



Petroleum and Natural Gas Regulatory Board
New Delhi
Tariff Order

Subject: Final initial unit natural gas pipeline tariff under the provisions of the Petroleum and Natural Gas Regulatory Board (Determination of Natural Gas Pipeline Tariff) Regulations, 2008.

Name of Entity: GAIL (India) Limited (“GAIL”)

Name of Pipeline: HVJ-GREP-DVPL (“HVJ”) &
DVPL/GREP Upgradation (“HVJ Upgradation”)

Ref No. :TO/2019-20/07

Dated :04th June 2019

1. Regulatory Framework

- 1.1. In terms of Section 22 of the Petroleum and Natural Gas Regulatory Board Act, 2006 (“PNGRB Act”), the Board is entrusted with the responsibility of determining the natural gas pipeline (“NGPL”) tariff to be charged by the entities laying, building, operating or expanding a natural gas pipeline before the appointed day.

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1.2. The methodology for determination of NGPL tariff has been specified in the relevant provisions of the PNGRB (Determination of Natural Gas Pipeline Tariff) Regulations, 2008 ("Tariff Regulations") notified on 20.11.2008. Under the provisions of these regulations, PNGRB is to determine the initial unit NGPL tariff on a provisional basis ("provisional tariff") first and then finalize the same ("final tariff") considering the actual costs and data at the end of the financial year on the basis of audited accounts. The transportation tariff is determined using the Discounted Cash Flow ("DCF") method using actual and projected pipeline Capital Expenditure ("Capex") and Operating Expenditure ("Opex") in line with provisions of Tariff Regulations, over the entire economic life of the pipeline thus arriving at a single levelized transportation tariff. If the length of the pipeline is more than 300 kms, the recovery of the transportation tariff is apportioned across such zones of 300 kms each resulting in zonal tariff where the zonal tariff of a later zone is higher than that of an earlier zone.

2. Authorization and Capacity Determination

2.1. **HVJ-DVPL-GREP ("HVJ"):** PNGRB issued terms and conditions for acceptance of Central Government authorisation for HVJ vide letter dated 19.04.2010, under Regulation 17 (1) of the PNGRB (Authorizing Entities to Lay, Build, Operate or Expand Natural Gas Pipelines) Regulations, 2008 ("Authorization Regulations") with a total length of 4222 Km and capacity of 57.3 MMSCMD.

Part-(A): Hazira-Vijaipur-Jagdishpur-GREP (including spur lines connected to HVJ-GREP line) natural gas pipeline sub-system, with a length of 3452 kms and capacity of 33.4 MMSCMD (provisional capacity). HVJ was commissioned between August 1987 to May 1989 and GREP was commissioned on 31.12.1997. HVJ has compressors at Hazira, Vaghodia, Jhabua, Khera, Vijaipur and Auraiya.

Part-(B): Dahej-Vijaipur Pipeline (DVPL) (including spur lines connected to DVPL) natural gas pipeline system, with a length of 770 kms and capacity of 23.9 MMSCMD (provisional capacity). DVPL was commissioned on 31.03.2004. DVPL has compressors at Vaghodia, Jhabua, Khera & Vijaipur.



PNGRB vide letter no. MI/NGPL/GGG/Capacity/GAIL dated 14.11.2012 declared the capacity for HVJ from 20.11.2008 to 2011-12 as 53 MMSCMD inclusive of System Use Gas (SUG) of 1.22 MMSCMD. HVJ Upgradation capacity for the subsequent years is yet to be determined.

2.2. **DVPL-GREP Capacity Augmentation (“HVJ Upgradation”)**: PNGRB issued provisional terms and conditions for acceptance of Central Government authorisation for HVJ Upgradation vide letter dated 14.02.2011, under Regulation 17(1) of the Authorization Regulations with a total length of 1280 Km and design capacity of 54.0 MMSCMD (provisional capacity) and compressors at Jhabua, Vijaipur, Kailaras & Chhainsa. Capacity for HVJ Upgradation has not yet been determined.

Subsequently, PNGRB vide letter dated 26.10.2015 approved laying of Vijaipur-Auraiya-Phulpur spurline from HVJ Upgradation pipeline in terms of Regulation 21(3) of Authorisation Regulations.

2.3. The provisional capacity and length as per the Authorization Letter for HVJ and HVJ Upgradation are as follows:

Pipeline	Total Capacity (MMSCMD)	Common Carrier (MMSCMD)	Length (KM)
HVJ	57.30	0.00*	4222
HVJ Upgradation	54.00	13.50	1280

*Clause no.4 of Authorisation letter dated 19.04.2010 inter alia states that “As per the provisions specified in clause (j) of sub-regulation (6) of Regulation 5 of the said Regulations, in case any firm contract expires in future, the available capacity thereby created shall be converted to common carrier with a ceiling of 33%. Thus, the capacity getting spare with the firm contract expiring in future shall be available for use on common carrier basis by any third party on open access and non-discriminatory basis.”

3. Provisional Transportation Tariff Order

3.1. The provisional transportation tariff as proposed by GAIL and levelized tariff and its zonal apportionment as approved by PNGRB are as follows:

3.1.1. Provisional Tariff Proposed by GAIL

3.1.1.1. HVJ : - Rs.35.39/mmbtu, upto March 2010.

3.1.1.2. Tariff for combined system including the DVPL/GREP Upgradation: - Rs.62.12/mmbtu, from April 2010.

3.1.2. Levelized Tariff and Zonal Apportionment approved by PNGRB: -

	(Rs. / MMBTU on GCV basis)		Tariff Order
Levelized	25.46	53.65	TO/02/2010 dated 19.04.2010
	Zonal Tariff		
Zone	HVJ	HVJ Upgradation	TO/03/2010 dated 09.06.2010
Zone 1	19.83	42.46	
Zone 2	22.48	48.14	
Zone 3	25.10	53.76	
Zone 4	27.70	59.32	

4. Details of final tariff filing by GAIL

- 4.1. GAIL vide letter dated 17.05.2018 submitted final combined tariff for HVJ and HVJ Upgradation (“Integrated HVJ”) based on actual financial data upto FY 2016-17, considering economic life upto 26.03.2035.
- 4.2. In view of completion of FY 2017-18, PNGRB vide letter dated 19.09.2018 asked GAIL to submit tariff filing considering actual data upto FY 2017-18. In response, GAIL vide email dated 12.10.2018 submitted the tariff for Integrated HVJ, considering economic life upto 26.03.2035. Subsequently, PNGRB vide email dated 12.10.2018 asked GAIL to submit the separate spreadsheet for both the networks as well. In response, GAIL vide email dated 16.10.2018 submitted separate spreadsheet for both the networks i.e. for HVJ and for HVJ Upgradation.
- 4.3. **Salient features of GAIL’s tariff filing are as follows:**

Particulars	HVJ	HVJ	HVJ Upgradation	Integrated HVJ
Economic life considered upto	14.08.2022	26.03.2035	26.03.2035	26.03.2035
Final Tariff as per GAIL (Rs. mmbtu/GCV) w.e.f. 01.04.2019 onwards	175.20	114.79	79.28	97.04
Number of working days in a year	345	345	345	345
Annual inflation rate	4.58%	4.58%	4.58%	4.58%
Capex (including CWIP) over economic life (Rs. in Crore)	9,399.24	11,184.24	13,524.18	24,708.42

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Particulars	HVJ	HVJ	HVJ Upgradation	Integrated HVJ
Opex over economic life (Rs. in Crore)	13,988.98	37,054.99	36,904.94	73,959.93
Unaccounted gas loss (0.30% of the throughput) over economic life (Rs. in Crore)	1,121.69	2,921.55	2,642.68	5,563.94*
Working Capital as at end of economic life (Rs. in Crore)	561.73	502.68	457.26	960.83*
Line pack (Rs. in Crore)	47.74	47.74	37.44	85.18
Terminal Value (Capex + Working Capital) at the end of economic life (Rs. in Crore)	6,240.98	3,263.77	5,578.24	7,957.49#

*difference in total is on account of average calorific considered in integrated in place of weighted average calorific value.

difference in total is on account of depreciation calculated on the assets of HVJ which were fully depreciated.

In support of its tariff claim, GAIL has submitted copies of audited trial balances for various sites i.e. Auraiya, Vijaipur, Hazira, Vadodara, Jhabua, Vaghodia, Khera, NCR, Kailaras, Agra and Chainsa for the period from FY 2008-09 to FY 2017-18 and CA certificates for year-wise actual expenses for the period 01.10.2008-31.03.2009 to FY 2017-18.

5. Details of public consultation exercise for determining Final Tariff.

5.1. PNGRB issued Public Consultation Document ("PCD") for HVJ and HVJ Upgradation on 18.10.2018, highlighting salient features of GAIL's tariff proposal with the following timelines:

5.1.1. Comments of stakeholders by 03.11.2018.

5.1.2. Response by GAIL on comments of other stakeholders by 13.11.2018.

5.1.3. Open house to be held on 19.11.2018.

5.2. In response to PCD, Gujarat State Fertilizers & Chemicals Limited (GSFC), The Fertiliser Association of India (FAI), East West Pipeline Limited (EWPL), Gujarat

State Petronet Limited (GSPL), H-Energy Gas Marketing Private Limited (H-Energy), Gujarat Narmada Valley Fertilizers Company Ltd. (GNFC), Gujarat Alkalies and Chemicals Limited (GACL) and Indian Oil Corporation Limited (IOCL) submitted their comments. GAIL submitted its response vide letter dated 13.11.2018. Subsequently, PNGRB received another letter dated 23.11.2018 from FAI.

- 5.3. Open House (“OH”) originally scheduled for 19.11.2008, was held on 26.11.2018, to hear all the stakeholders (including the pipeline owning entity). GSPL, EWPL, IOCL, Shell, ONGC and GAIL attended the OH.
- 5.4. During the OH, PNGRB asked GAIL to provide its response on various issues raised by stakeholders. GAIL through a presentation explained/submitted its response. During the OH, PNGRB observed that comments may be sought from the stakeholders on whether to determine tariff considering the HVJ and HVJ Upgradation separately or for the Integrated HVJ. Accordingly, the Board asked GAIL to submit its inputs on the same by 27.11.2018. Concluding the OH, stakeholders were informed to submit their further comments, if any and asked GAIL for its response on various points raised during OH by 29.11.2018.
- 5.5. GAIL vide letter dated 27.11.2018, submitted justification for single tariff for the Integrated HVJ. GSPL vide letter dated 29.11.2018 submitted additional comments. In terms of MOM, GAIL vide letter dated 29.11.2018 submitted its response.
- 5.6. PCD on Tariff Structure for HVJ and HVJ Upgradation (“tariff structure”) along with GAIL’s letter dated 27.11.2018 was webhosted by PNGRB on 29.11.2018. Comments from stakeholders on tariff structure and GAIL’s response have been discussed under the relevant paras hereinafter.

6. Important aspects of the verification of the tariff filings by GAIL

6.1. Economic Life of Pipeline

- 6.1.1. GAIL in the tariff filing, has considered economic life of HVJ, HVJ Upgradation and Integrated HVJ as under:



Pipeline/System	Economic Life Upto
HVJ	14.08.2022
HVJ Upgradation	26.03.2035
Integrated HVJ	26.03.2035

6.1.2. Entity & Stakeholders' comments:

6.1.2.1. GSPL (letter dated 02.11.2018)

- The initial economic life of HVJ pipeline was till August, 2012. However, PNGRB in the interest of consumers while determining provisional tariff of HVJ pipeline on 19.04.2010 i.e. more than 2 years before ending of initial economic life, have extended the economic life of HVJ pipeline for a block of another 10 years i.e. up to August, 2022.
- By considering economic life up to August, 2022 in Final Tariff Determination, customers/shippers of HVJ pipeline would be required to pay higher tariff as can be evident from the GAIL's proposal for final tariff. Accordingly, in the interest of consumers of HVJ pipeline, PNGRB in terms of Regulation 2(1)(e) of PNGRB Authorization Regulations may consider extending economic life of HVJ pipeline for another 10 years i.e. upto August, 2032 for finalisation of tariff. Else, consumers of HVJ would be forced to accept Integrated Tariff of Integrated HVJ, which was earlier opposed by these customers.

Response by GAIL (letter dated 13.11.2018)

The economic life has been considered in line with economic life already considered in the provisional tariff order.

6.1.2.2. H-Energy (letter dated 02.11.2018)

GAIL in the tariff filing has considered economic life of integrated network from 20.11.2008 to 26.03.2035, for HVJ from 20.11.2008 to 14.08.2022 and for HVJ Upgradation from 27.03.2010 to 26.03.2035. Economic life should be in line with definition and further economic life of Integrated pipeline as well as of Individual pipelines as considered by GAIL would undergo change as per above philosophy.

Also, economic life needs to be elaborated further as the starting date of economic life period is not mentioned for all these pipelines and the foundation for considering that date as starting date.

In this regard reference is drawn towards regulation 2 titled "Definitions" of Natural Gas Pipelines Authorization Regulations. This regulation defines economic life as:

(e) "economic life" of natural gas pipeline shall be a period of twenty five years commencing from-

(i) the date of grant of authorization to the entity by the Board in case an entity proposed to lay, build or expand a natural gas pipeline on or after the appointed day;

(ii) the start-up date of the commencement of physical activities of laying, building or expanding the natural gas pipeline in case an entity started up laying, building or expanding a natural gas pipeline before the appointed day and the entity has either an authorization from the Central Government before the appointed day or an authorization from the Board under these regulations.

Response by GAIL (letter dated 13.11.2018)

As per Attachment 1(g), 1(h) and 1(i) of Schedule A of Tariff Regulations, the economic life of a pipeline system has been considered to be 25 years starting from the commissioning of the pipeline.

In line with the above, even PNGRB's Tariff Order dated 19.04.2010 has considered the economic life of HVJ pipeline and HVJ Upgradation from the date of commissioning of the pipeline system and this is being uniformly followed by PNGRB for all pipelines. The same has been adopted in this tariff filing.

6.1.2.3. GSPL's Additional submission (letter dated 29.11.2018)

- GAIL itself in its submission dated 12.10.2018 to PNGRB requested to determine tariff on integrated basis, as mentioned in the PCD have extended the economic life of DVPL-GREP up gradation 14th August, 2022 to 26th March, 2035 i.e. extended for approx. 13 years. Also, as mentioned in PCD, GAIL has submitted Future Capex & Future Opex required for operation of HVJ-DVPL-GREP Up Gradation for additional 13 years beyond August, 2022 i.e. up to March, 2035.

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- In view of above submission of GAIL, economic life of HVJ-DVPL-GREP up gradation can be extended for 10 years as per PNGRB Regulations.
- The above shall support / benefit consumer for transportation of natural gas.

6.1.2.4. **GAIL's response on extension of economic life of HVJ pipeline by 10 years**

During the OH, GAIL was asked to submit its detailed response on extension of economic life of HVJ by 10 years i.e. upto 2032. GAIL vide letter dated 10.12.2018 submitted its comments, which inter alia stated as under:

“With regard to activities pertaining to integrity assessments and action in response thereof, such as pipeline repair / replacement, they will become applicable at each cycle of activities at defined intervals based on FFS studies. The cost of refurbishment / replacement will depend on the type and extent of deterioration detected in integrity studies. Since it is a continuous process, these will continue up to 2022 and beyond.

With regard to studies for determining actions in respect of change in Location Class and other critical risks, it is expected to take 12-18 months. The actions as a result of these studies may include laying of parallel lines, replacement of sections or alternate protection measures, etc. and accordingly the cost and timeline of the same can be estimated after the studies are fully completed in the said time period.

With regard to studies in continuation of existing compressors or otherwise, reputed consultant may be engaged, as necessary. The expected timeline, including engagement of consultant and completion of studies, is around 18 months. The specific cost and time for implementing the necessary action can be estimated only after studies are fully completed.

Meanwhile, in terms of regulatory provision, given the current condition of the HVJ-GREP-DVPL and its ongoing compliance with integrity / regulatory requirements, the Board may like to consider extending economic life of HVJ by another 10 years, i.e. upto 2032.

The specific / projected costs entailed in this regard can be provided after about 18 months, which may kindly be considered by PNGRB during the next tariff determination exercise.”

6.1.3. PNGRB's Ruling:

As per proviso to regulation 2(1)(e) of Authorisation Regulations which states that, "Provided that at the end of the aforesaid period of twenty five years extension of the economic life may be considered by the Board for a block of ten years at a time depending on the satisfactory compliance of the service obligations under these regulations and on such terms and conditions, as it may deem fit at that point in time."

Currently, approximately 42 months are remaining before the end of existing economic life of HVJ, therefore, considering the stakeholders comments, submissions made by GAIL, attachment 1(j) of schedule A to Tariff Regulations provides for making assumptions, extension of economic life of HVJ by 10 years has been assumed i.e. up to 14.08.2032. In case of Integrated HVJ, economic life has been considered as per GAIL's submission i.e. till 26.03.2035. Economic life of HVJ upgradation has been taken as 25 years from the date of first operation i.e. 27.03.2010.

Details of economic life considered for determination of final tariff is as under:

Pipeline/System	Considered by GAIL	Considered by PNGRB
HVJ	14.08.2022	14.08.2032
HVJ Upgradation	26.03.2035	26.03.2035
Integrated HVJ	26.03.2035	26.03.2035

6.2. Salient features of tariff filing of HVJ based on economic life upto 14.08.2032 as per para 6.1.3

Particulars	HVJ
Final Tariff as per GAIL (Rs. mmbtu/GCV) w.e.f. 01.04.2019 onwards	116.79
Economic life considered upto	14.08.2032
Number of working days in a year	345
Annual inflation rate	4.58%
Capex (including CWIP) over economic life. (Rs. in Crore)	10,753.98
Opex (Rs. in Crore) over economic life	30,751.09
Unaccounted gas loss (0.30% of the throughput) over economic life. (Rs. in Crore)	2,461.57
Working Capital over economic life. (Rs. in Crore)	485.31
Line pack (Rs. in Crore)	47.74
Terminal Value (Capex + Working Capital) at the end of economic life (Rs. in Crore)	3,597.04

6.3. Capital Expenditure (Capex)

GAIL's claim on account of Capex outgo (excluding line pack) for economic life (as per para 6.1.3) is as follows:

(Rs. in Crore)			
Particulars	HVJ	HVJ Upgradation	Integrated HVJ
Capex Outgo	10,753.98	13,524.18	24,708.42

6.3.1. NFA and Actual Capex

6.3.1.1. As per tariff filing, NFA as on 30.09.2008 is as follows:

(Rs. in Crore)				
S No.	Particulars	HVJ	HVJ Upgradation	Integrated HVJ
1	NFA [based on 30 years life of pipeline]	4,010.64	-	4,010.64
2	CWIP	52.92	16.74	69.66

PNGRB vide letter dated 01.11.2018 asked GAIL for providing information of Interest During Construction ("IDC") included in opening NFA of HVJ, duly certified by CA. GAIL vide email dated 14.01.2019 submitted that IDC capitalized included in opening NFA as on 20.11.2008 of HVJ pipeline is Rs.48.42 Crore.

6.3.1.2. Pre-Commissioning Capex and Actual Capex outgo from 01.10.08 to FY 17-18:

GAIL has claimed total actual Capex outgo (including CWIP and IDC, excluding Line Pack) for the period from 01.10.08 to FY 17-18 as follows:

(Rs. in Crore)						
Period	HVJ		HVJ Upgradation		Integrated HVJ	
	Capex (including IDC)	IDC	Capex (including IDC)	IDC	Capex (including IDC)	IDC
01.10.08 to FY 17-18	1,971.15	30.77	7,665.68	41.98	9,636.83	72.75

PNGRB asked GAIL to submit data of IDC included in actual Capex, pipeline-wise/year-wise details of additions/deletion to Capex and CWIP (letter dated

01.11.2018, 20.11.2018 and email dated 30.11.2018), duly matching with CA certificate.

In response, GAIL submitted as follows:

- a) IDC included in the Capex (Gross Block) of HVJ Upgradation is Rs.97.41 Crore supported by CA certificate. Further, along with details of IDC, GAIL also submitted that, "It is pertinent to mention here that as per clause (4) of attachment 2 to Schedule A of Tariff Regulations, any change in the value of fixed assets due to capitalisation of interest on loan (including foreign exchange variation in case of any loan in any foreign currency) during pre-commissioning phase of the fixed asset shall be considered provided such loan was utilised for creation of the said fixed asset only upto 07th January, 2016."
- b) GAIL while providing the details of additions/deletions also submitted that some of the assets were inadvertently considered as part of HVJ, in tariff submissions in place of HVJ upgradation and provided revised details of additions/deletions for tariff processing (vide letter dated 26.11.2018 and email dated 17.12.2018).

Based on above submissions, year wise details of actual Capex and IDC are as follows:

Year	HVJ		HVJ Upgradation		Integrated HVJ	
	Capex (including IDC)	IDC	Capex (including IDC)	IDC	Capex (including IDC)	IDC
NFA 30.09.08	4005.29	48.42	-	-	4005.29	48.42
CWIP 30.09.08	53.37	-	16.26	-	69.63	-
Total	4058.66	48.42	16.26	-	4074.92	48.42
01.10.08 to 31.03.09	8.53	-	1,569.67	-	1,578.20	0.00
2009-10	24.44	-	2,222.83	6.59	2,247.27	6.59
2010-11	246.45	-	2,629.87	0.53	2,876.32	0.53
2011-12	98.81	-	1,066.33	64.43	1,165.14	64.43
2012-13	85.54	0.78	219.59	11.25	305.13	12.03
2013-14	151.64	2.26	124.98	7.99	276.62	10.25

(Rs. in Crore)

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2014-15	60.81	(1.98)	58.61	0.01	119.42	-1.97
2015-16	89.83	3.28	85.54	5.67	175.37	8.95
2016-17	233.76	(0.37)	277.26	0.95	511.02	0.58
2017-18	73.27	-	467.94	-	541.21	0.00
Total	1,073.09	3.97	8,722.61	97.41	9,795.70	101.39

6.3.1.3. Entity & Stakeholder's comments:

GSPL inter alia submitted as under (letter dated 02.11.2018)

- PNGRB vide letter dated 19.04.2010 has issued letter of acceptance to HVJ Pipeline, wherein there is no reference to installation of additional compressors at Jhabua and Vijaipur.
- GAIL vide document (attached herewith) available on GAIL's website at link at <https://gailebank.gail.co.in/extapps/gailnewsite/tender/pdf/tender8077.pdf> has issued tender for installation of additional Gas Turbine Compressor trains (GTC's) at Jhabua and Vijaipur location to boost natural gas pressure in 42" Dahej-Viajipur Gas pipeline which is a part of HVJ Pipeline. The said compressors at Jhabua and Vijaipur were later commissioned by GAIL in FY 2011-12. GSPL provided relevant extract of GAIL's Annual Report for FY 2011-12.
- Accordingly, the capacity determination of HVJ pipeline post FY 2011-12 is pending and so increase in capacity of HVJ pipeline due to installation of above Gas Turbine Compressor Trains is yet to be determined by the PNGRB. Hence, actual capex, opex (including future) of such Gas Turbine Compressor Trains should not be considered for final tariff determination of HVJ pipeline as held by the PNGRB tariff in its Tariff order no. T0/05/2018 dated 27.09.2018 by excluding the Capex & Opex of Compressor Station at Gana.
- Also, in line with the PNGRB tariff order no. T0/05/2018 dated 27.09.2018, the said installation of additional Gas Turbine Compressor Trains (GTC's) for HVJ Pipeline shall be dealt as per the provision of Regulation 12 of PNGRB Authorization Regulations.

Response by GAIL (letter dated 13.11.2018)

In this regard, GAIL had submitted the details of HVJ Upgradation pipeline system, which included laying of pipelines and installation of the subject compressors while submitting the Schedule-H information to PNGRB. The same was duly considered and accepted by PNGRB while issuing the Terms & Conditions letter No. Infra/PL/Exis/17/DVPL-GREP-UPGR/GAIL/01/10 dated 14.02.2011.

However, in the case of GSPL, it appears that their compressors at Gana were not part of their authorization. Also, unlike GSPL's case, the subject compressors have already been considered in the Provisional Tariff Order for the HVJ and HVJ Upgradation. Hence, these two cases may not be comparable.

Further, the capacity of the Upgradation system is 54 MMSCMD after installation of the compressors at Jhabua and Vijaipur, whereas without these compressors, the capacity of the upgraded system shall reduce substantially.

GSPL (letter dated 27.11.2018) inter alia submitted as under

"It is submitted that GSPL has no objection if PNGRB considers Capex and Opex for installation of aforesaid additional compressor trains in GAIL's Tariff determination of HVJ-DVPL-GREP natural gas pipeline pending consideration of its impact in pipeline capacity. However, in the similar line, PNGRB should also consider GSPL's Gana Compressor station in Tariff Determination of GSPL's High Pressure Gujarat Gas Grid."

6.3.1.4. PNGRB's Ruling:

A. **On NFA:** To provide reasonable return over economic life of pipeline in terms of Tariff Regulations, on uniform basis, NFA for pipelines as on 20.11.2008, based on 30 years (depreciation on pipeline @3.17% since beginning) of economic life of pipeline and CWIP has been considered in determination of final tariff.

In case of HVJ, GAIL has submitted net block as on 30.09.2008. Since Tariff Regulations are applicable from 20.11.2008, net block as on 20.11.2008 has been worked out by calculating depreciation for the period 01.10.2018 to 19.11.2018 and the same has been reduced from the net block as on 30.09.2008. NFA as on 20.11.2008 and CWIP considered in determination of final tariff are as under:

(Rs. in Crore)

S No.	Particulars	HVJ	HVJ Upgradation	Integrated HVJ
1	NFA [based on 30 years life of pipeline]	3,905.06		3,905.06
2	CWIP as on 30.09.2008	53.37	16.26	69.63

B. On Actual Capex:

Actual Capex incurred by GAIL as per para 6.3.1.2, has been considered for determination of final tariff, however, in case during authorisation/updation of Schedule – H by PNGRB of the pipelines/sections/spur lines/compressors laid by GAIL, any deviation is observed with respect to pipelines/sections/spur lines/compressors laid with extant regulations, then the impact of the Capex included shall be dealt accordingly in the next tariff review.

C. On IDC included in NFA and Actual Capex:

As per DCF methodology, tariff is calculated based on cash flow and return on capital employed is allowed to the entities from the date of cash outflow. Allowing IDC as well as return on capital employed which includes CWIP from the date of cash outflow will amount to duplication. Further, as per the amendments in Tariff Regulations, clause 4 of Attachment 2 to Schedule A are omitted since 08.01.2016.

In view of the above, IDC has not been considered.

6.3.2. Common Corporate Assets from 30.09.2008 to FY 2017-18

6.3.2.1. Year-wise details of common corporate assets, for the period from 30.09.2008 to FY 2017-18 claimed by GAIL are as follows:

(Rs in Crore)

Year	HVJ	HVJ Upgradation	Integrated HVJ
NFA of Common Corporate Asset as on 30.09.2008	29.51	-	29.51
Total	29.51		29.51
01.10.2008 to 31.03.2009	-0.19	0.00	-0.19
2009-2010	10.28	0.00	10.28
2010-2011	-4.38	0.00	-4.38

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Year	HVJ	HVJ Upgradation	Integrated HVJ
2011-2012	39.95	11.24	51.19
2012-2013	11.00	7.84	18.84
2013-2014	11.63	12.59	24.22
2014-2015	11.65	14.99	26.64
2015-2016	-10.28	16.44	6.16
2016-2017	-11.87	18.51	6.63
2017-2018	-10.77	30.66	19.89
TOTAL	47.02	112.27	159.29

6.3.2.2. Basis/justification of allocation of Common Corporate Assets and expenses:

During the processing of various tariff order for GAIL's Natural Gas Pipeline Networks, GAIL has inter alia provided following basis for allocation of Common Corporate Assets and Expenses as detailed below:

Corporate common expenses are those expenses which are incurred by the various corporate departments of GAIL (like, Corporate HR, Finance & Accounts, Marketing, Contracts & Procurement, Training etc.) in order to provide day-to-day services to all business segments across GAIL. These expenses are common in nature and are not directly identifiable to any particular business segment. As Corporate Department is providing services to Gas Transmission, Gas Trading, Petrochemical, Liquid Hydrocarbon & other business segments also, therefore, all common expenses & assets are allocated to all business segments.

GAIL is predominantly a gas transmission company, having over 11,000 km of pipelines network for transmission across the length and breadth of the country. Gas Transmission business is one of the major activities of GAIL. As it is known that NGPL business is very capital intensive and it requires much more attention and day-to day supervision in order to transport/handle gas safely across the all pipelines networks up to consumers' premises.

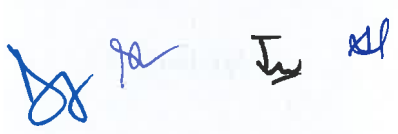
For a capital-intensive company, return is generally linked to the amount of capital employed in the business. Therefore, a business entity having multiple segment of business, should give more weightage to those business segments having a higher

capital employed in allocation of any common corporate expense. Considering this, Gross block of various business segments as most appropriate & suitable method of allocation of common corporate Opex and Capex. Accordingly, GAIL has allocated the Corporate Common Opex and Capex based on the Gross Block of the respective business segment. Further, the same is being consistently followed for the all the financial years since 2008-09 for submission of tariff proposal and this was accepted by PNGRB while issuing final tariff orders of other pipelines in the past.

In case, any basis other than Gross Block is considered, then, same shall not provide correct basis of allocation of corporate common expenses. For example, if revenue generation instead of Gross Block of the respective business is considered, then same shall be inappropriate as it is submitted that revenue from Gas marketing constitutes around 71% of total revenue of GAIL. Moreover, natural gas marketing, comparatively less efforts are required as the price of domestic gas is decided by Government of India, whereas, in transmission segments much more efforts are required considering the length and breadth of the pipelines across India. Further, GAIL has no control over the prices of the various products such as RLNG, Petro Chemicals and LPG which are largely market driven/ based on import parity prices etc and any change in product price needs to substantial change in turnover. Further, gas prices being linked to USD, therefore, any change in exchange rate also leads to a change in turnover. It may also be mentioned that any change in turnover due to market forces as mentioned above does not lead to a corresponding change in corporate common expenses.

Corporate services being common to all business segments, therefore, it is also not possible to identify the directly allocable manpower for allocation of common expenses and hence this also cannot be used as a basis for allocation of expenses.

Capex and Opex allocated to business segment i.e. NG Transmission is then allocated to all the pipelines including dedicated pipelines on the basis of actual throughput in that particular pipeline system.



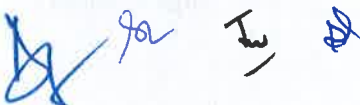
6.3.2.3. Apart from Natural Gas Transmission segment, GAIL also has other business segments viz. Gas Marketing, Petrochemicals, Liquid Hydrocarbon, LPG Transmission, etc, therefore, in order to review allocation of Common Corporate Capex and Opex to all business segments of GAIL including Natural Gas Transmission segment and thereafter to its various pipelines, PNGRB asked following details from GAIL from FY 2008-09 to FY 2017-18:

- a) Cost-Center wise Common Corporate Capex and Opex,
- b) Segment wise and pipeline wise gross block, accretion to gross block, number of employees and PBIT.

In response to PNGRB's query, GAIL submitted Cost Center wise details of Common Corporate Capex and Opex, segment wise and pipeline wise gross block, accretion to gross block, number of employees and segment wise PBIT. Further, segment wise and year wise revenue has been taken from the annual reports of GAIL. Based on the data submitted by GAIL and data taken from the annual reports of GAIL, Cost Center wise Capex and Opex has been allocated to various business segments of GAIL considering the relevant basis viz gross block, accretion to gross block, number of employees and average of PBIT & revenue, based on the activity performed by the respective cost center. Further, the Capex and Opex pertaining to cost centers which are directly attributable to other than natural gas transmission business segments of GAIL have been disallowed.

In allocation of Common Corporate Capex and Opex, GAIL has used the volume as basis of allocation to various pipelines. In order to maintain consistency of allocation of common corporate Capex and Opex to various pipelines, similar basis viz gross block, accretion to gross block and number of employees of respective pipelines have been used.

In other natural gas pipelines of GAIL where tariff has already been determined, suitable adjustments on account of allocation of common corporate expenses would be carried out at the time of determination of final tariff/next review of tariff to ensure uniformity with the above principles.



In view of the above, amount allocated in Common Corporate Capex works out as under.

(Rs in Crore)			
Period	HVJ	HVJ Upgradation	Integrated HVJ
NFA of Common Corporate Asset as on 30.09.2008	22.09		22.09
01.10.2008 to FY 2017-18	106.80	47.27	154.07

6.3.2.4. **PNGRB's Ruling:** Since Tariff Regulations are applicable from 20.11.2008, net block as on 20.11.2008 has been worked out by calculating depreciation for the period 01.10.2008 to 19.11.2008 and the same has been reduced from the NFA as worked out as on 30.09.2008. NFA of common corporate assets in case of HVJ and Integrated HVJ of Rs.21.46 Crore as on 20.11.2008 and actual common corporate assets for the period from 01.10.2008 to FY 2017-18 i.e. Rs.106.80 Crore for HVJ, Rs.47.27 Crore for HVJ Upgradation and Rs.154.07 Crore for Integrated HVJ as worked out, has been considered in determination of final tariff.

6.3.3. Future Capex Outgo from FY 2018-19 onwards

GAIL's claim on account of future Capex from 01.04.2018 onwards till the end of economic life (as per para 6.1.3) is as follows:

Rs. in Crore			
Particulars	HVJ	HVJ Upgradation	Integrated HVJ
PD Capex	0.00	934.72	934.72
PE Capex	0.00	4,106.58	4,106.58
O&M Capex	4,642.73	688.19	5,761.17
Total Capex	4,642.73	5,729.49	10,802.47

6.3.3.1. **Project Development (PD) Capex:** GAIL has claimed Rs.934.72 Crore, (Rs.650.00 Crore without escalation) i.e. @ Rs 50 Crore / year for 9 years from FY 2018-19 to FY 2026-27 and @ Rs 25 Crore / year for 8 years from FY 2027-28 to 2034-35 with annual escalation @ 4.58% from FY 2018-19 onwards, in the tariff filing for future last mile connectivity (LMC) w.r.t. HVJ Upgradation network.

PNGRB asked GAIL to provide following:

a) Copy of WO/PO in respect of LMC's proposed and basis of arriving at amount of Capex (letter dated 01.11.2018).

b) Year-wise consolidated data for LMCs (not part of DFR) laid in the past (letter dated 20.11.2018).

In response, GAIL vide letter dated 16.11.2018 and 26.11.2018, while justifying the need for LMC for evacuation of gas tied up by GAIL from international sources viz. USA, Russia, Australia etc. through long-term, mid-term and short-term contracts, also submitted that in DFR of HVJ Upgradation project no specific name of individual LMCs was there. GAIL further submitted the length and the amount of LMCs laid is 106 Km and Rs.77.86 Crore i.e. yearly average length of LMCs laid during FY 2008-09 to FY 2017-18 is 10.6 Kms with average cost of Rs.0.73 Crore/Km.

6.3.3.2. Project Execution (PE) Capex: GAIL has claimed future PE Capex as below:

Descriptions	Rs. in Crore	
	HVJ Upgradation	Integrated HVJ
Vijaipur Auraiya Pipeline project	2997.28	2997.28
Auraiya Phulpur project	940.69	940.69
Rich lean gas corridor	35.47	35.47
LMC	54.22	54.22
Connectivity to CFCL	78.92	78.92
TOTAL	4,106.58	4,106.58

In response to PNGRB letter dated 01.11.2018 and email dated 25.11.2018, GAIL vide letter dated 16.11.2018 and email dated 05.12.2018 submitted Management approval only for Vijaipur-Auraiya-Phulpur spurline with total estimated cost of Rs.4309.34 Crore including IDC of Rs. 438.39 Crore & FC. Further, GAIL has informed that no IDC amount has been included in project cost of other projects.

In response to observation by PNGRB during OH as to why Capex on account of Rich lean gas corridor should be considered for tariff fixation? GAIL stated that the Capex is on account of modification being done for improving the operational flexibility and efficiency of the pipeline system. In this regard, PNGRB asked GAIL to submit a detailed explanation. In this regard GAIL vide letter dated 29.11.2018 submitted as below:

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“HVJ Pipeline system transports natural gas from Hazira to Vijaipur, and thereafter, to various units downstream of Vijaipur, viz., Auraiya, Dadri etc.

In the Hazira to Vijaipur section, the HVJ pipeline system has compressor stations at Hazira, Vaghodia, Jhabua, Khera and Vijaipur for boosting/re-boosting the gas pressure at various points to transport the gas up to Vijaipur and beyond. Also, between Hazira and Vijaipur, the system comprises three trunk lines, i.e., 36” dia Hazira-Vijaipur section and the two DVPL pipelines (i.e., 42” DVPL-I and the 48” DVPL-II which run in parallel to the 36” HVJ from Vemar to Vijaipur) for carrying the gas available from Hazira, Dahej and Ankot to Vijaipur.

At present, in the normal course of operation, all the compressor stations on 36” HVJ pipeline remain in operation to handle the available volume of natural gas from Hazira to Vijaipur and DVPL pipelines are not fully utilized and they can handle more gas flows through them up to Vijaipur. Hence it is found prudent to utilize the higher capacity in these DVPL pipelines so that the injected gas from Hazira, Dahej and Ankot can be more economically transported up to Vijaipur without running some compressors in 36” HVJ pipeline at Jhabua and Khera.

Therefore necessary modifications are being undertaken under the subject project to enhance operational flexibility between the HVJ and DVPL pipelines. The said modification project is undertaken to potentially save up to 0.34 MMSCMD of compressor fuel, by re-routing some gas through the said DVPL pipelines and by avoiding running of some compressors at Jhabua and Khera. Thus the subject modification project would lead to optimization of running compressors in the system. Also, the modification project would help in maintaining uninterrupted gas flow to customers during occasional downtime of any one of the pipelines.

Extant PNGRB Tariff Regulations also provide for consideration of cost incurred in improvement/modifications.

Keeping in view, the modification project is being undertaken for the benefit of all the gas suppliers, shippers and consumers of the HVJ pipeline system, it is submitted that the entailed capex in this regard may kindly be considered in the tariff determination.”

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Further, in response to remaining future PE Capex, GAIL vide email dated 17.12.2018 submitted a certificate that the Capex on account of LMC and connectivity to CFCL have been approved by Competent Authority.

6.3.3.3. Operation & Maintenance (O&M) Capex: GAIL's claim on account of O&M Capex from 01.04.2018 onwards till the end of economic life (as per para 6.1.3) considering annual inflation @ 4.58 % p.a. is as follows:

Particulars	Rs. in Crore		
	HVJ	HVJ Upgradation	Integrated HVJ
O&M Capex	4,642.73	688.19	5,761.17

6.3.3.3.1. GAIL has submitted year-wise future O&M Capex under various heads viz., Gas generators Rs.1,595.48 Crore, replacement of GT compressors Rs.2,503.46 Crore and in pipelines Rs.1,662.23 Crore which includes expenditure on account of conversion of non-piggable line to piggable, insurance spares, modifications for operational requirement, installation of CCTV, new GC's, new metering system, upgradation of field mounted instrument & system software/hardware upgradation, etc.

PNGRB vide letter dated 01.11.2018 asked GAIL to submit the following:

- a. Detailed justification for proposed future O&M Capex and basis of estimate along with supporting documents such as Management approval, PO/WO, OEM certificates, etc.
- b. The likely change in the existing capacity of pipeline with replacement of compressors.

6.3.3.3.2. In response GAIL vide letter dated 16.11.2018 submitted as follows:

"Present system of budgeting and procurement has no provision for generating document for future expenses. Expenditure has been estimated by experienced maintenance engineer as per assessment of future challenges. Since many GTC Units are in operation since last 30 years; it is anticipated that due to technological obsolescence as well as non-availability of OEM support, those GTC Units will be required to be replaced. However, even though old GTC Units will be replaced with

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higher individual capacity but the authorized capacity of each pipeline will remain same.

In this regard, it is pertinent to note that, the process of engagement of EIL as consultant for making detailed study for optimization of compressor station operation and way-forward for phase-out of old GTC Units has already been started.”

Subsequent to initial tariff submission, GAIL vide letter dated 16.11.2018 requested PNGRB to consider following additional future Capex.

- (i) Laying of new pipeline parallel to Hazira-Vemar section of HVJ: Approximate Capex Rs.900 Crores.
- (ii) New Compressor Unit at GAIL, Gandhar: Approximate Capex Rs.225.54 Crores (including IDC of Rs.9.49 Crore), copy of the Management Approval provided.

6.3.3.3. In response to PNGRB’s letter dated 20.11.2018, seeking query on additional future Capex, GAIL vide letter dated 26.11.2018 submitted as follows:

- (i) Cost Booking: GAIL’s request would be to book both the Future Capex under the Integrated HVJ. However, if necessitated, it is proposed that the envisaged Hazira-Vemar/Vaghodia pipeline (it will be physically running parallel to the existing Old HVJ section) to be booked under the HVJ pipeline and the proposed new Compressor at Gandhar to be booked under HVJ Upgradation pipeline.
- (ii) Authorization: The proposed pipeline, and the compressor unit, are not for capacity enhancement. Based on the finalized project configurations, suitable submissions would be made by GAIL in this regard to PNGRB.
- (iii) New pipeline details: At present it is envisaged that a size of 36” dia and approx. length of 140-150 kms pipeline to be developed in parallel from Hazira to Vemar / Vaghodia as a potential replacement/additional line in the HVJ pipeline. The exact size and length will be finalized based on detailed engineering and final route survey.
- (iv) New Compressor details: The proposed new compressor unit at Gandhar is for pushing about 3.5 MMSCMD low-pressure domestic gas (25 kg/cm²) into the high

pressure system (92 kg/cm²). However, final specification will be frozen after further due diligence and detailed engineering.

6.3.3.3.4. GAIL vide its email dated 20.03.2019 submitted the details of O&M Capex of Rs.166.16 Crore (Rs.138.63 Crore in HVJ and Rs.27.53 Crore in HVJ Upgradation) to be incurred during FY 2018-19 and FY 2019-20, duly supported by PO/WO.

6.3.3.4. Entity and Stakeholder's Comments

Comments by IOCL (email dated 02.11.2018)

GAIL has claimed total future capex outgo of Rs.10,802.47 Crore including escalation. Basis of the same may be reviewed.

No response by GAIL

Comments by GSPL (letter dated 02.11.2018)

No Approval by PNGRB is available on its website for Rich lean gas corridor modification for which capex of Rs.33.92 Crore (without escalation) has been proposed. Hence, PNGRB may review consideration of such capex for tariff determination.

Response by GAIL (letter dated 13.11.2018)

PNGRB Tariff Regulations (Clause 4 (3) of Schedule A and Clause 2 of Attachment 2 to Schedule-A) explicitly state that cost incurred in improvement/modifications shall be considered. In the instant case, the modification is being done for improving the operational flexibility and efficiency of the pipeline system. As per extant regulatory framework, prior approval of PNGRB is required in case of capacity expansion beyond 10 % or spur-lines beyond tariff zone. The said modification does not fall in this category.

Comments by H-Energy (letter dated 02.11.2018)

GAIL, in its tariff submission, has considered total Capex outgo (Including CWIP & Corporate Capex, excluding Line Pack) for Integrated tariff filing till 26.03.2035, however in standalone filing of HVJ pipeline, the same is considered till 14.08.2022. This anomaly needs to be looked into because GAIL has considered different

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economic life namely first for defining the Economic life and secondly for calculation of future capex.

Response by GAIL (letter dated 13.11.2018)

The CAPEX outgo has been provided based on the economic life considered for the tariff filing.

6.3.3.5. PNGRB's Ruling:

6.3.3.5.1. Project Development (PD) Capex:

Based on the historical data provided by GAIL, yearly average length of LMCs laid in HVJ Upgradation during FY 2008-09 to FY 2017-18 is 10.6 Kms with average cost of laying as Rs.0.73 Crore/Km, accordingly, GAIL's claim on account of LMCs has been moderated as below. However, the same shall be reviewed/considered in terms of extant Regulations during the next tariff review.

Rs. in Crore			
Pipeline	HVJ	HVJ Upgradation	Integrated HVJ
Amount Claimed	Nil	934.72	934.72
Amount Considered	Nil	131.58	131.58

6.3.3.5.2. Project Execution (PE) Capex:

Vijaipur-Auraiya-Phulpur spur-line from HVJ Upgradation has been authorised by PNGRB vide letter dated 26.10.2015.

Based on the Management approval provided by GAIL, following future PE Capex (excluding IDC) is being considered in determining final tariff. However, the same shall be reviewed/considered in terms of extant Regulations, during the next tariff review.

Rs. in Crore			
Pipeline	HVJ	HVJ Upgradation	Integrated HVJ
Amount Claimed	NIL	4106.58	4106.58
Amount Considered	NIL	3343.01	3343.01

6.3.3.5.3. Operation & Maintenance (O&M) Capex:

O&M Capex duly supported by PO/WO of Rs.166.16 Crore submitted by GAIL has been considered in determination of final tariff. In support of the remaining

future O&M Capex and additional Capex claimed, GAIL has not submitted basis of estimate, Management approval, PO/WO, OEM certificates, PNGRB authorisation as applicable/likely change in the existing capacity of respective pipeline, etc, therefore, the future O&M Capex (including additional Capex) claimed has not been considered in determination of final tariff. However, the same shall be reviewed/considered in terms of extant Regulations, during the next tariff review.

Rs. in Crore

Pipeline	HVJ	HVJ Upgradation	Integrated HVJ
Amount Claimed	4,642.73	688.19	5,761.17
Amount Considered	138.63	27.53	166.16

Head wise future Capex claimed by GAIL and considered by PNGRB are as follows.

(Rs. in Crore)

Year	HVJ	HVJ Upgradation			Integrated HVJ		
	O&M	PD	PE	O&M	PD	PE	O&M
Claimed	4,642.73	934.72	4,106.58	688.19	934.72	4,106.58	5,761.17
Considered	138.63	131.58	3,343.01	27.53	131.58	3,343.01	166.16

6.4. Operating Expenses (Opex):

GAIL's claim on account of Opex from 01.10.08 till the end of economic life of pipeline (as per para 6.1.3) is as follows:

(Rs. in Crore)

Particulars	HVJ	HVJ Upgradation	Integrated HVJ
Actual Opex outgo (01.10.08 to FY 17-18)	7,288.45	1,326.78	8,938.13
Actual Common Corporate Opex (20.11.08 to FY 17-18)	1,553.33	510.01	1,740.45
Future Opex	21,909.31	35,068.13	63,281.34
Total	30,751.09	36,904.94	73,959.93

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6.4.1. Actual Opex Outgo from 01.10.2008 to FY 2017-18

6.4.1.1. GAIL vide letter dated 16.11.2018 submitted that during FY 2013-14 interest expense has been inadvertently included in Opex, during FY 2016-17 and FY 2017-18 certain amount has been reallocated due to arithmetical error in allocation of Opex and during FY 2017-18 certain amount has been included twice in spread sheet and provided revised Opex as under:

Rs. in Crore						
Financial Year	HVJ *	HVJ **	HVJ Upgradation *	HVJ Upgradation **	Integrated HVJ *	Integrated HVJ **
2013-14	904.34	812.09	157.35	132.79	1,061.69	944.88
2016-17	712.00	701.11	252.20	263.09	964.20	964.20
2017-18	758.37	687.24	385.18	326.83	1,143.55	1014.05

* Amount submitted earlier

** Revised amount submitted

6.4.1.2. PNGRB asked GAIL to submit, details of expenditure claimed in tariff filing, though the same are not allowed as per Tariff Regulations, and income not netted off, in terms of extant Tariff Regulations (letter dated 20.11.2018). In response, GAIL vide letter dated 26.11.2018 and email dated 03.12.2018 submitted the details as under:

Rs. in Crore						
Particulars	HVJ		HVJ Upgradation		Integrated HVJ	
	O&M Opex	Common Corporate Opex	O&M Opex	Common Corporate Opex	O&M Opex	Common Corporate Opex
Opex *	247.22	86.53	33.20	56.36	280.42	142.90
Income not netted off **	27.99	128.23	15.26	45.43	43.25	173.65

*From 20.11.2008 to FY 17-18

** From FY 2009-10 to FY 2016-17. Common Corporate income has already been netted off for the period 01.11.2008-31.03.2009 and FY 2017-18 (email dated 05.12.18).

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6.4.1.3. In response to PNGRB's query vide email dated 28.12.2018, that GAIL's in its tariff filing has considered future System Use Gas (SUG) of 1.05 MMSCMD at 75% level of capacity utilization in respect of HVJ Upgradation, as against SUG consumption of 0.30 MMSCMD (volume flow of 30.15 MMSCMD) in FY 2017-18, GAIL vide email dated 02.01.2019 inter alia submitted as follows:

The HVJ and the HVJ Upgradation system is physically operating as one common network. The pipelines are fully inter-connected at Vaghodia, Jhabua, Khera, Vijaipur and Dadri and gas is flowing through one common integrated system. Further, compressors at Jhabua and Vijaipur, installed under the HVJ and under the HVJ Upgradation, are interchangeably used to optimize the network operation and reduction in overall fuel consumption. Thus, it may not be possible to accurately allocate cost of gas compression (on fuel etc. as SUG) to specific pipelines in the integrated network, i.e. to HVJ and to HVJ Upgradation individually. In this situation, given the fact that all compressor stations, either directly or indirectly, are contributing in gas transmission through both the HVJ and HVJ-Upgradation system, it may be a rational approach to consider the overall SUG costs in the ratio of their respective volume flows.

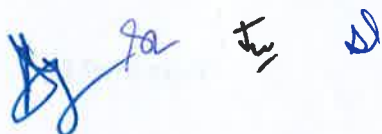
In view of the above, total compressor fuel cost is distributed among both the pipelines of HVJ and HVJ Upgradation in the ratio of actual volume flow for the period from 20.11.2008 to 31.03.2018.

6.4.1.4. Based on the principles mentioned in para 6.3.2.3 amount allocated in Common Corporate Opex works out as under:

(Rs. in Crore)			
Period	HVJ	HVJ Upgradation	Integrated HVJ
Amount worked out	845.49	445.35	1290.84

PNGRB's Ruling:

As per clause 5 of Schedule A of Tariff Regulations operating costs required in the operations and maintenance of the natural gas pipeline over its economic life shall be



computed, on actual basis or based on a normative assessment by the Board whichever is lower.

Sub-clause 2(b) (fuel) of clause 5 (Operating costs) of Schedule A of Tariff Regulations, states that “fuel (including the cost of natural gas and the natural gas pipeline tariff not recovered on the volume of system-use natural gas consumed in the natural gas pipeline)”.

Based on the Opex submitted by GAIL from 2008-09 to 2017-18, the following adjustments have been made:

- a) As the regulations were notified on 20.11.2008, the Opex submitted by GAIL from Oct 08-March 09 has been considered for 132 days (i.e. from 20.11.2008-31.03.2009).
- b) The O&M Opex claimed and not allowed as mentioned at para 6.4.1.2 has been disallowed.
- c) The O&M income not netted off as per para 6.4.1.2 has been netted off.
- d) The SUG allocated on the actual volume flow (quantity) and tariff not recovered on such SUG quantity, has been allowed.
- e) Common Corporate Opex as worked out as per para 6.4.1.4 has been considered in place of GAIL’s submission after adjusting Common Corporate Opex as per a) above.

Based on above, year-wise and pipeline-wise amount of Opex considered in the determination of final tariff is as follows:

Rs. in Crore			
Year	HVJ	HVJ Upgradation	Integrated HVJ
20.11.2008-31.03.2009	303.18	0.00	303.18
2009-10	718.80	37.60	756.40
2010-11	788.43	94.76	883.19
2011-12	768.74	148.46	917.20
2012-13	849.72	225.85	1,075.58
2013-14	806.18	268.75	1,074.93
2014-15	809.87	340.47	1,150.34
2015-16	740.71	367.26	1,107.97
2016-17	715.04	469.35	1,184.41
2017-18	716.11	530.02	1,246.11
TOTAL	7,216.77	2,482.54	9,699.32

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6.4.2. Future Opex projections from FY 2018-19 onwards

GAIL claim on account of future Opex from 01.04.2018 till the end of economic life (as per para 6.1.3) is as follows:

A) For HVJ Network

(Rs.in Crore)

Year	O&M and Non-recurring O&M	Common Corporate
from 2018-19 to 2032-33	19438.35	2470.96

B) For HVJ Upgradation Network

(Rs.in Crore)

Year	O&M, Compressor Fuel and Non-recurring O&M	PD	PE	Common Corporate
from 2018-19 to 2034-35	29,120.95	248.99	2,117.79	3,580.40

C) For Integrated Network

(Rs. in Crore)

Year	O&M, Compressor Fuel and Non-recurring O&M	PD	PE	Common Corporate
from 2018-19 to 2034-35	54,218.20	248.99	2,117.79	6,696.36

Future Opex claimed by GAIL has been dealt as under:

6.4.2.1. O&M Opex, Compressor Fuel (SUG) and Non-Recurring O&M Opex:

6.4.2.1.1. **O&M Opex:** GAIL has escalated actual Opex for the FY 2017-18 @ 4.58% from FY 2018-19 onwards.

6.4.2.1.2. Compressor Fuel:

HVJ: GAIL has escalated the SUG Cost of Rs.296.08 Crore (1.07 MMSCMD @) Rs.204.99/MMBTU) claimed in FY 2017-18 @4.58% p.a. from FY 2018-19 onwards.

HVJ Upgradation: GAIL has claimed total SUG of 1.05 MMSCMD, for running at 75% of the capacity from 2018-19. Average gas price considered for SUG is Rs.208.87 (APM) & Rs.621.09 per MMBTU (based on average of APM, PMT, RLNG-PLL, Midterm, etc. gas prices for the year FY 2017-18), for 0.31 MMSCMD and for 0.74 MMSCMD, respectively by escalating these prices by 4.58% from FY 18-19 onwards.

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GAIL vide email dated 06.12.2018, 17.12.2018 and 01.02.2019 inter alia submitted as follows:

- A. Recently domestic gas prices has been increased around 10% w.e.f. 01.10.2018 and requested to consider the increase in gas price. In support, GAIL submitted PPAC price circular.
- B. To consider 35% of inflation adjusted Salary & Wages cost of FY 2017-18 on account of expected hike in Salaries & Wages for next Pay revision due in 2027.
- C. The allocated quantity for internal consumption under APM is 1.55 MMSCMD, accordingly, cost of additional compressor fuel is considered based on average market price of gases.
- D. There is no consumption of PMT-JV gas for internal consumption in GAIL's HVJ and HVJ upgradation NG P/L system, the price of this gas may be removed from the calculation of estimated price for additional compressor fuel cost.

PNGRB asked GAIL to provide following information/clarifications:

- A. Basis of considering 1.40 MMSCMD as SUG for HVJ Upgradation (vide letter dated 01.11.2018).
- B. Average volume flow and SUG volume for HVJ and HVJ Up-gradation for the period April 2018 - November 2018 (dated 20.12.2018).
- C. Considering volume flow and SUG consumption during FY 2017-18, projected SUG consumption in HVJ Upgradation at 75% level of capacity utilization appears to be high (email dated 28.12.2018).
- D. Provide projected volume flow for FY 2019-20 onwards for both the pipelines (email dated 28.12.2018).

In response GAIL has inter alia submitted as follows:

- A. As per DFR, total fuel consumption for HVJ Upgradation is 1.3 MMSCMD (letter dated 16.11.2018).
- B. Provisional average volume flow and SUG volume for HVJ and HVJ Up-gradation for the period April 2018 - November 2018 as under (vide email dated 02.01.2019):

Name of Pipeline Network	Average Volume Flow (MMSCMD)	SUG quantity (in MMBTU – GCV basis)
HVJ	33.04	1,34,05,481
HVJ Upgradation	33.02	

C. In GAIL's tariff submission, for running the compressors at 75% of the total capacity from 2018-19 onwards, 'additional' compressor fuel has been considered only for the HVJ Upgradation since the earlier allocated SUG quantity for HVJ in any case is more than 75% of 1.22 MMSCMD.

However, now, in view of allocation of the total compressor fuel (SUG) in the ratio of volume flows, and also in line with the amended Tariff Regulation, Volume Divisor for both HVJ and HVJ-Upgradation from FY 2018-19 & onwards is considered as 75% of respective capacity of the pipelines (i.e., 39.75 MMSCMD and 40.50 MMSCMD for HVJ and HVJ Upgradation respectively before netting off SUG quantity).

Also, there is no simple linear relationship between total SUG quantity and the volume flow through the pipeline. The relationship is more of a step function, wherein under a given set of compressors running (and its corresponding SUG level) upto a certain volume flow can be handled, beyond which another compressor needs to be taken on line (leading to a spike in additional SUG quantity) which can handle up to some additional level of volume flow through the system, beyond which the next compressor needs to be taken on line, and so on. Further SUG may vary with same level of transmission quantity under different configuration of flow through parallel path. Thus, as per internal simulation, for a 75% capacity flow of 80.25 MMSCMD, required SUG quantity is estimated at 2.15 MMSCMD.

Based on the above, it is requested to consider 'additional fuel requirement (SUG) for running the compressors at 75% of the capacity from 2018-19 onwards for both the HVJ and HVJ Upgradation, that is 0.34 MMSCMD (1.06 MMSCMD - 0.72 MMSCMD) and 0.43 MMSCMD (1.09 MMSCMD - 0.66 MMSCMD) for HVJ and HVJ Upgradation respectively. This is based on estimated SUG as 2.15 MMSCMD

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against flow of 80.25 MMSCMD in integrated pipeline, and the prorated SUG for HVJ and HVJ Upgradation respectively is 1.06 MMSCMD for flow of 39.75 MMSCMD and 1.09MMSCMD for flow of 40.5 MMSCMD (vide email dated 02.01.2019).

- D. Actual volume flow during FY 2017-18 is 32.88 MMSCMD for HVJ. For the period Apr-Nov, 2018, the volume flow in the HVJ is around 33.04 MMSCMD and these levels are expected to continue till 2019-20. Going forward, it is expected that the production from RIL's KG-Basin is expected to increase from 2020-21 onwards. Hence, envisaging a projected additional flow of about 5-6 MMSCMD in the HVJ pipeline, the projected flow from 2020-21 onwards in HVJ is expected to be around 38-39 MMSCMD.

As regards HVJ Upgradation, for the period Apr-Nov, 2018, the volume flow in the HVJ Upgradation is around 33.02 MMSCMD and it may go up to 34.5 MMSCMD by 2019-20 with partial commissioning of JHBDPL. With the commissioning of remaining sections of JHBDPL and demand coming up from fertilizers, refinery, and other customers along JHBDPL, as well as various upcoming CGDs under the 9th and 10th round of bidding, it is expected that an additional flow of around 5-6 MMSCMD may be catered through the HVJ Upgradation, and accordingly, the projected flow in HVJ Upgradation from 2020-21 onwards is expected to be around 39.5–40.5 MMSCMD (vide email dated 02.01.2019).

Non-recurring O&M future: GAIL has claimed non-recurring O&M Opex on account of pigging, R&M of pipelines, CP survey, overhauling of plants and Equipment etc. PNGRB vide letter dated 01.11.2018 asked GAIL as follows:

- a. On account of expenditure pertaining to rotating equipment, detailed justification for proposing such expenditure, basis of estimates, historical data along with supporting documents such as Management approval, PO/WO, OEM certificates, etc.
- b. Other future Opex: To submit the basis of assumptions, detail justification for necessity of such expenditure, Management approval, basis of arriving at such expenditure, PO/WO, etc.

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In response, GAIL vide letter dated 16.11.2018 submitted that, “Non-recurring O&M expenses are for compliance of stringent safety norms recently introduced by PESO, PNGRB. Present system of budgeting and procurement has no provision for generating document like approval, PO etc. for future expenses. Expenditure has been estimated by experienced maintenance engineer as per assessment of future challenges and will be put up before Board for approval of budget and administrative approval on subsequent years.”

6.4.2.2. Corporate Opex: GAIL under this head has escalated actual Common Corporate Opex considered during FY 2017-18 @ 4.58% from FY 2018-19 onwards.

6.4.2.3. PD & PE Opex: GAIL has claimed 2.5% of future PD & PE Capex as PD & PE Opex, respectively, with annual escalation @4.58% from FY 2018-19 onwards. PNGRB vide letter dated 01.11.2018 asked GAIL to submit the basis of arriving at such % of 2.5%, duly supported by historical data/basis. In response, GAIL vide letter dated 26.11.2018 submitted that based on historical data (from FY 2013-14 to 2017-18) for HVJ and HVJ Upgradation, it is observed that average cost of Insurance (0.06%), R&M (0.85%) and Salary & Overheads (1.74%) is worked out as @ 2.65% of Gross block.

6.4.2.4. Entity & Stakeholder’s Comments:

6.4.2.4.1. Inflation Rate in Future Opex

Comments by IOCL (email dated 02.11.2018)

GAIL has considered annual escalation @4.58% on Opex. Hon’ble PNGRB has been following a uniform basis for estimating the annual Opex inflation at 4.5%. Therefore, same should be taken for this pipeline also.

No Response by GAIL

Comments by GSPL (letter dated 02.11.2018)

The Capex/Gross Block considered for HVJ-DVPL-GREP and DVPL-GREP-Upgradation natural gas pipeline is Rs. 22,923.4 Crore, while total Opex claimed for the said pipeline is Rs.50,893.92 Crore, PNGRB may verify the claim of such enormous O&M cost.



Response by GAIL (letter dated 13.11.2018)

The HVJ system entails eight (08) compressor stations. The total Opex is based on actual historical and projected anticipated future expenditure over the economic life considering inflation @4.58%.

Comments by H-Energy (letter dated 02.11.2018)

The WPI headline inflation is an appropriate assumption for the inflation rate in pipeline CAPEX and OPEX. Further, in previous tariff orders, PNGRB has considered the WPI inflation rate for pipeline tariff determination. As per the 54th round of Survey of Professional Forecasters on Macroeconomics Indicators report the WPI headline inflation is projected at average of 4.12% for Q2 2018-19 to Q2 2019-20 and hence in this case also the inflation rate should not be allowed more than 4.12%. Hence the entity's claim of total future capex and total Opex during the economic life of pipeline should be recalculated.

Response by GAIL (letter dated 13.11.2018)

The inflation rate has been considered based on long term compounded annual growth rate (CAGR) for wholesale price index (WPI) as published by Government of India. The disclaimer on the report of Survey of Professional Forecasters on Macroeconomics Indicators published by RBI clearly states that "*The results presented here represent the views of the respondent forecasters and in no way reflect the views or forecasts of the Reserve Bank*".

6.4.2.4.2. Compressor Fuel

Comments by EWPL (letter dated 02.11.2018)

Gas consumption is a major cost head in the Opex and it's price will keep on fluctuating. Making adjustment on this account at the next review period will make a large exposure for customer or pipeline. Hence, PNGRB may like to incorporate a formula to address the gas price issue for fuel which can be used to adjust tariff half yearly or yearly.

Fuel quantity: Quantity of fuel needs to be in commensurate with volume considered for tariff workings. Also, the Opex other than the gas cost need to be commensurate with the volume divisor.

Response by GAIL (letter dated 13.11.2018)

The views provided supports the position taken by GAIL.

Comments by H-Energy (letter dated 02.11.2018)

GAIL, in its tariff submission, for Integrated tariff filing has future Opex of HVJ till 26.03.2035, however in standalone filing the same is considered till 14.08.2022. This anomaly needs to be looked into because GAIL has considered different economic life namely first for defining the Economic life and secondly for calculation of future Opex

Further under Additional Compressor Fuel, under this head, GAIL has claimed additional compressor fuel on account of additional fuel requirement in HVJ Upgradation network for running 75% of the total capacity from 2018-19 onwards. Also Gas price used for FY 2018-19 for this calculation is \$8.32 MMBTU (Landed Price) with annual escalation at 4.58%.

Here, the basic assumptions like network running on minimum 75% of the total capacity, price of gas and escalation should be supported by historical data along with future assumptions arrived on best endeavour basis. Price of gas used for calculation needs to be supported by long term tie ups for price stability.

Response by GAIL (letter dated 13.11.2018)

OPEX is considered based on the economic life considered for the pipeline. The additional compressor fuel quantity considered is equal to the fuel consumption required to enable gas flow of at least 75% of design capacity, in line with the DVPL/GREP Upgradation DFR Report. The gas Price of US \$8.32/MMBTU is based on the actual gas price during the year 2017-18.

6.4.2.4.3. GAIL vide email dated 05.02.2019 submitted that GAIL has been allocated 1.55 MMSCMD of APM gas for the purpose of SUG (Compressor Fuel). To this extent

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SUG may be considered based on applicable APM Price. Further, there is no allocation of PMT JV Gas to GAIL for SUG.

Considering above, average delivered gas price for GAIL in HVJ system is USD 10.64/MMBTU-GCV which may be considered for SUG cost beyond allocated APM gas of 1.55 MMSCMD.

6.4.2.5. PNGRB's Ruling:

Inflation Rate: The regulation provides for the substitution of the projections made over economic life of the pipeline with the actual Capex/Opex on a prospective basis at the time of periodic tariff review. By substituting the provisional figures with the actuals, the entity is not put to any advantage/disadvantage over the economic life of the project. In effect, even if the adjustments are on a prospective basis considering the economic life of the project, the entity is still getting the benefit of prospective adjustments of the variations on account of the actual performance with respect to the Opex compared to the normative parameters identified under the Tariff Regulations.

In view of the above and to maintain consistency and uniformity, PNGRB has been following a uniform basis for estimating the annual Opex inflation at 4.50% and this rate is being taken in the case of this pipeline also for the Opex considered under following paras.

1) **O&M Opex:** Actual Opex considered for FY 17-18 has been escalated at 4.5% p.a., for estimating future O&M Opex for HVJ, HVJ Upgradation and Integrated HVJ. Further, expected hike in Salaries & Wages, for next Pay revision due in 2027 has been considered.

2) **Compressor Fuel (SUG) and tariff thereon:** SUG has been considered as under:

a. Actual volume flow April 2018-November 2018 and likely volume flow for FY 2018-19 being same, therefore, the actual SUG consumption, for April 2018-November 2019 i.e. 1.48 MMSCMD has been considered for FY 2018-19 and 2019-20, as against GAIL's claim of 2.15 MMSCMD.

SUG quantity from FY 2020-21 onwards has been considered as 1.89 MMSCMD, based on 75% of the total SUG quantity of 2.52 MMSCMD {1.22 MMSCMD for

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HVJ (as per PNGRB letter dated 14.12.2011) and 1.30 MMSCMD (DFR) for HVJ Upgradation} as against GAIL's claim of 2.15 MMSCMD.

In terms of Sub clause 2 (b) (fuel) of clause 5 (Operating costs) of Schedule A of Tariff Regulations, tariff not recovered on SUG quantity, has also been considered.

- b. GAIL vide its email dated 01.04.2019 asked to consider the revised domestic gas price effective from 01.04.2019 to 30.09.2019 while determining the tariff.
- c. In view of allocation of 1.55 MMSCMD of APM gas to GAIL for SUG, 1.48 MMSCMD SUG considered for FY 2018-19 and 2019-20, APM gas price as applicable during H1 and H2 of 2018-19 and H1 2019-20, as per PPAC circular plus VAT @15% (Gujarat VAT) has been considered in calculating SUG price in determination of final tariff for FY 2018-19 and for FY 2019-20, respectively.
- d. As per GAIL's submission, average delivered gas price for GAIL in HVJ system is US\$ 11.65/MMBTU-GCV during FY 2019-20. Further, other alternative domestic gas price for the gas to be produced from discoveries in Deepwater, Ultra Deepwater and High Pressure High Temperature areas during H1 2019-20 {PPAC letter dated 31.03.2019 (USD 9.32/MMBTU)}. PNGRB vide email dated 15.02.2019 asked ONGC to provide average discount to ceiling price and marketing margin realised through bidding rounds of gas produced from discoveries in Deepwater, Ultra Deepwater and High Pressure- High Temperature areas. ONGC vide letter dated 21.02.2019 informed that ONGC has tied up Deepwater gas produced from S1-VA field through open tendering process at the weighted average discount of USD 1.072 MMBTU to applicable ceiling price. In terms of the notice inviting tender for gas sales, ONGC charges \$0.20 MMBTU on GCV basis in addition to the gas price. Based on this, delivered price for this gas to GAIL works out to \$ 10.82/MMBTU [USD 8.45 (\$9.32-\$1.07+\$0.20) +Andhra Pradesh Vat @14.5%+Transmission Charges (EWPL levelized tariff + GST 12%)].

In view of the above, to the extent of allocation of APM gas to GAIL i.e. 1.55 MMSCMD, APM price during H1 2019-20 {PPAC letter dated 31.03.2019 (USD 3.69/MMBTU) + Vat@15% (Gujarat VAT)}, from FY 2020-21 onwards and for

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quantity beyond 1.55 MMSCMD US\$ 10.82 has been considered for calculating SUG price in determination of final tariff.

e. USD/INR rate of Rs.70 has been considered for arriving at INR gas price, for the FY 2019-20 as against GAIL's claim of Rs.72.55.

3) **Non-Recurring O&M Opex:** In absence of basis of estimates, historical data along with supporting documents such as Management approval, PO/WO, OEM certificates, etc., the expenditure proposed has not been considered, however, the same will be reviewed/considered based on the extant regulations, during the next tariff review exercise.

GAIL in its tariff filing has not provide the details of the past expenses on account of cleaning pigging and intelligent pigging. As per PNGRB Integrity Management System for Natural gas pipelines Regulations, 2012, existing and new natural gas transmission pipelines requires developing and implementing an effective and efficient integrity management plan for natural gas pipeline system. As a tool for integrity assessment, regulations provide for Instrumented Pigging (Intelligent Pigging) or any other technology that can provide a level of integrity assessment. Therefore, expenses on account of cleaning pigging and intelligent pigging to be incurred in future has been considered in determination of final tariff.

4) **Corporate Opex:** Corporate Opex as considered during FY 2017-18 has been escalated @ 4.50% p.a. from FY 2018-19 onwards. Further, expected hike in Salaries & Wages, for next Pay revision due in 2027 has been considered.

5) **PD Opex & PE Opex:** Based on historical data provided by GAIL, in support of their claim of 2.5% Opex as % of Capex, PD Opex and PE Opex @2.5% of future PD Capex and PE Capex considered has been taken in final tariff computation.

Year-wise and head-wise future Opex claimed and considered in determination of final tariff are as follows:

A) HVJ Network			(Rs.in Crore)
Year	O&M Opex including SUG Tariff and Non-recurring O&M future Opex	Corporate Opex	TOTAL
Amount	19,438.35	2,470.96	21,909.31

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Claimed			
Amount Considered	18,248.73	2,200.31	20,449.04

B) For HVJ Upgradation Network (Rs.in Crore)

Year	O&M Opex including SUG Tariff and Non-recurring O&M future Opex	PD	PE	Corporate	Total
Amount Claimed	29,120.95	248.99	2,117.79	3,580.40	35,068.13
Amount Considered	19,079.20	33.23	1,866.01	1,725.66	22704.09

C) For Integrated HVJ (Rs.in Crore)

Year	O&M Opex including SUG Tariff and Non-recurring O&M future Opex	PD	PE	Corporate	Total
Amount Claimed	54,218.20	248.99	2,117.79	6,696.36	63,281.34
Amount Considered	42,205.09	33.23	1,866.01	4540.50	48,644.82

6.5. Unaccounted Gas Loss

6.5.1. GAIL has claimed 0.30% of the volume considered in determination of final tariff as unaccounted gas loss, amounting to Rs.2,461.57 Crore for HVJ Network, Rs.2642.68 Crore for HVJ-Upgradation Network and Rs.5,563.94 Crore for Integrated HVJ for economic life as per para 6.1.3.

6.5.2. Entity & Stakeholders' comments:

EWPL (letter dated 02.11.2018)

Considering the nature of business, un-accounted-for gas (UFG) is a practical reality and need to be allowed to be factored as a part of Opex, with certain normative cap.

Response by GAIL (letter dated 13.11.2018)

The views provided supports the position taken by GAIL on various parameters.

IOCL (email dated 02.11.2018) has inter alia submitted as under

In the current regulations, unaccounted gas loss is not considered for tariff calculations. PNGRB may review the claim.

H-Energy (letter dated 02.11.2018) has inter alia submitted as under

The unaccounted gas as claimed by the entity should be excluded from the tariff determination as the same is not allowable by the extant Tariff Regulations.

Response by GAIL on IOCL and H-Energy's Comment (letter dated 13.11.18)

PNGRB's Access Code Regulations explicitly states that "Transmission Loss would include the quantity of gas which is unaccounted for due to whatsoever reason including blow downs, venting or releases during regular pipeline operation or due to inaccuracy of custody meter". There is no specific regulation in the PNGRB Tariff Regulations which indicates that unaccounted gas should not be considered in tariff determination. Hence, since extant regulatory framework explicitly recognize that certain quantity of gas would remain unaccounted due to blow downs, venting or metering inaccuracies etc., and therefore, unaccounted gas has been included in the tariff calculations submitted by GAIL.

In fact, it is observed that M/s IOCL for its Dadri-Panipat NG Pipeline, had also considered unaccounted gas in their final tariff submission to PNGRB. Keeping in view the industry submissions, it has been GAIL's consistent view that Unaccounted Gas Loss to be considered on a uniform and normative basis for all natural gas pipeline operators.

6.5.3. PNGRB's Ruling: Clause 5 (2) (b) of Schedule A of the Tariff Regulations which details the items to be considered as operating costs for calculation of tariff allows only system use gas (SUG) as an operating cost of the pipeline viz:

fuel (including the cost of natural gas and the natural gas pipeline tariff not recovered on the volume of system-use natural gas consumed in the natural gas pipeline);

As may be observed from the above, the Tariff Regulations do provide for gas used in the pipeline but that is only cost of the SUG which is the natural gas consumed in the natural gas pipeline as a fuel to run the pipeline itself e.g. for running the compressors in the pipeline. The Tariff Regulations do not provide for any other gas consumed in the pipeline. Specifically, there is no concept of compensating any gas loss like "unaccounted gas".

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The issue relating to unaccounted gas loss has been dealt in detail in earlier provisional initial unit natural gas pipeline tariff orders issued by the Board. Compensation for unaccounted gas loss is not allowable for the following reasons besides the fact that there is no specific provision in the Tariff Regulations for allowing unaccounted gas loss as the provision is only for SUG consumed in the natural gas pipeline:

- i. As per the pipeline design, the piping system is totally welded and leak proof. Hence, there is no scope for venting.
- ii. Measurement accuracy using meters based on modern technology is of high order. Hence, it is incorrect to assume a “loss” of gas on account of metering inaccuracy and for that matter there could also be a “gain” if the so called “metering inaccuracy” leads to lower supply of gas.
- iii. Loading unaccounted gas costs to transportation tariff means placing a burden on the consumer for inefficiency of the pipeline operator.
- iv. It would result in building in the cost a ‘fugitive emission’, which is a Green House Gas (GHG) discharge many times higher than equivalent amount of carbon dioxide.
- v. There is no justification for providing tariff for gas that is not proven to be transported to the end consumer.
- vi. Regulators (like FERC in USA) have, in rulings held that allowing unaccounted gas leads to a situation where earnings may substantially exceed actual cost of service including a reasonable return on equity.

Accordingly, no unaccounted gas loss/line loss has been considered in the determination of final tariff.

6.6. Volume Divisor

6.6.1. Volume divisors considered by GAIL in its tariff filing are as under:

(In MMSCMD)			
Financial Year	HVJ*	HVJ Upgradation**	Integrated HVJ
2008-09	47.46	0.00	47.46
2009-10	54.82	0.00	54.82
2010-11	50.89	13.12	64.01
2011-12	52.23	15.61	67.84
2012-13	45.19	19.51	64.70

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2013-14	42.08	22.23	64.31
2014-15	37.94	24.82	62.76
2015-16	35.26	27.58	62.84
2016-17	38.53	34.76	73.29
2017-18	38.53	37.99	76.52
2018-19 onwards	38.53	39.10	77.63

* The volume is netted by SUG quantity of 1.22 MMSCMD.

** The volume is netted by SUG quantity of 0.29 MMSCMD for FY 11-12 & 12-13 and 1.40 MMSCMD thereafter.

6.6.2. In response to PNGRB's communications, GAIL submitted following actual throughput and on which GAIL is entitled to earn revenue.

(MMSCMD)		
Year	HVJ	HVJ Upgradation
20.11.2008-31.03.2009	53.35	0.00
2009-10	56.04	0.00
2010-11	52.11	13.12
2011-12	53.45	15.89
2012-13	46.41	19.80
2013-14	43.30	23.63
2014-15	39.16	26.22
2015-16	35.51	28.98
2016-17	34.83	30.14
2017-18	34.22	30.15
April 2019 to Dec 2019	33.03	33.40

6.6.3. In case of HVJ Upgradation, GAIL has considered phase-wise capacity i.e. phase-I 11 MMSCMD from 19.06.2011 to 18.06.2016 and 43 MMSCMD from 05.08.2013 to 04.08.2018. Further, GAIL has considered phase-wise volume ramp up for both the phases.

6.6.4. PNGRB vide letter dated 01.11.2018 also asked GAIL to submit basis of considering phase 1 & phase 2 with supporting document such as commissioning report and linking the same with Capitalization in the books of accounts and Phase wise capacity for Integrated HVJ considering respective phases. In response, GAIL vide letter dated 16.11.2018 submitted as follows:

Quote

- **Phase-wise Capacity of HVJ Upgradation system**

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As per DFR of HVJ Upgradation system (copy of the DFR already submitted), it is designed for a capacity of 54 MMSCMD and it was executed in two phases.

Phase-I

1. Laying of 48" pipeline from Vijaipur to Dadri (in GREP RoU), Upgradation of existing SCADA & other facilities
2. Installation of compressor at existing Jhabua & Vijaipur Compressor Stations

Phase-I is designed for catering additional 11 MMSCMD gas. Phase-I was completed from March 2010 to June 2011.

Phase-II

1. Laying of 48 " pipeline from Dahej to Vijaipur (in DVPL-1 RoU)
2. Installation of additional compressors at Jhabua & Vijaipur and Installation of compressors in new Compressor Stations at Kailaras & Chhainsa & Upgradation of existing SCADA & other facilities

Phase-II is designed for catering additional 43.0 MMSCMD gas and Phase-II was completed by August 2013.

With commissioning of both phases, the total capacity of HVJ upgradation system: 54.0 MMSCMD.

In the Tariff Determination model of the HVJ Upgradation, GAIL has considered Phase-I capacity (11 MMSCMD) from March, 2010, and Phase-II capacity (43 MMSCMD) from August, 2013.

- **Phase-wise capacities for Integrated HVJ considering respective phases as per above are given below:**

GAIL has considered the following phase-wise capacities for Tariff Determination of the Integrated HVJ (i.e. HVJ and HVJ Upgradation):

Capacity for HVJ system:	53 MMSCMD
Capacity after the aforesaid Phase-I:	64 (53+11) MMSCMD
Capacity after the aforesaid Phase-II:	107 (53+11+43) MMSCMD

Unquote

Further, vide email dated 19.01.2019, GAIL submitted that the capacity increment was done in phases by adding 11 MMSCMD in Phase-I and 43 MMSCMD in Phase-II (thereby totalling 54 MMSCMD). GAIL also provided executive summary and relevant extract of detailed feasibility report by J P Kenny.

6.6.5. Entity & Stakeholders' comments:

6.6.5.1. GSPL (letter dated 02.11.2018) inter alia submitted as under:

HVJ-DVPL-GREP natural gas pipeline traverses through larger geographical area and is catering to a larger customer base viz-a-viz DVPL-GREP-Upgradation.

- To recover higher transportation tariff from customers/shippers, that entity denies access to HVJ-DVPL-GREP Natural Gas pipeline and capacity is provided only in DVPL-GREP-Upgradation pipeline. This can be also be evident from the following facts:
 - On the commissioning of DVPL-GREP-Upgradation pipeline, the transportation volume of HVJ-GREP-DVPL pipeline volume started decreasing and that of DVPL-GREP-Up gradation pipeline increased.
 - Even though HVJ-GREP-DVPL pipeline caters the same region which DVPL-GREP-Upgradation pipeline traverses, the tariff of the former pipeline is competitive than the latter.
- The online portal launched by GAIL recently for Open Access does not mention booking of capacity in HVJ-GREP-DVPL pipeline and also Schedule-I of HVJ-GREP-DVPL pipeline as per provision of PNGRB Access Code Regulation has not been declared on GAIL's website.
- Also, the entity has submitted bifurcation of quantity transported in DVPL-I part of HVJ network and DVPL-II in the manner that divisor of both the pipelines is around 75 % of design capacity.
- Hence, prior to finalizing the tariff, PNGRB may verify cases of denial of access to customers/shippers in HVJ-GREP-DVPL pipeline even though sufficient capacity is available and the methodology adopted for bifurcation of contractual vs actual volume transported in DVPL-I and DVPL-II.

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Response by GAIL (letter dated 13.11.2018)

Volume Divisor for HVJ is decreasing while increasing in Upgradation:

- It is submitted that, from the very beginning, GAIL has maintained the position that the HVJ-GREP-DVPL and the DVPL-GREP Upgradation is an integrated pipeline network and operationally, it is not possible to separate it. This was also accepted by PNGRB. In the tariff order dated 19.04.2010 (Para 3.2), it has been stated that "there is no contention on the two pipelines operating as a common network"
- As regards tariff and contractual capacity bookings, the said Para states that ".....it has been decided that for the purpose of tariff and related contractual obligations the Upgradation will be treated separately and the provisional initial unit natural gas pipeline tariff for the upgradation shall be determined separately".
- Furthermore, Para 4.18 states that "the rate of Rs.53 per mmbtu in respect of the DVPL/GREP Upgradation will be applicable only for the volumes contracted by new customers and incremental volumes contracted by existing customers."
- Subsequently, PNGRB, in the HVJ Upgradation's terms & conditions letter dated 14.02.2011, under para No.2 has stated that "as indicated by you, the Upgradation project has been taken as an integral part of HVJ-GREP-DVPL". Also, in Annexure -1 of the said letter, under the head Design Capacity, it has been stated that "Overall system capacity of HVJ-GREP-DVPL after capacity augmentation is likely to be 111.3 MMSCMD (57.3+54). The system capacity for DVPL-GREP Upgradation is 54 MMSCMD".
- In compliance with the above, contractual bookings for all the volumes contracted by new customers and incremental volumes contracted by existing customers are done @ Rs.53.65/MMBtu (with applicable zonal apportionments).
- In this regard, GAIL has been time and again submitting to PNGRB for issuing a single tariff for the Integrated HVJ.

GSPL's Additional submission (letter dated 29.11.2018)

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- a. We understand that PNGRB direction at Clause 4.18 of PNGRB provisional tariff order dated 19th April, 2010 was due to HVJ-DVPL-GREP Up gradation operating at 100% capacity. Accordingly, PNGRB has in aforesaid tariff order has mentioned for booking new and incremental capacity in DVPL-GREPL Upgradation pipeline.
- b. However, presently as per GAIL submission and mentioned in PNGRB Public Consultation document dated 18.10.2018, natural gas flow in HVJ-DVPL-GREP up gradation is below 75% of pipeline capacity.
- c. In view of sufficient capacity availability in HVJ-DVPL-GREP Upgradation as mentioned/submitted by GAIL, PNGRB is requested to seek clarification from GAIL as to why capacity was denied in HVJ-DVPL-GREP and capacity was made available only in DVPL-GREP-Upgradation pipeline.

GSPL's Comments (letter dated 02.11.2018)

Volume to be considered as divisor for HVJ and HVJ Upgradation pipeline needs to be increased in view of the commissioning of JHPL.

Response by GAIL (letter dated 13.11.2018)

- The anticipated volume to JHBDPL from HVJ Network has already been considered in the volume divisor for the HVJ system and the resultant volume (including JHPL volumes) is not exceeding the normative volumes of 75% of the pipeline capacity.
- Vijaipur-Auriya-Phulpur (VAPPL) is a spur-line of the DVPL-GREP Upgradation. Accordingly, volumes flowing through VAPPL have been accounted while computing the volume divisor.

GSPL's Comments (letter dated 02.11.2018)

- Capacity of natural gas pipeline is inclusive of capacity requirement of entity, which includes fuel requirement for running compressor. Hence, fuel requirement for running the compressor cannot be netted off from the volume divisor.

Response by GAIL (letter dated 13.11.2018)

- As Clause 5 (2) (b) of Schedule A to Tariff Regulations provides for considering the natural gas pipeline tariff not recovered on System Use Gas (SUG) as part of the OPEX. In line with the extant Regulatory Provision, gas used for running



compressors being SUG, the same has been netted off for computing volume divisor.

GSPL's Comments (letter dated 02.11.2018)

- PNGRB in its tariff order no. T0/05/2018 dated 27.09.2018 has not considered the phase-wise capacity built up provided by the entity for arriving of divisor of natural gas pipeline. In accordance with the decision taken by the Hon'ble Board in the said order, the same methodology should be applied for tariff determination of DVPL-GREP-Upgradation pipeline also.

Response by GAIL (letter dated 13.11.2018)

- Sl.9 of Attachment 1(j) of Schedule A of PNGRB Tariff Regulations states that "Implementation period of the Project in Phases to be provided". So extant regulatory framework, under Tariff Regulations, provides for consideration of project implementation in phases.
- It is submitted that out of the 54 MMSCMD capacity created in HVJ-DVPL Upgradation, 11 MMSCMD capacity was created in 42" existing DVPL-I by installation of compressor at Jhabua and Vijaipur for both DVPL-I & II pipelines and additional 43 MMSCMD capacity was created by laying of 48" pipeline from Dahej to Vijaipur with installation of additional compressors at Jhabua & Vijaipur. Further, 48" VDPL pipeline and new compressor at Kailaras & Chhainsa were installed to evacuate 54 MMSCMD additional gas from Vijaipur to Dadri.
- This phase-wise commissioning was also mentioned in the PNGRB Acceptance dated 14.02.2011 for the DVPL-GREP Upgradation. Accordingly, GAIL has also made its tariff submission considering the capacity Upgradation in two phases. It is also reasonable to consider the Capex/Opex as well as the corresponding volume divisor in a phased manner as such phase-wise project implementation has been done in DVPL-GREP Upgradation.

6.6.5.2.EWPL (letter dated 02.11.2018)

EWPL in its comments has inter alia stated that, In absence of declared capacity, volume divisor can be worked out in terms of the provision of clause 6(1)(b) of

for w/ d

Schedule A to Tariff Regulations which provides that capacity as mentioned in the authorization or acceptance letter issued by the Board shall be used for tariff determination till the capacity is declared as per capacity determination regulations.

Phase-wise commissioning of pipeline and its implication on the period of Economic Life and their extension, whether the same will be also be defined phase-wise. Similarly, the impact of Phase wise commissioning on the capacity determination and volume build up need's deliberation and clarity in the regulations.

Response by GAIL (letter dated 13.11.2018)

The views provided support the position taken by GAIL.

6.6.5.3. Comments by IOCL (email dated 02.11.2018)

IOCL while referring to the volume considered by GAIL in its tariff submission has inter alia stated as under:

- Authorized combined capacity of HVJ pipeline as per PNGRB letter dated 19.4.2010 is 57.30 MMSCMD. Whereas Authorised capacity of HVJ Upgradation as per PNGRB letter dated 14.02.2011 is 54.00 MMSCMD.
- IOCL in its comments has referred to clause 6(1) of Schedule-A of Tariff Regulations and stated that volume divisor calculated as per the regulations are as follows:

Year of Natural Gas pipeline operation	Percentage utilization	HVJ-GREP-DVPL Volume (MMSCMD)	DVPL-GREP Upgradation Volume (MMSCMD)
First	60%	25.79	24.30
Second	70%	30.08	28.35
Third	80%	34.38	32.40
Fourth	90%	38.68	36.45
Fifth	100%	42.98	40.50
Sixth year onwards	100%+common carrier	57.30	54.00

Response by GAIL on IOCL comments (letter dated 13.11.2018)

- The capacity of HVJ pipeline up to March 2012 has been declared and approved by PNGRB as 53 MMSCMD {which also includes the system use gas (SUG) of 1.22

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MMSCMD} vide PNGRB letter No. MI/NGPL/GGG/Capacity /GAIL dated 14.11.2012, and not 57.3 MMSCMD.

- Also, as Clause 5(2)(b) of Schedule A to Tariff Regulations provides for considering the natural gas pipeline tariff not recovered on System Use Gas as part of the Opex therefore, the SUG quantity of 1.22 MMSCMD has been reduced from the said capacity of 53 MMSCMD and likewise, the SUG of 1.3 MMSCMD has also been reduced from the DVPL/GREP Upgradation Capacity.
- Further, as per clause 6(1) of Schedule-A of Tariff Regulations, the volumes to be taken are normative volumes or actual whichever is higher. Normative volumes to be considered are 60% to 100% of 75% of pipeline capacity for first five years of operation and 75% of capacity of pipeline thereafter. Further, the volume divisor for the sixth and the subsequent years of operation shall be equal to the firmed-up contract capacity and booked common carrier capacity or 75% of the pipeline capacity, whichever is higher. As the normative pipeline capacity (i.e. 75% of the pipeline capacity) is higher than the contractual quantities, the volume projections remain constant in terms of the extant regulations.

6.6.6. Extant Regulations:

6.6.6.1. Tariff Regulations from 20.11.2008 to 07.01.2016

As per clause 6(1) of Schedule A of Tariff Regulations in force during the period, the volumes of natural gas to be considered as divisor in the determination of the unit natural gas pipeline tariff over the economic life of the project shall be computed on a normative basis as indicated below:

Clause 6(1)(a) of Schedule A of the Tariff Regulations will be applicable, stated as follows: "The divisor for each of the first five years of operations of the natural gas pipeline shall be arrived by multiplying the applicable percentage utilization for the year, as per the basis indicated below, with the sum of the capacity requirement of the entity and the firmed-up contracted capacity with other entities as specified under the Petroleum and Natural Gas Regulatory Board (Authorizing Entities to Lay, Build, Operate or Expand Natural Gas Pipeline) Regulations, 2008":-

Year of natural gas pipeline operations	Percentage utilization
First	60%
Second	70%
Third	80%
Fourth	90%
Fifth	100%

For the sixth year and subsequent years of operation, Clause 6(1)(b) of Schedule A of the regulations will be applicable, stated as follows: “The divisor for the sixth and the subsequent years of operation of the natural gas pipeline shall be equal to:

- (i) One hundred percent of the sum of the capacity requirements of the entity and the firm-ed-up contracted capacity with other entities as specified under the Petroleum and Natural Gas Regulatory Board (Authorizing Entities to Lay, Build, Operate or Expand Natural Gas Pipeline) Regulations, 2008; and
- (ii) The actual volume of natural gas transported on common carrier basis against the extra capacity as specified under the Petroleum and Natural Gas Regulatory Board (Authorizing Entities to Lay, Build, Operate or Expand Natural Gas Pipeline) Regulations, 2008 during the immediately preceding year of operation of the natural gas pipeline.

6.6.6.2. Tariff Regulations from 08.01.2016 onwards:

Volume for this period will be calculated as per Clause 6(1)(b) of the PNGRB [Amended Tariff Regulations effective from 08.01.2016], stated as follows: “The divisor for the sixth and the subsequent years of operation of the natural gas pipeline shall be equal to the firm-ed up contract capacity and booked common carrier capacity or seventy five per cent of the capacity of natural gas pipeline as declared under the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Regulations, 2010, whichever is higher.” The capacity considered for the pipeline networks will be replaced with the capacity determined as per capacity determination Regulations at the time of tariff review.

JX *Ja* *Jw* *sl*

6.6.6.3. Tariff Regulations for adjustment in volumes: As per clause 10(2) of Schedule A of Tariff Regulations, “When the actual volumes are lower than the normative volumes in any of the first five years of natural gas pipeline operations, a set-off of the impact of such lower volumes shall be permitted. Such set-off shall be allowed only to the extent of impact of higher actual volumes passed on in any of the first five years and the balance set-off, if any, shall be carried over to subsequent years, but not beyond the first five years of natural gas pipeline operation, to be allowed for adjustment only in case there are higher actual volumes.”

6.6.6.4. PNGRB (Guiding Principles for Declaring or Authorizing Natural Gas Pipeline as Common Carrier or Contract Carrier) Regulations, 2009 (Guiding Principles Regulations).

Regulation 6 (e) of the Guiding Principles Regulations inter alia states as under:

“When the extra capacity in a natural gas pipeline to be provided on a common carrier basis is less than thirty-three per cent of the sum of the capacity requirements of the entity and the firm up contracted capacity with other entities, the same will be made available- (i) on expiry of firm contracts, or (ii) by way of expansion of capacity in the natural gas pipeline”

6.6.7. PNGRB’s Ruling:

In view of the provisions of Tariff Regulations, ruling in Provisional Tariff Order, entity & stakeholders’ comments, volume divisor under two options i.e. considering HVJ and HVJ Upgradation separately and Integrated HVJ, volume divisor has been worked out on following basis:

HVJ: Volume divisor has been arrived at, based on capacity declared by PNGRB, for HVJ from 20.11.2008 to 2011-12 i.e. 53 MMSCMD (without netting off the SUG quantity of 1.22 MMSCMD). Further, first phase of HVJ was commissioned in 1987, accordingly, volume divisor percentage for sixth and subsequent year of operations is applicable.

HVJ Upgradation: Provisional acceptance of Central government, authorization, for HVJ Upgradation provides for laying of pipelines and installation of compressors in two

phases with system capacity of 54 MMSCMD, however, phase wise system capacity is not mentioned in the letter. Capacity for HVJ Upgradation has not yet been determined since the date of commissioning.

As per GAIL's submissions (i) Phase I is designed for 11 MMSCMD and was completed from March 2010 to June 2011 (Vijaipur-Dadri section of Phase I of HVJ Upgradation was commissioned on 27.03.2010). (ii) Phase II was designed for additional 43 MMSCMD and was completed on 04.08.2013.

In determination of volume divisor, phase wise capacity as submitted by GAIL is considered, however, volume divisor percentage for first five years of operation and sixth and subsequent years operations has been arrived at based on first date of operation of Vijaipur-Dadri section of phase I of HVJ Upgradation i.e. 27th March, 2010 and not separately for Phase I and Phase II, as claimed by GAIL in its tariff submissions. Further, volume divisor is arrived at after making adjustment as per para 6.6.6.3.

Volume divisor considered shall be tried up on determination of capacity for respective phases and for complete pipeline system.

Integrated HVJ: Capacity for Integrated HVJ has been arrived at based on capacity of HVJ system i.e. 53 MMSCMD and subsequent additions to capacity i.e. 11 MMSCMD and 43 MMSCMD on 27.03.2010 and 04.08.2013, respectively.

In case of Integrated HVJ, based on first year of operation of HVJ i.e. 14.08.1987, in terms of Tariff Regulations, the provisions of volume divisor percentage for sixth and subsequent year of operation shall be applicable, in other words benefits of volume built up, for first five years of operation and volume adjustments, as mentioned at para 6.6.6.1, 6.6.6.3 above, will not be available. Accordingly, volume divisor so arrived at has been compared with the actual volume as mentioned at para 6.6.2 and higher of two has been considered.

The year-wise volume considered for determination of final tariff of HVJ, HVJ Upgradation separately and for Integrated HVJ are as follows:

(In MMSCMD)

Year	HVJ	HVJ Upgradation	Integrated HVJ
2008-09	53.35	0.00	53.35
2009-10	56.04	4.95	56.04
2010-11	52.11	13.05*	65.23
2011-12	53.45	11.90*	69.34
2012-13	46.41	6.61*	66.21
2013-14	43.30	26.47	72.17
2014-15	39.75	40.55	84.26
2015-16	39.75	45.89	85.64
2016-17	39.75	40.50	80.25
2017-18	39.75	40.50	80.25
2018-19 onwards	39.75	40.50	80.25

* after making adjustment as per para 6.6.6.3

6.7. **Weighted Average Heat Value:** Year-wise weighted average gross calorific value considered by GAIL in its tariff filing is detailed below. The calorific value considered by GAIL in case of Integrated HVJ is average of calorific value considered for HVJ and HVJ Upgradation.

Year	HVJ	HVJ Upgradation	Integrated HVJ
2008-09	9,352.62		9,352.62
2009-10	9,352.62		9,352.62
2010-11	9,334.71	9,334.71	9,334.71
2011-12	9,384.75	9,259.89	9,322.32
2012-13	9,394.23	9,374.47	9,384.35
2013-14	9,387.33	9,432.84	9,410.08
2014-15	9,373.95	9,399.82	9,386.89
2015-16	9,401.96	9,430.76	9,416.36
2016-17	9,331.19	9,364.44	9,347.81
2017-18	9,350.46	9,384.56	9,367.51
2018-19 onwards	9,350.46	9,384.56	9,367.51

Entity's and Stakeholder's Comments

H-Energy (letter dated 02.11.2018)

H-Energy inter alia submitted that the, “Calorific value of FY 18-19 onwards should have been the average of historical value.”

Response by GAIL (letter dated 13.11.2018)

Latest gas composition/heat value is generally considered more relevant and accordingly, the same is considered for the balance economic life, which shall be subject to true-up, in the next tariff review.

6.7.1.PNGB's Ruling: As per Clause 6(2) of Schedule A of Tariff Regulations, the volume of natural gas determined as per the regulations shall be converted into its energy equivalence in MMBTU terms for the purpose of determination of final initial unit natural gas pipeline tariff by considering the weighted average heat value of natural gas delivered to customers during the initial unit natural gas pipeline tariff period.

In view of the above, the GCV submitted by GAIL for the period from FY 2008-09 to 2017-18 has been considered in determination of final tariff for HVJ and HVJ Upgradation, further, in case of Integrated HVJ, calorific value has been considered based on the yearly weighted average of the quantity and calorific value of HVJ and HVJ Upgradation. Calorific value for the FY 2018-19 onwards has been calculated based on the weighted average calorific value for period from FY 2008-09 to FY 2017-18.

Based on the above, calorific value considered are as follows:

Year	HVJ	HVJ Upgradation	Integrated HVJ
2008-09	9,352.62		9,352.62
2009-10	9,352.62	9,352.62	9,352.62
2010-11	9,334.71	9,334.71	9,334.71
2011-12	9,384.75	9,259.89	9,365.50
2012-13	9,394.23	9,374.47	9,390.02
2013-14	9,387.33	9,432.84	9,398.92
2014-15	9,373.95	9,399.82	9,382.27
2015-16	9,401.96	9,430.76	9,412.75
2016-17	9,331.19	9,364.44	9,345.40
2017-18	9,350.46	9,384.56	9,366.77
2018-19 onwards	9,365.99	9,382.99	9,370.04

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6.8. **Working Capital:** Based on the economic life considered in para 6.1.3, GAIL has considered total working capital of Rs.485.31 Crore in case of HVJ and Rs.457.26 Crore in case of HVJ Upgradation and Rs.960.83 Crore for Integrated HVJ, calculated as sum of 30 days of Opex and 18 days of Revenue.

PNGRB's Ruling: Working capital is calculated as sum of 30 days of Opex (excluding depreciation) and 18 days of revenue (tariff receivables), in conformity with the Tariff Regulations. After the adjustments made as detailed in various paras, amount of working capital reworked and considered in the determination of final tariff.

6.9. **Number of Working Days:** GAIL in its tariff filing has considered working days based on 345 days in a year.

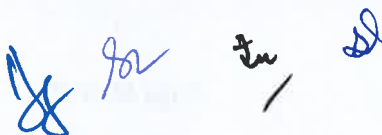
6.9.1. **Entity and Stakeholder's Comments**

IOCL (email dated 02.11.2018) and H-Energy (letter dated 02.11.2018)

No. of working days as considered by the entity should be in accordance with the extant Regulatory provisions.

Response by GAIL (letter dated 13.11.2018)

There is no extant specific regulation under the Tariff Regulation which states that the number of operating days of a natural gas pipeline shall be considered as 355. Extant regulatory framework, in the context of planned maintenance works for a pipeline facility, has provided for 10 days/year. However that does not automatically imply that there should not be any separate provision for allowing maintenance works of other upstream/downstream facilities connected to a pipeline (LNG facilities, Fertilizer Plants, Power Plants, LPG Plants etc.), which may independently occur as per their respective maintenance schedules. In fact, various downstream customers (viz. fertilizer plants, refineries) connected to GAIL's pipelines have taken annual planned shutdown ranging from 20 days to even 55 days. In view of the same, and in line with past practices, a reasonable 20 days (10 days for pipeline and 10 days for all other connected facilities) has been considered by GAIL as totally allowable maintenance period (i.e. 345 Working Days in a year) in the tariff calculations.



6.9.2. **PNGRB's Ruling:** The issue of number of days to be considered for shutdown and maintenance has been clearly specified in the Clause 14(3) of the Access Code Regulations that the planned maintenance period shall not exceed 10 days in a year. On this basis, there would be 355 working days for a pipeline in one financial year. Accordingly, 355 working days has been considered in a year and proportionate days for part year.

6.10. **Line Pack:** GAIL, in its tariff filing, has considered line pack as per details below:

Pipeline System	As on	Quantity (MMSCM)	Rate Rs./MMBTU	Amount (Rs. in Crore)
HVJ	30.09.2008	144.35	89.12	47.74
HVJ Upgradation	31.03.2010	38.62	261.20	37.44
Integrated HVJ	30.09.2008 & 31.03.2010	182.97	125.49	85.18

6.10.1. Entity and Stakeholder's Comments

H-Energy (letter dated 02.11.2018) inter alia submitted as under:

PNGRB may review the entity's consideration of line pack of Rs. 85.18 Crore as cash outflow (Rs.47.74 Crore as line pack for HVJ for 144.35 MMSCM as on 30.09.2008 and Rs. 37.44 Crore as line pack for HVJ Upgradation for 38.62 MMSCM as on 31.03.2010). Further, this will also undergo change depending upon our observations made above related to "Economic life" and we also request that price of gas used for calculation of Line Pack may also be reviewed.

Response by GAIL (letter dated 13.11.2018)

As per the provisions of Tariff Regulations, the value of Line Pack has been considered based on the gas quantity and gas price prevailing at the time of commissioning of pipeline. The same value has also been considered as Inflow in the last year of economic life as a non-depreciating asset.

6.10.2. PNGRB's Ruling: As per clause 6 to Attachment 2 to Schedule A of Tariff Regulations, Line pack is the value of gas which always remains in the pipeline and as per regulations, it is to be considered as cash outflow in the initial year and to be considered as cash inflow in the last year of the economic life of the pipeline. Assessment of the volume of natural gas required as line pack in the natural gas pipeline as and when commissioned shall as be specified in the relevant regulations for the technical standards and specifications, including safety standards. The line-pack value of natural gas in natural gas pipeline tariff shall be considered as a non-depreciating fixed asset and the value to remain fixed over the economic life of the project.

Line pack amounting to Rs.47.74 Crore, Rs.37.44 Crore and Rs.85.18 Crore as provided by GAIL is considered as outflow for HVJ, HVJ Upgradation and Integrated HVJ respectively in initial year and inflow in the last year of economic life.

6.11. Terminal Value: GAIL in its tariff filing has considered terminal value of Rs.3,597.04 Crore, Rs.5,578.24 Crore and Rs.7,957.49 Crore for HVJ, HVJ Upgradation and for Integrated HVJ, respectively in the last year of economic life (as per para 6.1.3).

PNGRB's Ruling: Terminal Value is the sum of the residual value of the assets at the end of the economic life, working capital and line pack. It is considered as cash inflow at the end of economic life of the pipeline. The Capex claim made by GAIL has been varied as discussed under above paras. Accordingly, the terminal value has been recomputed as Rs.907.82 Crore, Rs.4,288.55 Crore and Rs.4,114.71Crore in case of HVJ, HVJ Upgradation and Integrated HVJ respectively.

6.12. Return on Capital Employed: Pre-tax rate of return considered by GAIL in its tariff filing are as under:

Year	FY 08-09 & 09-10	FY 10-11	FY 11-12 & 12-13	FY 13-14 & 14-15	FY 15-16 to 17-18	FY 18-19 onwards
Pre-Tax Rate of return	18.18%	17.97%	17.76%	18.18%	18.35%	18.45%

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PNGRB's Ruling: Clause 2 of Schedule A of the Tariff Regulations mandates that natural gas pipeline tariff shall be calculated based on the DCF methodology after considering the reasonable rate of return. In terms of Clause 3 of Schedule A of the Tariff Regulations twelve percent post tax will be grossed-up by nominal rate of income tax applicable for corporate assesses as per the provisions of Income Tax Act, 1961. The Corporate income tax rate and pre-tax rates considered for determination of final tariff are as follows:

Year	FY 08-09 & 09-10	FY 10-11	FY 11-12 & 12-13	FY 13-14 & 14-15	FY 15-16 to 17-18	FY 18-19 onwards
Corporate Income Tax Rate	33.99%	33.22%	32.45%	33.99%	34.61%	34.944%
Pre-Tax Rate of return	18.18%	17.97%	17.76%	18.18%	18.35%	18.45%

6.13. **Applicability of Tariff:** GAIL in its tariff filing has considered the applicability final tariff w.e.f. 01.04.2019.

Entity and Stakeholder's comments:

The FAI vide letter dated 23.11.2018 inter alia requested that the tariff for gas pipelines should not be revised retrospectively to avoid litigation between industry, government and PNGRB.

PNGRB's Ruling:

As per clause 9(4) of Schedule A of Tariff Regulations, "Adjustment on account of variation in the provisional initial unit natural gas pipeline tariff and final initial unit natural gas pipeline tariff shall be made in the DCF calculations and the derived tariff shall be charged from the customers on prospective basis till next review, that is, in case tariff order is issued before 30th September, tariff shall be applicable from 1st April of the financial year in which Tariff Order is issued, otherwise tariff shall be applicable from 1st April of the next financial year."

As the tariff order issued on or after 30th September shall be applicable from 1st April of the next financial year, accordingly, final tariff has been calculated considering the provisional tariff is applicable upto 31.03.2019.

7. Tariff Reconciliation

7.1. Based on the above, the final initial unit natural gas pipeline tariff for GAIL's HVJ, HVJ Upgradation and for Integrated HVJ on a levelized basis is given below:

a) HVJ (considering economic life upto 14.08.2032)

(Rs. /MMBTU on GCV basis)

S. No.	Particulars	Impact	Tariff
	Tariff Submitted by GAIL		175.20
1	Considering economic life upto 14.08.2032 (Para 6.1)	-58.41	116.79
2	Inflation Rate (Para 6.4.2.5)	-0.18	116.61
3	Unaccounted Gas Loss (Para 6.5)	-10.94	105.67
4	Working Days (Para 6.9)	-7.66	98.01
5	Revised NFA and Actual Capex (Para 6.3)	-15.94	82.07
6	NFA as on 20.11.2008 (Para 6.3) & IDC included in Capex (Para 6.3)	-2.25	79.82
7	Actual Opex, Future Opex and SUG Tariff (Para 6.4)	-19.15	60.67
8	Future Capex (Para 6.3)	-7.93	52.74
9	Volume Divisor (Para 6.6) and Calorific Value (Para 6.7)	-9.07	43.67
	Levelised Final Tariff determined by PNGRB		43.67

Reconciliation between provisional tariff notified by PNGRB vide order no. TO/02/2010 dated 19.04.2010 and final tariff as determined under this order is as follows:

(Rs. /MMBTU on GCV basis)

S.No.	Particulars	Impact	Tariff
	Tariff as per Provisional Tariff Order		25.46
1	Tariff Calculated upto 14.08.2032	0.54	26.00
2	Actual and Future Capex (Para 6.3)	0.87	26.87
3	Actual and Future Opex (Para 6.4)	-5.54	21.33
4	Volume Divisor (Para 6.6)	4.55	25.88
5	Tax Rate (Para 6.12), Weighted Average Gross Calorific Value (Para 6.7), etc.	1.99	27.87
6	Impact on account of sr.no.1 to 5 above being applied prospectively from 01.04.2019.	15.80	43.67
	Final Tariff		43.67

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b) HVJ Upgradation (considering economic life upto 26.03.2035)

(Rs. /MMBTU on GCV basis)

S. No.	Particulars	Impact	Tariff
	Tariff Submitted by GAIL		79.28
1	Inflation Rate (Para 6.4.2.5)	-0.24	79.04
2	Unaccounted Gas Loss (Para 6.5)	-6.21	72.83
3	Working Days (Para 6.9)	-4.69	68.14
4	Revised NFA and Actual Capex (Para 6.3)	14.65	82.79
5	IDC included in Capex (Para 6.3)	-1.16	81.63
6	Actual Opex, Future Opex and SUG Tariff (Para 6.4)	-7.74	73.89
7	Future Capex (Para 6.3)	-8.14	65.75
8	Volume Divisor (Para 6.6) and Calorific Value (Para 6.7)	-9.08	56.67
	Levelised Final Tariff determined by PNGRB		56.67

Reconciliation between provisional tariff notified by PNGRB vide order no. TO/02/2010 dated 19.04.2010 and final tariff as determined under this order is as follows:

(Rs. / MMBTU on GCV basis)

S.No.	Particulars	Impact	Tariff
	Tariff as per Provisional Tariff Order		53.65
1	Actual and Future Opex (Para 6.4)	-11.53	42.12
2	Volume Divisor (Para 6.6),	28.51	70.63
3	Tax Rate (Para 6.12), Weighted Average Gross Calorific Value (Para 6.7)	-7.46	63.17
4	Actual and Future Capex (Para 6.3), etc.	-8.62	54.55
5	Impact on account of sr.no.1 to 4 above being applied prospectively from 01.04.2019.	2.12	56.67
	Final Tariff		56.67

c) Integrated HVJ (considering economic life upto 26.03.2035)

(Rs. / MMBTU on GCV basis)

S.No	Particulars	Impact	Tariff
	Tariff Submitted by GAIL		97.04
1	Inflation Rate (Para 6.4.2.5)	-0.22	96.82
2	Unaccounted Gas Loss (Para 6.5)	-8.40	88.42
3	Working Days (Para 6.9)	-6.05	82.37
4	NFA, IDC and Actual Capex (Para 6.3)	-1.83	80.54
5	Actual Opex, Future Opex and SUG Tariff (Para 6.4)	-13.34	67.20
6	Future Capex (Para 6.3)	-6.27	60.93
7	Volume Divisor (Para 6.6) and Calorific Value (Para 6.7)	-19.82	41.11
	Levelised Final Tariff determined by PNGRB		41.11

Note: Tariff (s) as per 7.1 a), b) and c) above has been worked out considering applicability of tariff w.e.f. 01.04.2019. The adjustment on account of actual applicability of tariff and computation done based on 01.04.2019 shall be done in next tariff review.

7.2.PCD on Tariff Structure

7.2.1. A PCD on tariff structure was webhosted by PNGRB on 29.11.2018 for comments from the stakeholders within 10 days i.e. by 09.12.2018. In response, comments were received from Kajaria Ceramics Ltd., Reliance Industries Limited, Bharat Petroleum Corporation Limited, H Energy, BETA Infratech Pvt. Ltd., GAMA Infraprop (P) Ltd., Sravanthi Energy Pvt. Ltd., GACL, GSPL, Gail Gas Limited, Gujarat Gas Limited, Orient Bell Limited, Indraprastha Power Generation Co. Ltd. & Pragati Power Corporation Limited and Indian Council of Ceramic Tiles & Sanitaryware.

7.2.2. PNGRB's Comment in Provisional Tariff Order

Treatment of upgradation for determination of final tariff

“The merger of the upgradation costs with that of the existing network leads to a substantially higher tariff for the existing customers as may be seen from GAIL's proposal. The Consultants also, after analyzing the issue in detail, including from the perspective of international experience and the impact on the existing customers, have opined that tariff for the expansion pipeline should be computed/determined separately. According to the entity, the existing HVJ-GREP-DVPL and the DVPL/GREP upgradation is an integrated pipeline network and operationally it is not possible to segregate it, and also, since the existing network is fully contracted out, the additional common carrier capacity is being created in the upgradation.

While there is no contention on the two pipelines operating as a common network, existing customers cannot be unfairly burdened with rolled-in costs and consequent higher tariffs and at the same time assured rate of return duly safeguards the interests of the entity. It is also an accepted practice in infrastructure to apportion costs of shared common facilities whenever required. Established regulators like FERC have

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consistently held that costs of expansion should be paid for by the new customers unless the rolled-in costs of expansion result in lowering of the tariff for all. Clubbing the costs of expansion, apart from subsidization of incremental volumes and customers by the existing customers, leads to wrong price signals and distorts capacity creation. Accordingly, after duly considering all the relevant aspects and the overall interests of the customers as well as the entity, it has been decided that for the purpose of tariff and related contractual obligations, the 'upgradation' will be treated separately and the provisional initial unit natural gas pipeline tariff for the 'upgradation' will be determined separately.”

7.2.3. Entity & Stakeholder's comments on PCD:

7.2.3.1. Comments by GSPL (letter dated 02.11.2018)

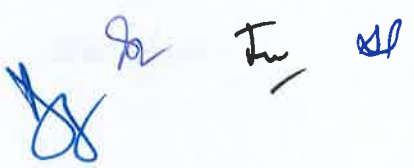
Observation: Integrated Tariff of HVJ-DVPL-GREP and DVPL-GREP-Upgradation natural gas pipeline.

Submission: PNGRB has authorised HVJ-DVPL-GREP and DVPL-GREP-Upgradation natural gas pipelines as two distinct and separate natural gas pipelines.

Accordingly, Hon'ble Board vide its order dated 19.04.2010 had issued suitable reasoning/rationale for keeping HVJ-DVPL-GREP and DVPL-GREP-Upgradation pipelines as two separate and distinct pipelines and issued the order determining separate provisional tariff.

Since, separate provisional tariffs have been determined/ issued by the PNGRB for HVJ-DVPL-GREP and DVPL-GREP-Upgradation natural gas pipelines, finalisation of said provisional tariff should also be determined separately by the Hon'ble Board.

Response by GAIL (letter dated 13.11.2018): It is submitted that, from the very beginning, GAIL has maintained the position that the HVJ-GREP-DVPL and the DVPL-GREP upgradation is an integrated pipeline network and operationally, it is not possible to separate it. This was also accepted by PNGRB. In the tariff order dated 19.04.2010 (Para 3.2), it has been stated that “there is no contention on the two pipelines operating as a common network”



As regards tariff and contractual capacity bookings, the said Para states that “it has been decided that for the purpose of tariff and related contractual obligations the Upgradation will be treated separately and the provisional initial unit natural gas pipeline tariff for the upgradation shall be determined separately”.

Furthermore, Para 4.18 states that “the rate of Rs.53 per mmbtu in respect of the DVPL/GREP Upgradation will be applicable only for the volumes contracted by new customers and incremental volumes contracted by existing customers”.

Subsequently, PNGRB, in the HVJ Upgradation’s terms & conditions letter dated 14.02.2011, under Para No.2 has stated that “as indicated by you, the Upgradation project has been taken as an integral part of HVJ-GREP-DVPL”. Also, in Annexure -1 of the said letter, under the head Design Capacity, it has been stated that “Over all system capacity of HVJ-GREP-DVPL after capacity augmentation is likely to be 111.3 MMSCMD (57.3+54). The system capacity for DVPL-GREP Upgradation is 54 MMSCMD”.

In compliance with the above, contractual bookings for all the volumes contracted by new customers and incremental volumes contracted by existing customers are done @ Rs.53.65/MMBtu (with applicable zonal apportionments).

In this regard, GAIL has been time and again submitting to PNGRB for issuing a single tariff for the Integrated HVJ.

7.2.4. Stakeholders Comments and GAIL’s response on PCD for tariff structure

Summarized/ concluding comments from various stakeholders are as follows:

7.2.4.1. RIL (letter dated 07.12.2018)

As evident from the PCD, the proposed tariff for integrated network is higher than that proposed for standalone DVPL-GREP Upgradation network. This would imply that customers on DVPL-GREP Upgradation Network would cross-subsidize the customers of HVJ-DVPL-GREP network, which as principle was earlier rejected by PNGRB while fixing the provisional tariffs. Hence, while determining the final tariffs, it is requested to ensure that the same principle is followed and the integration of pipeline

networks should not result in a higher integrated network tariff in comparison with standalone tariff for DVPL-GREP Upgradation network.

Response by GAIL (letter dated 18.12.2018)

- a) RIL have stated that at the time of provisional tariff order, the principle of existing customers not to be burdened with rolled-in costs of upgradation was adopted, and hence has requested PNGRB that the same principle is followed while determining final tariffs to ensure that the Integration of networks should not result in a higher integrated network Tariff in comparison with standalone tariff for the Upgradation network.
- b) It is submitted that better affordable tariffs by way of rationalized/integrated tariff structure for the HVJ and HVJ Upgradation pipeline system would eliminate the widely varying tariffs for using the same system which is actually operating as one integrated network only. As regards the earlier principle adopted, it is seen that it is leading to anomalies that are not in line with the extant PNGRB Regulatory framework. For instance, the Regulatory definition of Tariff Zone explicitly states that "Provided the natural gas pipeline tariff for transport of natural gas from the same source shall be uniform for all the customers located within the zone".
- c) In the instant case, although the natural gas pipeline, i.e. the combined HVJ & HVJ Upgradation, is actually one integrated pipeline, but yet, two different tariffs are being applied for gas transported from the same source to customer(s) located within the same tariff zone. In view of the same, it has been the consistent submission by GAIL that since the HVJ and HVJ Upgradation are actually operating as one integrated network, a single levelized tariff be determined for this integrated network.

7.2.4.2.BPCL (email dated 08.12.2018) and GSECL (letter dated 11.12.2018)

- BPCL in its submission inter alia requested the Board not to allow increase in tariff as this will have a negative impact on the natural gas consumption of the country.
- The proposed final levelised Tariff by GAIL is seven times of the existing HVJ pipeline. Even the proposed tariff for integrated system is 2 time of the existing HVJ Upgradation which may increase the end cost by 20 %. This will severely affect the

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consumer of electricity. Gas based power plants which are currently under stress because of unfavourable price and tax structure, the burden will still increase and generation of electricity will be unviable.

It is requested not to allow increase in tariff as this will have negative impact on consumption of natural gas in power sector all over the country.

Response by GAIL (letter dated 18.12.2018) on BPCL and GSECL's comments

In this regard, it is submitted that the aforesaid points are not specific to the subject PCD and in any case, the Board will be guided by the principle of safeguarding the consumer interest and at the same time ensuring recovery of cost of transportation in a reasonable manner while determining/ fixing the final tariff.

7.2.4.3.H Energy (letter dated 07.12.2018)

We would like to submit that H-Energy has no objection regarding GAIL's proposition for the determination of integrated tariff for HVJ and HVJ Upgradation.

However, the final levelized tariff proposed by the entity for HVJ Integrated System is on higher side therefore the Hon'ble Board may kindly scrutinize all the issues highlighted by H-Energy vide letter dated 02nd November, 2018.

Response by GAIL (letter dated 18.12.2018)

M/s H-Energy in its current letter dated 07.12.2018 has stated that H-Energy has no objection regarding GAIL's proposition for the determination of Integrated Tariff for HVJ and HVJ Upgradation.

7.2.4.4.Sravanthi Energy Private Limited, Gama Infrapop Private Limited and Beta Infratech Private Limited inter alia vide letters dated 10.12.2018 made following comments and GAIL's response vide letter dated 18.12.2018 on the same are as follows:

Comments

- It is submitted that the above referenced PCD Document is not in accordance with section 22 PNGRB Act and the PNGRB Act and is not in the interests of the consumers.

GAIL has not provided any specific comments

Comments

- Hazira-Vijaypur, Dahej-Vijaypur-I seem to be the original pipeline (as they were commissioned between 1986-2004) but are now being re-classified to also include Dahej Vijaypur-II which was commissioned much later in 2011.
- Hazira-Vijaypur and Dahej-Vijaypur-I pipelines are clearly separate and distinct from Dahej Vijaypur-II as the latter is commissioned in 2011 after the PNGRB Act came into effect and more than 13 years after the commissioning of the Dahej-Vijaypur-II. They comprise of smaller segments of large pipelines having a diameter ranging from 30" to 36" to 48" pipelines with lengths of sections ranging from 0.8 km to the maximum being 99.24 km
- Jagoti-Pithampur (JIPPL) Pipeline, Vijaipur-Auraiya, Auraiya-Jagdishpur, Vijaipur-Dadri are clearly distinct pipelines.
- Bhajera-Agra, Agra-Firozabad and Lalpur-Mathura seem to be one pipeline originating from Vijaypur-Dadri (GREP)'s Kailaras-Bhajera-Chhainsa section and were all commissioned in 1997 itself and therefore are distinct from the rest of the network.
- Bhajera-Agra pipeline is clearly a distinct and separate pipeline that was a larger diameter pipeline of 12" commissioned only in 2011.
- Auraiya-Babralla-Dadri, Vijaypur-Dadri are clearly a distinct pipeline.
- Karanpur-Kashipur pipeline, Kashipur-Rudrapur pipeline, Kashipur Pipeline Network, Rudrapur Pipeline Network and Kota-Chittaurgarh Network are clearly distinct and separate pipeline networks.

Response

- Already accepted as integral part of the HVJ system in PNGRB letter dtd. 19.04.2010 or are accepted as part of HVJ-Upgradation system in PNGRB letter dtd. 14.02.2011.

Comments

- Sikandarabad Pipeline Network, Ghaziabad Pipeline Network, Sahibabad Pipeline Network, Bahadurgarh Pipeline Network and Sonapat Pipeline Network are clearly a CGD network.

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Response

- The Sikandarabad, Ghaziabad, Sahibabad, Bahadurgarh and Sonipat pipelines/networks comprise 4" diameter connectivity pipelines to consumers. In this regard, it may be noted that the Schedule 1D (Design, Installation and Testing) of PNGRB T4S Regulations for Natural Gas Pipelines, explicitly provide for developing and operating pipelines of size 4" diameter as part of Natural Gas Pipelines. Hence, the averment that 4" dia. pipelines would have to necessarily fall under CGD network is incorrect.

Comments

- GAIL is clearly attempting to include costs relating to various separate and distinct natural gas pipelines, and CGD networks as part of a single tariff thereby imposing much higher than applicable tariff. The customers connected to the separate pipelines and CGD networks cannot under law be imposed with the higher single pipeline tariff on the basis of a "integrated tariff", or "single operational network" concept which has no basis under the statutory regime governing natural gas pipeline tariff determination.

Response

- As is known, the HVJ and HVJ Upgradation is a case covered under Regulation 17 of the PNGRB (Authorizing Entities to lay Build Operate and Expand Natural Gas Pipelines) Regulations, 2008, i.e. entity authorized by the Central Govt. for laying, building, operating or expanding the natural gas pipeline before the appointed day. Accordingly, the regulatory process in respect of authorization has been followed under the said Regulation 17. The list of all pipeline sections and spur-lines as submitted by GAIL are operating as integral part of the HVJ and HVJ Upgradation system and the same have been accepted by PNGRB vide letters dated 19.04.2010/14.02.2011/ the earlier tariff order dated 19.04.2010, and the list also comprises various small connectivity lines to consumers who are located within the tariff zone of the HVJ / HVJ-Upgradation pipeline. In terms of extant tariff order and regulatory framework, the entire capex/opex of all these pipelines are subsumed in the tariff of the trunk line and accordingly all the consumers connected to these pipelines

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are also charged the applicable zonal tariffs of the HVJ / HVJ-Upgradation as fixed by PNGRB.

7.2.4.5. GAIL Gas Limited (letter dated 07.12.2018) & IGL (letter dated 11.12.2018) has inter alia submitted as under:

GAIL Gas: We would request PNGRB to consider adopting a rationalized tariff structure for the HVJ and HVJ Upgradation pipeline systems by having an Integrated tariff for the entire pipeline system.

IGL: PNGRB may moderate the transmission tariffs (on prospective basis only) by adopting a rational approach of considering HVJ and HVJ Upgradation as HVJ Integrated system.

Response by GAIL (letter dated 18.12.2018)

The views of these CGD entities have broadly supported the adoption of a rationalized integrated tariff structure for the HVJ/ HVJ Upgradation System.

7.2.4.6. GSPL's comments (letter dated 10.12.2018) and GAIL's response (letter dated 18.12.2018)

Comments

- i The following is submitted for consideration of the Hon'ble Board:
 - a. GAIL has provided details of future Capex, future Opex and other details up to year 2035 for HVJ pipeline as has been mentioned at clause 3.3 of PCD dated 18.10.2018.
 - b. PNGRB may consider all these details provided by GAIL for arriving at tariff proposal of HVJ pipeline considering economic life up to year 2035.
 - c. Thereafter, the tariff proposal of HVJ, HVJ Upgradation and Integrated HVJ considering economic life up to year 2035 may be webhosted for public consultation.
- As the same shall give correct comparison of impact of considering pipeline Tariff proposal on separate viz-a-viz integrated basis

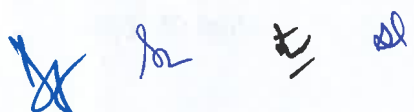
Response

- (i) Need to compare Integrated Tariff and the recomputed individual tariffs by considering economic life upto 2035

Given the fact that HVJ and HVJ Upgradation are actually operating as one integrated pipeline system, GAIL has submitted for a single tariff only considering the Economic Life and all the future Capex/Opex of this integrated system upto 2035. This is in line with the already established practice of considering one common economic life for the entire system although some of its individual components/projects may have come up in different points of time. It may also be mentioned that such a practice is adopted not only in the case of some of GAIL's pipelines but also in the case of GSPL's Gujarat Network as well. In addition, based on requirement from PNGRB, workings for individual HVJ and HVJ Upgradation were also provided by GAIL based on the respective economic lives as considered in PNGRB's provisional Tariff Order. So, the same have been reflected in the PNGRB's PCDs also.

Even in respect of PNGRB's potential consideration of extension of economic life of HVJ by a block of another 10 years, i.e. from 2022 to 2032, GAIL has already submitted its note on 10.12.2018 and the same is also webhosted by PNGRB.

It may be mentioned here that the subject matter of single /integrated tariff for the HVJ/ HVJ Upgradation and the aspect pertaining to economic life were already covered in the original PCD dated 18.10.2018 and written comments from all interested stakeholders were also obtained by 03.11.2018. All issues, including these points, were deliberated by the stakeholders during the Open House Meeting held in PNGRB on 26.11.2018. Notwithstanding the same, it was desired to have one more PCD seeking written comments from stakeholders on the specific topic of single /integrated tariff structure for the HVJ/ HVJ Upgradation, and accordingly, the subject additional PCD dated 29.11.2018 has also been webhosted by PNGRB. Thereafter, comments in this regard from 13 stakeholders have also been webhosted by PNGRB and the same are also being replied herewith. In view of the above, requirement for one another PCD based on one another set of assumptions is not justified and it will only delay the process.



Comments

HVJ Upgradation project is a capacity augmentation project of existing GREP and DVPL-I pipeline

- ii From GAIL's submission dated 27.11.2018, it is understood that GAIL in year 2010 & 2013 has developed HVJ Upgradation project to add additional capacity of 54 MMSMCD to existing DVPL-GREP pipeline (capacity: 38.9 MMSMCD) to meet the increased gas flow requirement.
- iii In this regard, it may be noted that Regulation 12 of PNGRB Authorisation Regulation specifies that if an entity proposes to expand the authorised capacity of natural gas pipeline by more than 10 % of authorised capacity,
 - a. ".the entity agrees to a reduction in the unit natural gas pipeline tariff by sharing fifty percent of the proposed incremental tariff revenue calculated based on the applicable unit natural gas pipeline tariff before expansion and the incremental volumes sought to be transported"
- iv If the Hon'ble Board is of opinion to consider DVPL-GREP Upgradation project a part of existing HVJ-DVPL -GREP pipeline as an Integrated HVJ
 - a. Then existing customers of HVJ-DVPL-GREP pipeline in accordance with the above proviso of Regulation 12 of PNGRB Regulation should be benefited by the capacity expansion undertaken by GAIL by developing DVPL-GREP Upgradation project in terms of reduction in transportation tariff.
 - b. However, the GAIL proposal of integrated tariff is in contravention to above PNGRB Regulation wherein it has sought to increase the transportation tariff of existing customers.

Response

- (ii) DVPL/GREP Upgradation is capacity augmentation of HVJ-GREP-DVPL and Tariff determination of HVJ-GREP-DVPL to be in accordance with Regulation 12 Authorization Regulations

As is known, the HVJ and HVJ Upgradation is a case covered under Regulation 17 of the Authorisation Regulations, i.e. entity authorized by the Central Govt. for laying,

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building, operating or expanding the natural gas pipeline before the appointed day. Accordingly, all the regulatory processes for this pipeline system including the HVJ Upgradation, has been followed under the said Regulation 17.

Cross reference to Regulation 12 in this regard is incorrect because at the time of HVJ Upgradation project, the provisions regarding expansion of capacity in natural gas pipelines under sub-regulations (1) and (2) of Regulation 12 were not applicable to natural gas pipelines covered under regulation 17. It may be mentioned that, there was a specific clarification given by PNGRB vide letter Ref. File No PS/Secretary/09 dated 16.07.2009 stating that "*the provisions of regulation 12 of the PNGRB (Authorizing Entities to lay Build Operate and Expand Natural Gas Pipelines) Regulations, 2008 are applicable to only those natural gas pipelines that have been authorized by the Board through the bidding route as envisaged under the relevant regulations*".

Therefore, the original provisions of Regulation 12 notified w.e.f. 06.05.2008 are not applicable for the HVJ Upgradation.

As is known, later on, specific amendments were introduced in the said Regulation 12 vide the Amended Regulation 12 w.e.f. 08.08.2014, which stated that the provisions regarding expansion of capacity in natural gas pipeline under Regulation 12(1) and 12(2) shall be applicable to all natural gas pipelines authorized by the Board under regulation 4, 18 or 19 or accepted under regulation 17 as authorized by Central Govt.

Accordingly, cross reference to the provisions of regulation 12 in the context of the current PCD is incorrect.

Comments

Non-availability of access to HVJ-DVPL-GREP Up gradation pipeline has actually led to customer paying higher transportation tariff

- a. We understand that PNGRB direction at Clause 4.18 of PNGRB provisional tariff order dated 19.04.2010 was due to HVJ-DVPL-GREP Up gradation pipeline operating at 100% capacity.



- b. Accordingly, PNGRB indicated in the aforesaid tariff order that new and incremental capacity should be booked in DVPL-GREPL Upgradation pipeline.
- c. However from FY 2010-11, as per GAIL submission and as mentioned in PNGRB Public Consultation document dated 18.10.2018, natural gas flow in HVJ-DVPL-GREP up gradation is around 75% of pipeline capacity.
- d. Hence, GAIL even after having sufficient capacity in its HVJ-DVPL-GREP Up gradation
 - i Has been denying capacity to customers / shippers of HVJ-DVPL- GREP Up gradation.
 - ii Has been providing transportation service of HVJ customers in DVPL-GREP up gradation to earn higher transportation tariff.

Response

(iii) Non-availability of access to the HVJ System leading to higher tariff payment by customers and capacity being denied to customers/ shippers despite availability of the same

It is observed that the aforesaid point raised, per se, does not pertain to the specific aspect being discussed under this subject PCD, i.e. having a single final tariff for the HVJ System.

In any case, this was already replied by GAIL vide its letter dated 13.11.2018 and it was also deliberated during the Open House Meeting held on 26.11.2018. Accordingly, the matter be please be treated as closed.

7.2.4.7. GACL (letter dated 11.12.2018)

Earlier, tariff determined for HVJ-DVPL-GREP was lower than that of DVPL-GREP HVJ Upgradation. However, GAIL now has proposed tariff which is reversed. Clarification in this regard may please be provided along with reasoning for such reversal in transportation tariff.

GAIL is supplying natural gas to GACL through HVJ network. However, DVPL-GREP Upgradation is totally different pipeline and has no relevant with GACL plant

for supply of gas. Hence as a consumer we should not be burdened with the cost of DVPL-GREP Upgradation pipeline.

Also, GACL is paying Rs.19.83/MMBTU as transportation tariff of HVJ network in long term contract with GAIL. Proposed tariff is too much higher.

We request the Hon'ble Board to kindly consider the above mentioned comments and not to consider GAIL proposal of integration and be allowed to access HVJ network for transportation.

7.2.4.8. Kajaria Ceramics Limited (letter dated 07.12.2018)

Since, the operating cost and capital cost have not changed and also the higher tariff is being charged for an up-gradation line i.e. Rs.53.65/MMBTU-GCV and only very few old customers are paying tariff of Rs.25.46/MMBTU-GCV, who actually supported the Pipe line venture in the beginning when there were no demand for natural gas. As this new price of Rs.97.04/MMBTU-GCV which is 281% higher from the current price of Rs.25.46/MMBTU-GCV will make the existing business unviable. We would request the board that this new integrated tariff required to implement, may be applicable to the new customers only.

Response by GAIL (letter dated 18.12.2018) on comments from GACL and Kajaria

- a) In this regard, it is submitted that in accordance with the present provisional tariff order, the rate in respect of DVPL/GREP Upgradation is being applied for the volumes contracted by the new customers or the incremental volumes contracted by the existing customers.
- b) It can be seen that the applicability of the said tariff is not based on physical connectivity to any particular pipeline. The present differential/dual tariff is leading to a situation where the already existing customers who are mostly beneficiaries of APM gas are also getting the benefit of much lower tariff, whereas the new customers who have to consume the costlier R-LNG are also burdened with much higher tariff. Furthermore, this dual tariff system for using the same pipeline is also creating other anomalies, viz., say an existing customer receiving gas from the same source, but one

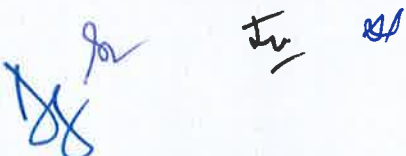
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quantity already contracted before the tariff order and the other quantity contracted as incremental volume after the tariff order, is forced to pay completely different tariffs. Also, a new customer, who may be located near an existing customer (within the same tariff zone), but both receiving gas from the same source, is also forced to pay much higher tariff than the existing customer. Such anomalies are also not in line with the extant PNGRB Regulatory framework. In case the two differential tariffs for using the same integrated HVJ pipeline system is continued, one way or another, one tariff would be significantly higher than the other tariff, and therefore in any case, it would be better to discontinue the current dual tariff system for using the same pipeline.

- c) As regards reasons for reversal of final tariffs, i.e., HVJ now will be becoming higher than HVJ-Upgradation, all the parameters involved in such tariff calculations are already available in the earlier PCD dated 18.10.2018.

7.2.4.9. Gujarat Gas Limited (letter dated 10.12.2018) inter alia submitted that

1. The proposal submitted in the instant case by GAIL violates each and every factor stipulated in s.22 (2) PNGRB Act and more specifically:
 - a. "factors which may encourage competition, efficiency, economic use of the resources, good performance and optimum investments";
 - b. safeguard consumer interest and at the same time recovery of cost of transportation in a reasonable manner;
 - c. "the principles rewarding efficiency in performance";
 - d. the connected infrastructure such as compressors pumps, metering, units, storage, and the like connected to the common carriers or contract carriers;
 - e. bench marking against a reference tariff calculated based on cost of service, internal rate of return, net present value or alternate mode of transport and
 - f. policy of the Central Government applicable to common carrier, contract carrier and city or local distribution natural gas network. "
2. Thus it is clear that under the PNGRB Act, tariff is to be determined in relation to common carrier or contract carrier and which also clarifies that the concept of "Integrated tariff" is outside the contours of the statutory framework and cannot be



considered by the Honourable PNGRB under the PNGRB Act and in light of the judgment of the Honourable Supreme Court in the case of PNGRB v. IGL [(2015)9SCC209].

3. Even if the proposed integration is considered u/r 12 of Authorisation Regulations, the tariff should be set to ensure compliance with regulation 12 (2) Authorisation Regulations.
4. In exercise of the powers u/s 61 PNGRB Act, the PNGRB has formulated the Tariff Regulations. The framework for tariff determination under the NGP Tariff reflects the statutory framework provided under the PNGRB Act and that natural gas pipeline tariff would be determined in respect of specific natural gas pipelines which are covered by NGP Tariff Regulations. The pipelines governed by the NGP Tariff Regulations are: (i) those that were authorized by the Central Government before the PNGRB Act came into force, (ii) those that were laid, built, operated before the appointed day and have been then authorized by PNGRB and (iii) those that were initially laid as dedicated pipelines and then converted into natural gas pipelines. Under the mechanism provided in the NGP Tariff Regulations the divisor is based on the capacity determined for the relevant natural gas pipeline under the Capacity Regulations. Furthermore, under the NGP Capacity Regulations, capacity is determined for each specific natural gas pipeline as authorized by PNGRB.
5. From review of the above provisions of PNGRB Act, it is clear that the present legal framework governing gas transportation pipelines provide for authorization of specific pipelines and tariff determination can occur for each of the authorized pipelines separately.
6. It is also imperative to note that GAIL has obtained authorization for its various pipelines separately as distinct specific pipelines. There is presently no legal basis to support the GAIL Proposal where it is seeking to claim that its various pipelines that have received authorization separately should now be treated as "interconnected cross country natural gas pipelines".

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7. In order for the GAIL Proposal to be considered as a valid tariff proposal, the PNGRB Act would need to be amended and the NGP Tariff Regulations as well as the NGP Capacity Regulations would also need to be amended.

GAIL's response (letter dated 18.12.2018)

GAIL inter alia submitted as under:

It is seen that the entire comments of GGL are in the context of "Unified/Pooled Tariff", in respect of which PNGRB had already conducted a separate Public Consultation Process, including a separate Public Consultation Paper dated 28.09.2017 and a separate Open House Meeting on 17.07.2018. PNGRB's Public Consultation Paper pertained to having a "Unified/Pooled Tariff" for several separately authorized but inter-connected cross-country pipelines belonging to several entities.

However, in contrast, the current PCD dated 29.11.2018 is specifically for considering a single tariff for the HVJ and HVJ Upgradation in the Final Tariff, as against considering them separately for the purpose of tariff and related contractual obligations as mentioned in the earlier provisional Tariff Order.

7.2.4.10. Comments by Orient Bell (letter dated 30.11.2018)

Natural gas, a green fuel plays a major role in manufacturing of ceramic tiles and constitutes a major component in the overall cost and in production process. Increase in cost of Natural gas will directly impact our manufacturing cost. It is noteworthy that as building material industry is going through the tough a time because of recession in real estate industry and sudden spur in Brent crude and dollar (though the prices have come down from its peak but still in higher range). Any further increase in total cost of gas will be unbearable for industry like us.

Our company provides employment to more than 1500 employees and livelihood of their families is wholly dependent on our company. The slowdown in the company's operation due to said increase in the cost of RLNG will adversely affect employment opportunity.

7.2.4.11. Indian Council of Ceramic Tiles & Sanitaryware (letter dated 21.12.2018)

Since the industry is going through the tough time because of subdued demand scenario and sudden spur in Brent prices, any further increase in total cost of gas will bring set back to the industry.

We would request the Board that the proposed new integrated tariff, if required to implement, may be applicable to the new customers only.

We therefore request you not to increase the transmission charges and arrange to establish integrated pipeline cost for both the HVJ and HVJ Upgradation pipeline.

7.2.4.12. Indraprastha Power Generation Company Limited (IPGCL) & Pragati Power Corporation Limited (PPCL) (letter dated 24.12.2018)

IPGCL & PPCL inter alia submitted as under:

In case any moderate increase in tariff (Prospective only) must be granted to GAIL, PNGRB is requested to adopt a rational approach of considering integrated approach for the two transmission lines after considering the Benchmark Cost of similar nature in India and / or abroad.

7.2.5. Deliberations on determination of final tariff separately for HVJ & HVJ Upgradation or for Integrated HVJ

7.2.5.1. In terms of Regulation 17 of Authorization Regulations, the entities authorized by the Central Government for laying, building, operating or expanding natural gas pipeline before the appointed day are required to submit relevant information along with supporting documents in the form as per schedule H. As per schedule H submitted by GAIL, HVJ upgradation is a capacity augmentation /upgradation project of existing HVJ.

Further, as per Schedule H and GAIL's submissions, Capacity augmentation was done by adding 54 MMSCMD (DVPL-II) to existing DVPL-I (24 MMSCMD), out of which 11 MMSCMD capacity was created in 42" existing DVPL-I by installation of compressor at Jhabua and Vijaipur for both DVPL-I & II pipelines and additional 43 MMSCMD capacity was created by laying of 48" pipeline from Dahej to Vijaipur with installation of additional compressors at Jhabua & Vijaipur. Further, 48" VDPL

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pipeline and new compressor at Kailaras & Chhainsa were installed to evacuate 54 MMSCMD additional gas from Vijaipur to Dadri.

7.2.5.2. Para 3.2 of provisional tariff order inter alia states that "there is no contention on the two pipelines operating as a common network, existing customers cannot be unfairly burdened with rolled-in costs and consequent higher tariffs and at the same time assured return duly safeguards the interests of the entity"

Board after considering all relevant aspects and the overall interests of customers as well as entity, decided that *for the purpose of tariff and related contractual obligations, the upgradation will be treated separately.*

7.2.5.3. As per para 4.18 of provisional tariff order, the HVJ upgradation tariff will be applicable only (i) for the volumes contracted by the new customers or (ii) the incremental volumes contracted by the existing customers. The applicability of tariff was determined not based on physical connectivity of customer with HVJ or HVJ upgradation but was mentioned based on above principles.

7.2.5.4. The para 4.18 of provisional tariff order also states that any issue arising in the course of implementation of the separate *provisional tariff for the HVJ upgradation that may adversely affect the interest of the consumers will be duly examined before the finalization of provisional tariff.*

7.2.5.5. In view of implementation of separate tariff, based on para 7.2.5.4 above, following issues have emerged:

7.2.5.5.1. The volumes for HVJ upgradation are increasing, where transportation tariff is higher as compared to HVJ (refer para 6.6.2).

7.2.5.5.2. The stakeholders have raised the issue of non-availability of access, based on HVJ tariff, which is lower as compared to HVJ upgradation.

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7.2.5.5.3. The customers physically existing at same place or the existing customer contracting for new volume paying two different tariffs for natural gas from same source, this is not in line with the proviso to definition of “tariff zone” as per Regulations 2 (i) (ii) of Tariff Regulations.

7.2.5.5.4. Issuance of separate tariffs for HVJ and HVJ upgradation may attract issue of levy of additive tariff for natural gas flowing from HVJ to HVJ upgradation or vice versa.

7.2.5.6. **Past Precedence:** As per MOP&NG letter dated 18.05.2006, “Revision of transportation tariff of HBJ and DVPL and third-party access to the pipeline” which inter alia states that, “The recommendations of Tariff Commission have been examined by the Ministry and it has been decided to accept the recommendation pertaining to common transportation tariff of HBJ and DVPL worked out on the basis of cost of service methodology.”

7.2.5.7. In case HVJ upgradation is considered as a separate natural gas pipeline, the provisions of Tariff Regulations i.e. for volume built up for first five years of operations and volume adjustment, as per para 6.6.6.1 and 6.6.6.3, respectively, shall be applicable, and therefore, tariff shall be higher as compared to integrated tariff as evident from para 7.1. The summary of tariff worked out for HVJ, HVJ upgradation separately and Integrated HVJ is as under:

(Rs. /MMBTU on GCV basis)

Pipeline	HVJ	HVJ Upgradation	Integrated HVJ
Levelized final tariff	43.67	56.67	41.11

7.2.6. **PNGRB’s Ruling:** In view of above, and considering that tariff for Integrated HVJ is lower than HVJ and HVJ upgradation tariff, further implementation of Integrated HVJ tariff will be able to address the issues mentioned at para 7.2.5.5 above, hence, Board has decided to determine tariff for Integrated HVJ instead of separate tariff for HVJ and HVJ Upgradation.

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7.3. **Tariff Review:**

In terms of Clause 2(1)(e)(i) of Tariff Regulations, the provisional tariff of HVJ and HVJ Upgradation was notified on 19.04.2010, which is being finalized now based on the actual data up to FY 2017-18.

In respect of tariff review, clause 2(1)(h) of Amended Tariff Regulations, 2019 inter alia states as under:

“that the gap between two tariff reviews shall not be less than two consecutive financial years after the end of the financial year in which last tariff fixation occurred.”

In view of the above provisions of Tariff Regulations, next tariff review of Integrated HVJ becomes due on 01.04.2022.

8. **Tariff determined**

- 8.1. The levelised tariff of HVJ and HVJ Upgradation is Rs.25.46/MMBTU on GCV basis w.e.f. 20.11.2008 and Rs.53.65/MMBTU on GCV basis w.e.f. 27.03.2010, respectively, accordingly, zonal tariff approved as per tariff order no.TO/03/2010 dated 09.06.2010 is applicable till the end of the month in which zonal tariff order with respect to levelized tariff as per para 8.2 below is issued.
- 8.2. Levelised tariff determined under this order, for Integrated HVJ is Rs.41.11/MMBTU on GCV basis. On issuance of zonal tariff order by the Board, the same shall be applicable from the first day of the month, following the month, in which the zonal tariff order is issued by the Board.

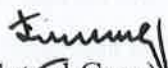
9. **Decision**


- 9.1. The tariff shall be applicable as per para 8 above.
- 9.2. The above tariff has been worked out based on information provided by the entity and deliberations above. However, PNGRB intends to verify/ audit the information provided for tariff determination and method of cost allocation, etc. by internal team of PNGRB or by an external agency. Accordingly, tariff as determined above will be subject to revision based on aforesaid verification/ audit of the information, data, method of allocation, etc. submitted by the entity.


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9.3. The total length of the network is more than 300 kms. Hence, zonal apportionment of the final levelized tariff is required. The apportionment of levelized tariff over all the tariff zones with calculations will be submitted by GAIL for Board's approval within 07 days of the issue of this order.


(D.K. Sarraf)
Chairperson


(Satpal Garg)
Member (C&M)


(Dr. S. S. Chahar)
Member (L)


(S. Rath)
Member (I&T)