region. Since the exploration and production activities are expected to increase in offshore and deep waters in the years to come, the Committee therefore recommend that MoPNG should devise a policy for sharing the royalty earned from offshore areas also with the concerned State Governments.

Recommendation No. 7

Supply of APM Gas to TTZ Area

The Committee note that in pursuance of Supreme Court order, MoPNG has been supplying natural gas to the industrial units most of which are glass - bottle manufacturing units in Taj Trapezium Area, in Ferozabad near Agra since 1996. The allocation of gas for this purpose now stands at 1.7 mmscmd. The price of the natural gas charged to these units are APM price which has remain unchanged since 2005.

The Committee are given to understand that the number of factories in this area has grown manifold taking advantage of the low priced APM natural gas. The Committee feel that this has defeated the purpose of the Supreme Court order which wanted that Taj Area should be preserved from environmental pollution from the factories in the nearby area. The Committee also wish to observe that glass units in other town/cities in the country which buy gas at market related prices are at a distinct competitive disadvantages compared to the units located in TTZ Area.
In view of the above, the Committee desire the MoPNG to implement the Supreme Court order and the objectives set out in it in the right spirit without creating any imbalances in competitive factors for other similar industrial units in the country. Therefore, the Committee recommend that the MoPNG to initiate concrete corrective action and supply natural gas at competitive market price to these units so as to check the mushrooming of industries in TTZ area which are taking unfair advantage of low gas price.

Recommendation No.8

Rangarajan Committee on PSC

The Committee note that The Production Sharing Contracts are entered between contractors and Government on a host of issues under the NELP. Government appointed the Rangarajan Committee to review Production Sharing Contract (PSC). Some of the important recommendations of the committee include a new revenue sharing model, pricing formula for natural gas and tax holidays. The revenue sharing model has been proposed to overcome the present system of pre tax investment model and cost recovery mechanism.

The Committee desire that since Rangarajan committee recommendations have wide ramifications on the investments in the E&P sector, it needs to be examined in greater detail before any decision is taken on the implementation as the E&P activities under NELP has not achieved the desired participation from adequate number of both domestic and international companies.

Recommendation No. 9

Gas Price formula by Rangarajan Committee

The Committee note that the Rangarajan Committee appointed to review Production Sharing Contract (PSC) entered between contractors and Government under NELP regime has devised a new formula regarding the price of natural gas produced. In this regard, its report has stated that '...the producers in India get at least the average price of what producers elsewhere are getting'. The proposed formula is a simple average of two methodologies. In the first method, it takes the price of imports of LNG into India by different suppliers while in the second
method, the weighted average of prices of natural gas prevailing at Henry Hub (HH) in USA, National Balancing Point (NBP) in London and netback import price at the well head of suppliers into Japan in the preceding quarters is considered.

The Committee have noted that during the year 2012, the natural gas prices in these three selected hubs were around US$ 2.5 to 3.5 per mmbtu in HH(USA), US $ 8 to 10 at NBP and $ 14 to 16 at Japan respectively. However, it is to be observed that the benefit of lower gas prices at HH has been largely diluted by the inclusion of Japan's LNG FoB prices which includes 60% royalty component, linkage to JCC and host of other factors.

The note prepared by Ministry of Finance for EGOM on the Rangarajan Committee formula argues that there is no logic in inclusion therein of the consumption by Japan which is having very high import LNG price and that nowhere in the world, well head prices of natural gas has been linked to spot LNG contract basis. The Committee find merit in this view of the Ministry of Finance.

The Committee further observe that Russia, being the second largest among the gas producing and consuming countries, exporting 40 to 50 percent of its gas to Europe at a price of about $8.77 per mmbtu, could be a valuable and better indicator of gas price. The Committee desire that Russian prices could be incorporated as one of the reference price in the pricing formula.

The Committee would also like to point out the glaring omission of factoring of domestic cost of production of natural gas by NOCs namely ONGC and OIL which was pegged at $ 3.63 and $3.21 respectively during the year 2012-13. Similarly the cost of production for RIL in 2012-13 stood at US$ 2.48 per MMBTU from KG-D6 field.

The Committee would further like to highlight that the price of domestic natural gas need not be dollar denominated due to huge volatility in dollar vis-à-vis Rupee which often leads to gains to operators for no reasons and adversely impact the Government financials. As the present price of $ 4.2/MMBTU at an exchange rate of Rs.45/", works out to be Rs.189/MMBTU and as against Rs.60/USD, equals to Rs.252/MMBTU which is 30% windfall gain accrued due to rupee devaluation from Rs.45 to 60 against the US dollar.
The Committee taking into consideration all the factors analysed above would like to recommend that the Rangarajan Committee formula for arriving at natural gas price should be thoroughly reviewed and reconsidered. The Committee recommend factoring domestic cost of production of gas for arriving at the price, and fixation of price of gas in rupee terms in PSC under NELP regime.

**Recommendation No. 10**

**Strategy to attract investments in Exploration and Production sector**

The Committee is not sufficiently convinced on the efficacy of the strategy of the Government on deploying the single instrument of price to achieve multiple objective of incentivizing domestic gas exploration and production on the supply side and meeting the huge unmet demands for gas at reasonable cost. Doubts have been raised in the Committee as to whether a big rise in gas price would attract additional investment from within and abroad in the field of exploration. Data supplied by the Ministry on flow of investment by private/JV companies in exploration of gas reveal that flow of private investment in exploration has actually started tapering down every year from 2009-10 onward compared to similar investments in 2007-08 and 2008-09 despite there be substantial jump in the gas price from 2009 onward and also country’s gas out put marked a drastic decline. The Committee, therefore, recommend a through review of the whole strategy of price-led investment growth.

**Recommendation No. 11**

**Impact of Gas Price Revision on Power/Fertilizer Sector**

The Committee note that under the allocation policy for natural gas, the top priority has been accorded to gas based fertilizer plants, followed by power plants supplying to grid. The allocation of Natural Gas to Fertilizer and Power sector during 2012-13 was 40.18 MMSCMD and 42.53 MMSCMD respectively and accounted for 29.9% and 31.6% of the total allocation. The Committee have been informed that presently fertilizer sector is getting Natural Gas at a price of $4.2 per MMBTU and increase of 1 US dollar per MMBTU will result in extra
expenditure of Rs 3155 crore per annum towards fertilizer subsidy. Similarly the Power Ministry has in its note submitted to CCEA have stated that if base price of domestic Natural gas is increased beyond US $ 5 /MMBTU, it would be unviable for power sector.

Considering the above it is clear that in the event of increase in gas prices, the Government will have to provide more money for the purpose of fertilizer subsidy. Simultaneously since power is an important input to most of the industries, increase in its cost will have a cascading impact on the economy as a whole.

In this regard, the Ministry while justifying the revision of natural gas prices have informed the Committee that the 12th Five Year Plan document has the underlying philosophy of the Government that the energy prices in the country must align with global energy prices. Hence, as the country is thriving on imported fuel, the pricing has to be linked to international prices.

The Committee while understanding the need to adopt market linked pricing of energy in the country also wish to point out that being a developing nation and having a huge population with very little surplus purchasing capacity, it would not be advisable to switch to market linked energy prices from a protected price environment.

The Committee therefore, recommend that the new formula for natural gas pricing as suggested by the Rangarajan Committee should be reviewed and reconsidered; the issue of market linked price of natural gas should be dealt and considered in due consideration of its impact on other sectors like fertilizer, power etc. including their viability, resources to fund increased subsidy by the Government and related issues.

Recommendation No. 12

Pooling of Gas

The Committee note that natural gas is produced from different category of fields like nominated blocks, Pre-NELP blocks and NELP blocks on both onshore and offshore fields. However by and large the priority in allocation for gas produced from different fields is same.
The Committee have also noted that the price for gas varies depending upon the type of fields from which the gas has been produced. The gas produced from APM fields is priced at $4.20/MMBTU whereas from PMT and Ravva fields it is priced at $5.57 and $3.5 – 6.8 respectively, whereas for KG – D6 basin it is priced at $4.2/MMBTU.

The Committee however, are of the view that the differential pricing of gas do not provide clarity and transparency about gas pricing to consumers. The Committee desire the MoP&NG to consider pooling of the entire production and then allocate to the sectors as per the priority at a uniform price.

The Committee is also of the firm opinion that for pooling gas prices, prices of gas from different fields must be premised on the respective cost of production and this necessitate factoring of domestic cost of production for arriving at the gas price.

The Committee note that a Committee was set up under the Chairmanship of Dr. Saumitra Chaudhari, Member, Planning Commission to examine the need for and to suggest a viable scheme for a pooled price for natural gas delivered to customers. This Committee have since given the report. The various stake holders like Ministry of Fertilizer and Power have expressed reservations on the recommendations of the Committee. While appreciating the reservations expressed by the stake holders, the Committee recommend that the Ministry should try to evolve a consensus on pooling of gas, so that a uniform price policy can be put in place for natural gas in the country.
STANDING COMMITTEE ON FINANCE
(2012-13)
FIFTEENTH LOK SABHA

MINISTRY OF FINANCE
(DEPARTMENT OF REVENUE)

'ECONOMIC IMPACT OF
REVISION OF NATURAL GAS PRICE'

SEVENTY FOURTH REPORT

LOK SABHA SECRETARIAT
NEW DELHI

August, 2013, Sravana, 1935 (Saka)
PART-II
OBSERVATIONS / RECOMMENDATIONS

1. The Committee believe that natural gas is a national resource and a public asset; and therefore any discourse on its pricing policy should reflect this principle so that it is used for the larger national good and not for profiteering. In the present economic situation with rampant inflation and a slowdown of the economy, any increase in gas prices will have a derailing effect on the economy generally and the downstream core sectors of fertilizer, power and steel, in particular. The Committee note that with gas production from the KG basin fields falling drastically in the last couple of years due to what the contractor claimed were "technical problem", the core sector of the economy dependent on gas as fuel was forced to either use expensive imported gas or operate their plants at sub-optimal capacities. As production from KG-D6 gas basin continued to decline since April 2010, pro-rata cuts were imposed by Government across all sectors between July 2010 and March 2011; in October 2011, supply to City Gas Distribution (CGD) from this basin became zero and by March 2013, the supply to power sector also became zero. However, fertilizer sector was getting its supplies as per priority fixed by Government. The reduction in gas supplies resulted in several gas-based power plants in the Country getting stranded and becoming NPA. The shortfall in production also resulted in zero supply for the steel sector. As regards the impact of gas price increase on priority sectors, the Ministry have admitted that there would be a direct impact on the prices of fertilizers, as increase in the price of gas by $1 per MMBTU results in the increase in cost of production of urea by a huge Rs. 1384 per Mf. It is thus
evident that gas pricing has serious repercussions for the economy as a whole, which warrants careful deliberations and prudent decisions.

2. The Committee would thus like to bring into focus the following critical issues and areas of concern arising out of the government's decision to revise sharply the natural gas price.

   (i) Deploying the single instrument of price to achieve the multiple objectives of incentivizing domestic gas exploration and production on the supply side and meeting the huge unmet demand for gas at reasonable cost. In this regard, doubts have been raised as to whether a large rise in gas price would at all attract additional investment from home or abroad and relax the supply side constraint. Despite raising the domestic well-head price by almost 300% during the period beginning 2005 till date (from as low as $1.79/MMBTU to $4.20/MMBTU), private investments in the sector and the country's gas output have actually dropped.

   (ii) To meet serious challenges that have arisen due to the tendency of contractors to manipulate the investment multiple parameter and controlling production, which adversely affected supply.

   (iii) To frame a long-term vision based on geo-political developments in the energy sector.

   (iv) To conduct a scientific cost study in the gas basins warranting / justifying a higher price. It cannot be a mechanism only leading to windfall / super-normal profits to entities, thereby putting the cost of private profit on society.

   (v) The rationale for dollar- denominated gas pricing when the revenues are all in rupee and the country has a chronic adverse exchange rate.
(vi) Any fixing of input price at a lower level than output price will mean a bloating of subsidies; is the government prepared for a disproportionately higher subsidy outgo in successive budgets for the fertilizer and power sectors and whether this has been factored in the 12th Plan. The extent of its inflationary impact needs to be considered.

(vii) The need for consultations with the State governments in this process, as they may have to significantly increase power tariffs to cover the higher costs or drastically raise their subsidy expenditure. The impact on state budgets should be key determinant as well.

(viii) The need to consider views of concerned Ministries, Planning Commission, Industry and experts before arriving at the decision.

(ix) The counter-productive effect of such large increases in price by forcing consumers of gas to divert to less cleaner fuels, thereby stultifying the gas pricing policy itself.

3. The Committee are constrained to note that no due diligence was done before arriving at the decision to revise gas price. Neither was any cost or impact study done in this regard. In this context, the Committee would recommend that the following aspects should be taken into account as an integral part of any gas pricing mechanism, which has huge impact on various sectors of the economy:

(i) At this juncture of our economic development, transitioning from a regulated to a fully market-based system should be staggered.

(ii) The Government needs to rethink certain elements in the pricing formula suggested by the Rangarajan panel, which only serves to push the Indian gas price higher than it ought to be. A more realistic
price formulation better suited to our current priorities may be evolved.

(iii) Secondly, there should be a cap on the suggested price under the formula and for this purpose, there should be a ceiling price. It cannot be the case that gas producers will be allowed to reap unlimited gains in the event of upswing in global prices at the expense of core sectors of the economy.

(iv) The Government should also subject gas producers to closer regulation, especially on aspects of cost recovery and technical parameters related to production. A comprehensive technical study on cost estimates of gas production should be conducted for this purpose.

(v) The Government must ensure that the contractor responsible for delivering the major chunk of gas from KG-D6 gas field supplies, delivers the shortfall he still owes as per the Agreement at the old price of $4.21 MMBtu, rather than getting the benefit of the new price for previous commitments.

(vi) The important recommendation of the Rangarajan panel of moving to a revenue-sharing arrangement with gas producers should be considered. A new Production Sharing Contract (PSC) model should be evolved that will do away with incentives to control production and manipulating investments, while assuring reasonable returns to the producers.

(vii) The government needs to do a thorough impact study of gas pricing on different sectors of the economy, particularly the core sectors of power, fertilizer, steel and small scale industry specially those effected by pollution control laws/orders. The quantum of subsidy required to compensate these sectors should be precisely arrived at over the medium term. Similarly, the extent of 'revenue loss or
foregone' should also be quantified over this period in order to grasp fully the implications of the price revision on the Union Budget.

(viii) As gas pricing will have implications for power tariffs as well, State governments also need to be consulted and taken on board. Instead of hurrying with decisions carrying wider import and ramifications for the country as a whole, broader consultative process involving all stakeholders should be put in place.

(x) Divergence in views within the government cannot be ignored on such a major issue and therefore, the valid concerns expressed by key economic Ministries of the government like power, fertilizer and steel should be duly addressed before finalizing the policy.

In the light of the concerns enunciated above, the Committee would strongly recommend the Government to review forthwith its decision to raise gas prices and come out with fresh pricing which is more balanced and holistic and closely related to the audited cost of production and a reasonable return on the capital invested.

New Delhi;
02 August, 2013
11 Sravana, 1935 (Saka)

YASHWANT SINHA,
Chairman,
Standing Committee on Finance.
Annexure-V

Source wise Production and Supply of Domestic gas during the year 2013-14:

(MMSCMD)

<table>
<thead>
<tr>
<th>Source</th>
<th>Production</th>
<th>% of Total Production</th>
<th>Supply</th>
<th>% of Total Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONGC</td>
<td>63.79</td>
<td>65.76</td>
<td>50.58</td>
<td>63.2</td>
</tr>
<tr>
<td>OIL</td>
<td>7.19</td>
<td>7.41</td>
<td>5.73</td>
<td>7.16</td>
</tr>
<tr>
<td>NELP</td>
<td>13.84</td>
<td>14.26</td>
<td>13.53</td>
<td>16.9</td>
</tr>
<tr>
<td>PRE-NELP</td>
<td>11.73</td>
<td>12.09</td>
<td>9.85</td>
<td>12.3</td>
</tr>
<tr>
<td>CBM</td>
<td>0.45</td>
<td>0.46</td>
<td>0.34</td>
<td>0.42</td>
</tr>
<tr>
<td>Grand Total</td>
<td>96.99</td>
<td></td>
<td>80.02</td>
<td></td>
</tr>
</tbody>
</table>

Source: Ministry of Petroleum & Natural Gas
ANNEXURE-VI
No. L-16016/2/2011-GP  
Government of India  
Ministry of Petroleum & Natural Gas

Shastri Bhawan, New Delhi  
Dated the July 8, 2013

To

1. The Chairman & Managing Director, ONGC, New Delhi.
2. The Chairman & Managing Director, GAIL, New Delhi.
3. The Chairman & Managing Director, OIL, New Delhi.

Subject: Allocation of domestic gas from small/isolated fields.

Sir,

In supersession of this Ministry's "Guidelines for Selection of Customers for Allocation of Domestic Gas from Small/Isolated Fields" forwarded with this Ministry's letter of even number dated 16.1.2012, please find enclosed herewith the revised "Guidelines for Selection of Customers for Allocation of Domestic Gas from Small/Isolated Fields". Further, necessary action for allocating gas to customers from such small/isolated fields may be taken in accordance with these revised guidelines and such gas allocated to various customers may be informed to this Ministry.

2. These revised guidelines have the approval of Minister for Petroleum & Natural Gas.

Yours faithfully,

(P.K. Singh)  
Joint Secretary to the Government of India  
Tel.No, 23382418

Copy to:- Technical Director (NIC) for hosting the guidelines in the Ministry's website.
MINISTRY OF PETROLEUM AND NATURAL GAS
GOVERNMENT OF INDIA

GUIDELINES FOR SELECTION OF CUSTOMERS FOR
DOMESTIC GAS AVAILABLE FROM SMALL/ ISOLATED
FIELDS

Date: 8th July, 2013
1. **Guidelines for selection of customers for domestic gas available from small/isolated fields**

Government had come out with guidelines for selection of customers for domestic gas available from small/isolated fields on 16.01.2012. The guidelines had been issued with a provision to review the policy after one year. Several representations have been received from various quarters for reviewing the policy. Based on the experience after issue of guidelines and the issues raised by various stakeholders as well as keeping intact the initial goal of the policy aimed at early monetization of gas, the guidelines have been reviewed.

2. **Definition of the Fields to which these guidelines will apply**

The Fields that will be covered by this Policy will be the existing producing or new fields from nominated blocks satisfying one of the following two conditions:

"Fields whose peak production is less than 0.1 mmcmd and they are situated more than 10 Km away from the gas grid,

OR

Fields whose peak production is less than 0.1 mmcmd and have a gas pressure which is less than the grid pressure"

These fields will be called small and isolated fields hereafter.

3. **Methodology to be followed for allocation of Gas from Small/Isolated Fields:**

i. Supplies to existing customers from small/isolated fields shall continue as per their APM allocations or the fallback non-APM allocations or both and shall be restricted at a level equal to the average supply made to such customers in the last six months. Revised Gas Supply Agreement for these quantities shall be finalized by the NOCs within 30 days. Gas supplies shall be made to the existing customers based on this level subject to availability of gas. NOCs shall charge the notified APM price for supplies made against APM allocation
and at non-APM price, as notified by the Government from time to time, for the balance supplies (supply level frozen now minus the supply of APM gas).

ii. In case of additional availability of gas after providing for gas supplies to the existing customers as indicated in 3 (i) above, and for any new production from the small / isolated fields, supply of gas will be decided through open competitive bidding.

iii. There shall be no sectoral priority and the existing as well as new customers shall be treated equally.

iv. The bids shall be based on the price and shall be awarded to the highest bidder. In order to ensure higher monetization NOCs shall fix a minimum reserve price equal to the price of non-APM gas for the particular region, as notified by the Government from time to time.

v. An advertisement / NIT and e-Tender will be brought out for such additional quantity of gas available from small and isolated fields from NOCs mentioned in 3 (ii) above in at least one local language daily & one national daily mentioning inter alia the quality, tentative date of availability, compression charges (if any), duration of availability, quantity, location and delivery point of the gas field. Detailed information on the evaluation criteria along with broad salient features of Gas Sale/Transportation Agreement (as applicable) to be executed shall also be made known.

vi. In view of limited life of the field the prospective customers shall also be advised to explore maintenance of dual fuel capability, if so warranted.

vii. In addition to the price bid, the bid submitted by the applicants shall also indicate the quantity of gas required and date of off take of gas.

viii. Applicants may be asked to furnish other financial/operational/commercial details as deemed fit.

ix. NOCs shall also furnish all information sought by applicants during the pre-bid conference.

x. In order to ensure early monetization, only such projects shall be selected that are ready to offtake gas within 90 days from the date of readiness indicated by the NOCs.
xi. In case of multiple applicants quoting the same price, the gas will be first fully allocated to the applicant who indicates the earliest date of offtake. If more than one applicant indicates the same date of offtake, it will be allocated to all such applicants in proportion to their requirement. Allocation letters will be issued to such applicants and Gas Supply Agreements will be concluded with successful applicants. If any surplus gas is left after such allocation then applicants with second highest price bid can be considered, and the process shall be repeated until all the gas is exhausted.

xii. All applicants, without relaxation of any kind whatsoever, are to furnish Security Deposit (SD) as part of the Bid to cover minimum six weeks Gas cost in form of either:

a. Unconditional Irrevocable Bank Guarantees (BGs) (six separate BGs each covering 1 week of cost of gas allocated)

OR

b. Irrevocable Letter of Credit with instructions which allow the beneficiary to perform multiple part encashment.

Such SD shall be issued by a scheduled/nationalized bank. The Security Deposit/s should be valid for at least one year from the date of opening of bids or for a period of six months beyond the promised date of offtake, whichever is later. It should be ensured that funds can be realised on a weekly basis in the event of delay in utilization of gas as per the offtake date stated by the customer in the bid document. The delay should be attributable to delay on the part of the customer. After retaining the pro-rata amount for the actual number of days delayed from the SD amount, the balance amount shall be refunded to the customer. In case of allocation lesser than that required by the applicant, this SD shall be moderated to the actual allocation level. The copy of SD shall also be communicated to the banker (of the customers providing the SD) to ensure that SD is in order. These provisions shall be adequately and a priori be explained to the customers and written consent for these conditions will be obtained from the customers.
xiii. In case of delay by customer beyond six weeks, the allocation need not be cancelled provided the customer provides additional SD for a further period of 6 weeks on the same terms and conditions as in para 3(xii). In case it is not provided within seven days from the expiry of the first 6 week period, the allocation to that customer shall stand cancelled and gas can be allotted to the applicant with second highest price bid, or a new bid can be invited if no valid prior bids are available.

xiv. The final allocation of gas made shall be hosted on the company’s website and also communicated to MoP&NG.

xv. Cases not covered under these guidelines, if any, may be referred to Government for a decision.

xvi. In case gas production from a field exceeds 0.1 mmcmd after the initial allocation, the matter shall be brought to the notice of MoP&NG for further orders.

xvii. The applicants shall be informed that in case the overall production from the small/isolated field increases beyond 0.1 mmcmd and the field gets connected to the grid at a later stage, the existing customers shall be assured of domestic gas supply only for a period of one year from such connection to the grid. Thereafter, the gas shall be allocated as per prevailing gas utilisation policy of Government of India, in case there is unfulfilled gas demand from a higher priority customer on the grid.

xviii. In case the production increases to a higher level than initially expected/advertised as part of the buildup (but remains less than 0.1 mmcmd) and is expected to remain so on a sustained basis, the additional gas can be offered to existing allottees up to the requirement indicated in their bids, and thereafter offered to others.

xix. In case of decrease in production from a particular field, supplies would be cut on a pro-rata basis for all the customers being supplied from that particular field.

xx. In case of reservoir failure, the request for supply of gas to customers of that reservoir shall be given priority in the bidding process for supply of new /
additional gas from a nearby field. Such existing customers may participate in the bidding process or match the highest price in the bidding process. Such existing customers shall also give an undertaking to lay the pipeline and any other required infrastructure at their own expense for taking gas from the nearby field.

xxi. In case of revision in price of Non-APM gas in future to a level higher than what is being paid by customer/s, the NOCs shall revise the price and charge the higher notified non-APM price from the date of such revision.

xxii. NOCs shall regularly send a status report to MoP&NG on the fields that are proposed to be allotted before and after the allotment and MoP&NG reserves the right to allot gas outside this policy.

xxiii. The guidelines for selection of customers for domestic gas available from small/ isolated fields dated 16.01.2012 will be superseded from the date of issue of these guidelines.

****
Gas Rules 1959 and the Articles of the Production Sharing Contract referred to above.

52) To put it clear, both in terms of the Gas Utilization Policy and the Production Sharing Contract, Government in the capacity as an Executive of the Union can regulate and distribute the manner of sale of Natural Gas through allotments and allocation which would sub-serve the best interest of the country.

53) At the outset, it is to be noted that the price determined by the Government is not the subject matter of either the Company Application nor is it an issue which arises out of the impugned judgment. There is no duly constituted proceeding where any challenge has been laid to Government Policy, price fixation, grant or refusal of approval. Further, without such a proceeding in existence and without NTPC being a party in the present proceedings, any issue touching upon the validity of price fixation or price formula does not arise.

54) The price of $ 4.20/mmbtu is based on the formula approved by the Government under its powers pursuant to the
terms of the PSC. The policy of the Government is not under challenge or adjudication before the Court.

55) Mr. Gopal Subramanium, learned Solicitor General explained that up to early 1990s, prior to NELP and pre-NELP years, gas was being produced only from the fields operated by the Government companies, viz., ONGC and OIL, out of blocks which were given to these companies by the Government on nomination basis. Such gas was subjected to administered price regime. This was because, firstly, the fields were given on nomination basis and not on competition basis and secondly, to the Government companies which are subject to directions of the Government. Government, at that time, was guided primarily by the needs of the consumers who naturally liked to get the gas as cheap as possible. Therefore, the basis for Administered Price Mechanism (APM) pricing was cost-plus. Cost of production plus marginal profits as may be determined by Government was the sale price. Fields were given to Government-owned companies on nomination basis till early 1990s. There was, however, the problem of augmenting the production. Exploration and Production was at the core of
energy security and hence it was decided to open the fields to Private Sector investment. During mid-1990s, known as pre-NELP years, private investment was sought on competition basis and certain blocks were awarded to them under a Production Sharing Contract. The pricing formula was specifically mentioned in such contracts. This was a major departure from a cost-plus or APM regime. It was thought that without this, private investment will not take place. Pre-NELP regime was further improved to NELP regime. Sourcing of investment, technology, and efficient operations from companies within the country and from outside on a level playing field with domestic public sector companies was the main feature of the NELP regime and, therefore, the 'arm's length' price, which is another name for market price, was introduced in the PSCs of NELP. Exploration and production of oil and gas is associated with considerable risk and no investment would have come if product prices were subjected to cost-plus or administered price regime. So, the NELP pricing regime provides for arm's length price which is another name for market price. But since the gas market is not fully
developed unlike markets for crude oil, it is stipulated in the PSC that there will be a formula or basis for the determination of the prices which shall be approved by the Government prior to sale and for granting this approval, Government cannot be arbitrary but shall take into account the prevailing policy, if any, on pricing of natural gas, including any linkages with traded liquid fuels. The relevant PSC provisions in NELP-I which guide the pricing of KG D-6 gas, are as follows:

"Article 21.6.1 - The Contractor shall endeavour to sell all Natural Gas produced and saved from the Contract Area at arms-length prices to the benefit of Parties to the Contract.

Article 21.6.2 - Notwithstanding the provision of Article 21.6.1, Natural Gas produced from the Contract Area shall be valued for the purposes of this Contract as follows:

(a) Gas which is used as per Article 21.2 or flared with the approval of the Government or re-injected or sold to the Government pursuant to Article 21.4.5 shall be ascribed a zero value;

(b) Gas which is sold to the Government or any other Government nominee shall be valued at the prices actually obtained, and

(c) Gas which is sold or disposed of otherwise than in accordance with paragraph (a) or (b) shall be valued on the basis of competitive arms-length sales in the region for similar sales under similar conditions.

Article 21.6.3 - The formula or basis on which the prices shall be determined pursuant to Articles 21.6.2(b) or (c) shall be approved by the Government prior to the release of Natural Gas to the consumer/buyer. For granting its approval Government shall take into account the prevailing
policy, if any, on pricing of Natural Gas including any linkages with traded liquid fuels, and it may delegate or assign this function to a regulatory authority as and when such an authority is in existence.

It is further pointed out that in accordance with this approach, Government asked the Contractor to submit a formula on arm’s length basis. EGOM was constituted by the Government of India in August, 2007 which looked into the pricing and utilization of gas in terms of the Government’s rights and obligations under the PSC. RIL submitted a formula based on Arm’s length principle, having obtained quotations from users of gas. The proposal of RIL was examined by Committee of Secretaries (COS) and later by PM’s Economic Advisory Council. EGOM, assisted by their views, approved a newly suggested formula with certain modifications, on 12/09/2007. The price formula approved by the EGOM which is to be applicable uniformly to all sectors is as follows:

Price (in US$ per mmbtu) = 2.5 + (Crude Price 0.15 - 25)

56) It is further pointed out that the said exercise was undertaken by the government on an independent application of mind and government differed from the Contractor and the
contractor relented leading to a lower price being fixed at $4.2 instead of $4.32 claimed by the contractor. This formula is valid for 5 years as per the EGOM decision. According to the formula, the price may vary between US $ 4.2 to US $ 2.5/mmbtu during a period of 5 years. With crude prices of US $ 60/barrel or more, the price will be US $ 4.2/mmbtu; for US $ 25/barrel, it will be US $ 2.5/mmbtu. The formula, thus, imposes a ceiling on gas price at US $ 4.2/mmbtu. EGOM also decided on gas utilization policy in May, 2008, whereby the priority sector (i.e., consumers were defeated.

57) It is also brought to the notice of this Court that EGOM consisted of the Chairman (External Affairs Minister), who was a very senior Minister in the Council of Ministers, Ministers of the consuming sectors (such as Fertilizer and Power), the Minister from producing Sector (i.e., Petroleum & Natural Gas), and the Ministers in charge of Ministry of Finance, Law and Corporate Affairs, besides Planning Commission.

58) The pricing formula/basis as per the PSC has to be:

a) Firstly on arm's length basis,
b) Secondly, to the benefit of the contractor as well as the Government;
c) Thirdly, having linkages with traded liquid fuels, and
d) Fourthly, Government will have to perform Regulator’s function till one is appointed for the purpose.

59) The following table will indicate the pricing prevalent in India in respect of gases from other fields (excluding, of course, the gas from the Government companies’ fields, which are at administered prices):

<table>
<thead>
<tr>
<th>Field</th>
<th>Price (in USD/mmbtu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMU (weighted)</td>
<td>9.51</td>
</tr>
<tr>
<td>Rawa</td>
<td>3.5</td>
</tr>
<tr>
<td>Rawa Satellite</td>
<td>4.3</td>
</tr>
<tr>
<td>Lakshmi</td>
<td>4.75</td>
</tr>
<tr>
<td>Weighted average</td>
<td>5.28</td>
</tr>
</tbody>
</table>

60) The fixation of price arose before the EGOM only in August, 2007 when the price formula was considered. As shown above, all prices prevailing in India and abroad indicated a price which was in the region of $4.2. The Contractor had asked the Government to approve it for RNRL in 2006, but the Government rejected it as it was a related
party transaction. ‘Arms length sales’ has been defined in

**Article 1.8** of the PSC as follows:

"Arms Length Sales" means sales made freely in the
open market, in freely convertible currencies,
between willing and unrelated sellers and buyers
and in which such buyers and sellers have no
contractual or other relationship directly or
indirectly, or any common or joint interest as is
reasonably likely to influence selling prices and
shall, inter alia, exclude sales (whether direct or
indirect, through brokers or otherwise) involving
Affiliates, sales between companies which are
Parties to this contract, sales between governments
and government-owned entities, counter trades,
restricted or distress sales, sales involving barter
arrangements and generally any transactions
motivated in whole or in part by considerations
other than normal commercial practices."

61) Mr. Gopal Subramaniam reiterated that the submissions
made pertaining to the PSC are without prejudice to the stand
of the Government vis-à-vis NPC and also without prejudice
to the submission that this Court is not called upon in the
present proceedings to interpret the PSC.

62) In the case on hand, Price formula was approved by
Government in September, 2007 when it was expected that
gas would be produced from the basin in June, 2008. The
utilization of 40 mmcmd of gas was decided upon in the
months of May, 2008 in terms of sectors and units to which
gas would be supplied. As the production stabilized and further volumes of gas were known to become available, the government recently decided on the utilization of a further volume of 19.826 (+0.875) mmscmd on firm basis + 30.00 mmscmd on fallback basis in October, 2009. As emphasized earlier, it is up to the owner (the Government) to decide as to how to utilize the gas and at what price it can be sold and this has been done in accordance with Production Sharing Contract (PSC) which has a statutory basis. The PSC under Article 21.1 makes it clear that the Contractor is bound by the Government’s policy for utilization of natural gas.

63) The position is that under Article 21.6.1 of the PSC, the gas must be sold at an arm’s length price. Article 21.6.2 states that notwithstanding 21.6.1, if the gas is sold not to the Government or its nominee, it must be sold on the basis of “competitive arm’s length sales in the region for similar sales under similar conditions”. Importantly, Article 21.6.3 states that the basis on which such prices are to be determined shall be approved by the Government prior to the sale. In the present case, the formula submitted by RIL was looked into by
EGOM and examined by the Committee of Secretaries and PM's Economic Advisory Council. Due to this the price was determined to be $ 4.20, on the basis of the formula, price equivalent to 2.5 + (Crude Price-25)\textsuperscript{9,10}.

64) Another important consideration to be kept in mind is that the PSC overrides any other contract which may be entered into for the supply for gas. This principle flows from the following a) the natural resource, gas, is held by the Government and trust on behalf the people. Therefore, for legal purposes, the Government owns the gas till it reaches its final consumer; b) the PSC as the basis on which the contractor exercises his right over the supply of gas. Since it is the very basis of such a right the contractor does not have the competent power to give any rights which do not accrue to it under the PSC.

65) One of the main purposes of the PSC is pricing and distribution of gas. Though there is "freedom of trade" within the PSC, but this freedom is exercised by the contractor through a transparent bidding process and non-interference of the Government in the administration of gas supply. As a
matter of policy also, the Government must be free to
determine the valuation formula as well as the price.
Therefore, keeping these considerations in mind, the
Government's interpretation of the PSC as has been lucidly
demonstrated by the learned Solicitor General is valid. Thus
the Government has the power to determine valuation as well
as price for the purpose of the PSC.

66) It is also relevant to answer a fundamental question that
is whether the power of the Government under the PSC to
determine the valuation as well as pricing is the selling price
or is it the price only for the determination of the share of the
Government or is it the price at which RIL must sell the gas to
RNRL. The Division Bench of the High Court has held that
even if the price is to be determined by the Government, there
is no reason why RIL cannot sell the gas to RNRL at a lower
price than that. This position is unsustainable for two
reasons:

1) The power of the Government under the PSC is quite
broad and includes the power to regulate the price and
distribution of gas. Such a power requires
determination of price of supply and not only for the
determination of the share of the Contractor but also
for the Government. Thus keeping the objectives of
the PSC in mind, it would not be possible to restrict
the power of the Government.

2) The arrangement in pursuance of Clause 19 of the
Scheme must be suitable for the shareholders of RIL
as well. The position of RIL is that if gas is sold at
$2.3, that is at a price lower than the one decided by
the Government, there will be a disconnect between
the actual amount which the Contractor will earn from
the sale of gas and the amount which will be deemed
to have been earned by the Contractor under the PSC.
Due to this, the Contractor would be losing out on its
own profits which RIL claims would be halved. It is
also the grievance of RIL that the Court must take into
account the fact that the PSC provides for the
legitimate rights of the Contractor to earn certain
profits. If these profits are reduced to such a degree, it
would affect the interest of the shareholders of RIL.
provide complete protection to the natural resources as a trustee of the people at large.

86) RIL's right of distribution is based on the PSC, which itself is derived from the power of the Government under the constitutional provisions. Thus the very basis of RIL's mandate is the constitutional concepts that have been discussed by now, including Article 297, Articles 14 and 39(b) and the Public Trust Doctrine. Therefore, it would be beyond the power of RIL to do something which even the Government is not allowed to do. The transactions between RIL and RNRL are subject to the over-riding role of the Government.

87) It is relevant to note that the Constitution envisages exploration, extraction and supply of gas to be within the domain of governmental functions. It is the duty of the Union to make sure that these resources are used for the benefit of the citizens of this country. Due to shortage of funds and technical know-how, the Government has privatized such activities through the mechanism provided under the PSC. It would have been ideal for the PSUs to handle such projects exclusively. It is commendable that private entrepreneurial
efforts are available, but the nature of the profits gained from such activities can ideally belong to the State which is in a better position to distribute them for the best interests of the people. Nevertheless, even if private parties are employed for such purposes, they must be accountable to the constitutional set-up.

88) The statutory scheme of control of natural resources is governed by a combined reading of the Oil Fields (Regulation and Development) Act, 1948; the Petroleum and Natural Gas Rules, 1959; and Maritime Zones Act.

89) As pointed out earlier, the proper interpretation of PSC gives the power to the Government not only to determine the basis of valuation of gas, but also its price. According to Article 21 of PSC, before the contractor sells the gas, the price of such gas must be approved by the Government.

90) It has been argued by RNRL that the decision of the EGOM (Empowered Group of Ministers) does not apply to the rights of RNRL under the Scheme. This argument is based on the text of the decision which states that the pricing decided upon by EGOM is "without prejudice" to the rights of the
parties in the two cases pending before the Bombay High Court, i.e. RIL v. NTPC and RIL v. RNRL. This is contested by both the Government and RIL. This position of RNRL is unsustainable. As pointed out by RIL the right interpretation of “without prejudice” in the EGOM decision is that even though EGOM intended it resolution on pricing to apply to RNRL, it left the question of the rights of the parties accruing from the MoU, the Scheme or the interpretation of PSC to the court. In other words, the court is to determine whether the Government has the power to determine the valuation and pricing of the gas. This determination by the court is not affected by the EGOM decision, as it would depend solely on the interpretation of the provisions of the PSC itself. But once it is determined that the Government does have the power to determine the price of gas, EGOM’s decision regarding the price would be applicable. The same goes for the general gas utilization policy and the policy of the Government with regard to pricing. Therefore, once the PSC is read to give power to the Government to determine the price of gas, these policy statements will be applicable.
From the above analysis, the following are the broad sustainable conclusions which can be derived from the position of the Union:

1) The natural resources are vested with the Government as a matter of trust in the name of the people of India. Thus, it is the solemn duty of the State to protect the national interest.

2) Even though exploration, extraction and exploitation of natural resources are within the domain of governmental function, the Government has decided to privatize some of its functions. For this reason, the constitutional restrictions on the government would equally apply to the private players in this process. Natural resources must always be used in the interests of the country, and not private interests.

3) The broader constitutional principles, the statutory scheme as well as the proper interpretation of the PSC mandates the Government to determine the price of the gas before it is supplied by the contractor.
4) The policy of the Government, including the Gas Utilization Policy and the decision of EGOM would be applicable to the pricing in the present case.

5) The Government cannot be divested of its supervisory powers to regulate the supply and distribution of gas.

92) **Summary of our conclusions:**

**A. Question of Maintainability of the Company Application**

RNRL filed an application under the Companies Act arguing that GSMA put in place by RIL does not satisfy the Scheme of demerger. The Scheme under question was approved by the Company Court on the previous occasion under Sections 392 and 394. Therefore, contrary to RIL’s argument, Sections 392 and 394 are applicable.

Further, the power of the court under Sections 391 to 394 of the Companies Act is wide enough to make necessary changes for working of the Scheme. This power is specific to the facts and circumstances of the case at hand. Nevertheless, this power does not extend to making any substantial or substantive changes to the Scheme.
an arrangement must be suitable for the interests of the shareholders of RNRL as reflected by the MoU, and RIL; the obligation of RIL under the PSC; the national policy on gas including the decisions of EGOM and the Gas Utilization Policy; and the broader national and public interest.

D. Proper Interpretation of the PSC

The objective of the PSC inter alia is to regulate the supply and distribution of gas. Keeping this objective in mind, Article 21 of the PSC must be interpreted to give the power to the Government to determine both the valuation and price of gas. It is not feasible to restrict the power of the Government in such matters of national importance, especially when the governing contract, the PSC, also provides for it.

E. Role of the Government

In a constitutional democracy like ours, the national assets belong to the people. The Government holds such natural resources in trust. Legally, therefore, the Government owns such assets for the purposes of developing them in the interests of the people. In the present case, the Government owns the gas till it reaches its ultimate consumer.
A mechanism is provided under the PSC between the Government and the Contractor (RIL, in the present case). The PSC shall over-ride any other contractual obligation between the Contractor and any other party.

F. Relief

a) Though the Contractor (RIL) has the marketing freedom to sell the product from the contract area to other consumers, this freedom is not absolute. The price at which the produce will be sold to the consumer would be subject to government's approval. The tenure of such contracts can't be such that it vitiates the development plan as approved by the government. Therefore, the GSMA and the GSPA entered into with RNRL should fix the price, quantity and tenure in accordance with the PSC.

b) The EGOM has already set the price of gas for the purpose of the PSC. The parties must abide by this, and other conditions placed by the Government policy. The GSMA/GSPA deeply affects the interests of the shareholders of both the companies. These interests must be balanced. This balance cannot be struck by the court as the court does not have the
power under Sections 391-394 to create new conditions under the scheme. In view of the same, RIL is directed to initiate renegotiation with RNRL within six weeks the terms of the GSMA so that their interests are safeguarded and finalize the same within eight weeks thereafter and the resultant decision be placed before the Company Court for necessary orders.

c) While renegotiating the terms of GSMA, the following must be kept in mind:

1) The terms of the PSC shall have an over-riding effect;

2) The parties cannot violate the policy of the Government in the form of the Gas Utilization Policy and rational interests;

3) The parties should take into account the MoU, even though it is not legally binding, it is a commitment which reflects the good interests of both the parties;

d) The parties must restrict their negotiations within the conditions of the Government policy, as reflected inter alia by the Gas Utilization Policy and EGOM decisions.
and I.A. No. 1 are disposed of. No order as to costs.

With the above directions/observations, all the appeals

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Wholesale Gas Price Formation
PGCB STUDY GROUP 2
Foreword


We have decided to continue the publication of this IGU flagship report as a result of the great interest in the extensive research and analysis contained in the former reports. The 2012 and 2013 editions of the report can be downloaded at no cost from the IGU website - www.igu.org.

Historically, gas prices have not been in the news to the same extent as oil prices. This is changing as the share of gas in global energy consumption continues to increase, volumes of internationally traded gas are greater than ever before and different price formation mechanisms have had serious commercial implications both for producing and consuming nations.

The rapid growth in shale gas production in North America and fundamental shifts in LNG supply patterns across the global gas market continue to impact the intercontinental trade, as well as global supply, demand and price.

Natural gas is an abundant resource, it is environmentally friendly and cost-competitive, and should therefore play an important role in the mitigation of climate change in every region of the world. However, the way wholesale gas prices will be determined in the future will have a significant influence on sustainable market growth, especially in the power sector.

Promoting international understanding of natural gas pricing and wholesale gas price formation trends is important for the future success of the gas industry in both new and established gas regions. It is my hope that this publication will continue to serve as an example of how we all can benefit when vital information is carefully gathered, analysed and shared.

Any questions to this report can be addressed to the Chair of Study Group 2, Mike Fulwood of Nexant at mfulwood@nexant.com.

May 2014

Torstein Indrebo
Secretary General of IGU
2.4 ANALYSING THE RESULTS

In looking at the different price formation mechanisms, the results have generally been analysed from the perspective of the consuming country. Within each country gas consumption can come from one of three sources, ignoring withdrawals from (and injections into) storage – domestic production, imported by pipeline and imported by LNG. In many instances, as will be shown below, domestic production, which is not exported, is priced differently from gas available for export and also from imported gas whether by pipeline or LNG. Information was collected for these three categories separately for each country and, in addition, pipeline and LNG imports were aggregated to give total imports and adding total imports to domestic production gives total consumption. For each country, therefore, price formation could be considered in 5 different categories:

- Domestic production (consumed within the country, i.e. not exported)
- Pipeline imports
- LNG imports
- Total imports (pipeline plus LNG)
- Total consumption (domestic production plus total imports)

Each country was then considered to be part of one of the IGU regions, as described above, and the 5 categories reviewed for each region. Finally the IGU regions were aggregated to give the results for the World as a whole.

As well as collecting information on price formation mechanisms by country, information was also collected on wholesale price levels in each country. Comparisons of wholesale price levels, however, need to be treated with caution. As noted above, the wholesale price can cover different points in the gas chain – wellhead price, border price, hub price, city-gate price – so the comparison of price levels is not always a like for like comparison.

2.5 REPORT LAYOUT

Section 3 of the report covers the results of the 2013 survey and looks at the World level for the different categories – domestic production, pipeline imports, LNG imports, total imports and total consumption. Results at the individual regional level are then analysed followed by a discussion and analysis of wholesale price levels by region, price formation mechanism and country. Section 4 of the report provides a comparison of the results across all surveys to identify key trends and, similar to Section 3, covers the World level for the different categories, the individual regional level, changes in wholesale price levels, concluding with a special analysis of changes in the GOG category.

Section 3. 2013 Survey Results

3.1 INTRODUCTION

This section covers the results of the 2013 survey and comprises three parts:

- Results at the World level for the different categories – domestic production, pipeline imports, LNG imports, total imports and total consumption;
- Results for each individual region for total consumption;
- An analysis of wholesale price levels by region, price formation mechanism and country.

3.2 WORLD LEVEL RESULTS

3.2.1 Domestic Production

Domestic production in 2013 accounted for some 72% of total world consumption – around 2,495 bcm.

Figure 3.1. World Price Formation 2013 - Domestic Production

GOG has the largest share in domestic production at 44%, totalling some 1,108 bcm, with North America accounting for 784 bcm – almost three quarters of the total. The next largest share is in the Former Soviet Union, where the sales of gas in Russia to the large eligible customers by either Gazprom or the independent producers is classified as GOG (see the section on Former Soviet Union in the regional analysis for further discussion), accounting for some 186 bcm. The balance is in Europe at 79 bcm – principally the Netherlands and UK, Asia Pacific at 39 bcm – Australia and New Zealand, and Latin America at 20 bcm – mainly Argentina.
OPE has a relatively small share in domestic production at 5%, totalling some 126 bcm, with 58 bcm in Asia—Pakistan, China and India, 35 bcm in Asia Pacific—mainly Thailand, 17 bcm in Latin America—Brazil and Colombia, 12 bcm in Europe—mainly some residual contracts in the UK plus Germany, Norway and small amounts elsewhere, and under 4 bcm in Africa, mainly Tunisia.

The regulated categories—RCS, RSP and RBC—in total account for almost half of domestic production, with RCS principally in Asia and the Former Soviet Union, RSP principally in the Middle East and Asia Pacific and RBC in the Former Soviet Union, Africa, Latin America and the Middle East. A more detailed breakdown of the regulated categories is contained in the regional analysis sections.

3.2.2 Pipeline Imports
Pipeline imports in 2013 accounted for some 19% of total world consumption—around 671 bcm.

LNG imports in 2013 accounted for some 9% of total world consumption—around 314 bcm.

3.2.3 LNG Imports
LNG imports are split 71% OPE and 29% GOG.

OPE at some 224 bcm is mostly Asia Pacific—Japan, Korea and Taiwan, followed by Europe—mainly Spain, France and Italy, and Asia—China and India.

GOG totals some 90 bcm and can be divided into imports into countries such as the UK, USA, Canada and Mexico, where the domestic market pricing mechanism is GOG, and all other countries which are importing spot and short term priced LNG cargoes, which is almost every other LNG importing country—Japan and Korea taking the largest shares.

3.2.4 Total Imports
Total imports in 2012 accounted for some 23% of total world consumption—around 963 bcm.
Table 3.2. World Price Formation 2013 – Total Consumption

<table>
<thead>
<tr>
<th>Region</th>
<th>OPE</th>
<th>GOG</th>
<th>BIM</th>
<th>NET</th>
<th>RCS</th>
<th>RSP</th>
<th>REC</th>
<th>NP</th>
<th>NK</th>
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<td>0.0</td>
<td>904.9</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>6.1</td>
<td>0.0</td>
<td>911.0</td>
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<td>280.4</td>
<td>0.0</td>
<td>0.0</td>
<td>10.0</td>
<td>9.7</td>
<td>0.0</td>
<td>6.5</td>
<td>0.0</td>
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<td>3.3</td>
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<td>10.6</td>
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<td>62.3</td>
<td>0.0</td>
<td>4.0</td>
<td>0.0</td>
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<td>35.5</td>
<td>7.3</td>
<td>16.8</td>
<td>10.5</td>
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<td>97.5</td>
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<td>4.9</td>
<td>1.0</td>
<td>1.6</td>
<td>1.4</td>
<td>97.9</td>
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<td>0.0</td>
<td>114.9</td>
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<td>7.7</td>
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<td>0.0</td>
<td>328.8</td>
<td>13.2</td>
<td>6.7</td>
<td>0.0</td>
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<td>Total</td>
<td>670.8</td>
<td>1,492.1</td>
<td>125.7</td>
<td>18.3</td>
<td>414.0</td>
<td>485.7</td>
<td>244.7</td>
<td>30.1</td>
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<td>3,481.4</td>
</tr>
</tbody>
</table>

3.3 REGIONAL LEVEL RESULTS

3.3.1 North America
North America consumption in 2013 was some 26% of total world consumption – around 911 bcm.

Figure 3.6. North America Price Formation 2013

GOG clearly dominates the North American market with fully liquid trading markets in the USA and Canada and the wholesale price in Mexico being referenced to prices in the USA. The small amount of NP is in Mexico where Pemex uses the gas in regasification process and for enhanced oil recovery.

3.3.2 Europe
European consumption in 2013 was some 15% of total world consumption – around 534 bcm.

Figure 3.7. Europe Price Formation 2013

GOG is now the largest share in Europe, standing at 53%, totalling around 280 bcm. Some 79 bcm is domestic production, mainly Netherlands and UK, with some 186 bcm being pipeline imports, predominantly all the northwest European countries, but also increasingly the central European countries of Poland, Czech Republic, Slovakia, Austria and Hungary. LNG imports account for some 14 bcm, over half of which are into the UK, with the remaining quantities being largely spot cargoes into the more traditional LNG importing countries.

OPE is now down to 42%, totalling around 227 bcm, and is predominantly pipeline imports (186 bcm) into almost every European country, apart from the UK, Netherlands, Denmark and Ireland, followed by LNG imports (29 bcm) into Spain, France, Italy, Turkey, Portugal and Greece, with domestic production (12 bcm) in a variety of countries principally Germany, Norway and the UK legacy contracts.
3.4 WHOLESALE PRICE LEVELS

In considering wholesale price levels across regions, countries or price formation mechanisms, it should be noted that the wholesale price can cover different points in the gas chain – wellhead price, border price, hub price, city-gate price – so the comparison of price levels is not always “like for like”. Comparisons, therefore, should be treated with caution and taken only as a broad indication.

3.4.1 Price Levels by Price Formation Mechanism

The figure below shows a snapshot of wholesale prices for 2013 by price formation mechanism – a comparison over the six surveys is shown in section 4.

Figure 3.14. Wholesale Prices in 2013 by Price Formation Mechanism

The highest prices, by some margin, are in the OPE category, at almost $11.00 per MMBTU, more than double the price of $5.27 for the GOG category, which is only slightly above the RCS category. The price level in the GOG category is heavily influenced by the relatively low prices in 2013 in North America, although they were above the 2012 levels.

In the regulated categories, it can be seen that the prices in the RCS category are higher than those in RSP and, in turn, RBC – which were the lowest at just under $1.50 per MMBTU in 2013.

3.4.2 Price Levels by Region and Country

The figure below shows a snapshot of wholesale prices for 2013 by IGU region – a comparison over the six surveys is shown in section 4.

Figure 3.15. Wholesale Prices in 2013 by Region

Wholesale prices can obviously vary significantly from year to year, but the top two regions are Asia Pacific followed by Europe – both with average prices over $11.00. OPE remains the primary pricing mechanism in Asia Pacific and still a key mechanism in Europe. Despite increasing prices in North America are still below those in Asia, Latin America and the Former Soviet Union. Only the Middle East and Africa, where prices are often held down to the cost of production or below as a subsidy, are average prices lower than in North America. These conclusions are further reinforced when wholesale prices are viewed at the country level. The figure below includes all countries with consumption greater than 8 bcm in 2013.

The highest wholesale prices in 2013 were found in the largely LNG dependent countries in Asia Pacific – South Korea, Japan and Taiwan – plus Singapore. These were followed by a whole host of European countries including Turkey, France, Italy and Germany. Prices in the UK and the Netherlands were lower than in the main gas importing countries in Europe, but slightly above those in China, where prices increased less than in previous years. Spot prices in the USA, Canada and Mexico remained lower than in a whole range of countries, where prices had previously been well below North American prices. These included countries such as India, Indonesia and Malaysia. Prices in Russia were slightly below prices in the USA, having been above them in 2012. At the bottom of the chart were generally countries where wholesale prices were subject to some form of regulation – largely Middle East and African countries – and often below the cost of production and transportation.
ANNEXURE-IX
From: Kapur, Atin <atin.kapur@platts.com>
Sent: Monday, June 2, 2014 3:00 PM
To: 'rkjaipuriyar@ppac.org.in'; 'rkJ04874@GAIL.CO.IN'
Subject: Re: GCV Vs. NCV

Dear sir,

I can confirm that Platts uses GCV for HH, NBP and Japan.

Kind regards,

Atin Kapur
Platts, A Division of McGraw Hill Financial
Mobile: +6591838500

From: R K Jaipuriyar [mailto:rkjaipuriyar@ppac.org.in]
Sent: Monday, June 02, 2014 04:54 PM
To: Kapur, Atin
Subject: GCV Vs. NCV

Dear Atin,

As discussed please confirm about the Prices of Henry Hub and NBP, whether these are on GCV (Gross Heating value) on NCV (Net Heating Value) basis.

Please respond immediately.

With regards,

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