

उ.प्रौ.के./जीसी/40/2743

CHT/GC/40/

दिनांक: 02 मार्च, 2021

Date: 02 March, 2021

To,

उच्च प्रौद्योगिकी केन्द्र की गवर्निंग काउंसिल के माननीय अध्यक्ष महोदय एवं सभी सदस्यगण (संलग्न सूची के अनुसार)
Chairman and Members, Governing Council of Centre for High Technology (As per list enclosed)

महोदय,

Dear Sir,

विषय: उच्च प्रौद्योगिकी केन्द्र की गवर्निंग काउंसिल की 40वीं बैठक का कार्यवृत्त

Sub: Minutes of 40th Meeting of the Governing Council (GC) of CHT

दिनांक 16 फरवरी 2021 को, वीडियो कॉन्फ्रेंसिंग द्वारा, सचिव, पेट्रोलियम और प्राकृतिक गैस मंत्रालय की अध्यक्षता में सम्पन्न हुई उच्च प्रौद्योगिकी केन्द्र की गवर्निंग काउंसिल की 40वीं बैठक का अनुमोदित कार्यवृत्त आपकी सूचना और आवश्यक कार्रवाई हेतु संलग्न किया जा रहा है।

Please find enclosed the duly approved Minutes of the 40th Meeting of Governing Council (GC) of CHT held on 16th February 2021 through video conferencing, under the Chairmanship of Secretary, P&NG, for kind information and necessary action.

भवदीय,

Yours sincerely,



(पी. रमन)

निदेशक

उच्च प्रौद्योगिकी केन्द्र

(P. Raman)

Director

Centre for High Technology

संलग्न: यथा उपर्युक्त

Encl.: As above

MEMBERS OF THE GOVERNING COUNCIL OF CHT

- | | | |
|-----------|--|-----------------|
| 1. | Shri Tarun Kapoor
Secretary
Ministry of Petroleum & Natural Gas
Shastri Bhawan
<u>New Delhi - 110 001</u> | Chairman |
| 2. | Shri Rajesh Aggarwal
Additional Secretary & Financial Adviser
Ministry of Petroleum & Natural Gas
Shastri Bhawan
<u>New Delhi - 110 001</u> | |
| 3. | Shri Sunil Kumar
Joint Secretary (R)
Ministry of Petroleum & Natural Gas
Shastri Bhawan
<u>New Delhi - 110 001</u> | |
| 4. | Shri Amar Nath
Joint Secretary (E)
Ministry of Petroleum & Natural Gas
Shastri Bhawan
<u>New Delhi - 110 001</u> | |
| 5. | Shri Ashish Chatterjee
Joint Secretary (GP)
Ministry of Petroleum & Natural Gas
Shastri Bhawan
<u>New Delhi - 110 001</u> | |
| 6. | Dr Navneet Mohan Kothari
Joint Secretary (M)
Ministry of Petroleum & Natural Gas
Shastri Bhawan
<u>New Delhi - 110 001</u> | |
| 7. | Shri B. N. Reddy
Joint Secretary (IC)
Ministry of Petroleum & Natural Gas
Shastri Bhawan
<u>New Delhi - 110 001</u> | |

8. **Shri Niranjana Kumar Singh**
Secretary
Oil Industry Development Board
OIDB Bhawan
Plot No. 2, Sector-73
NOIDA – 201 301
9. **Shri S.M. Vaidya**
Chairman
Indian Oil Corporation Ltd.
3079/3, Sadiq Nagar
J.B. Tito Marg
New Delhi – 110 049
10. **Shri Shashi Shanker**
Chairman & Managing Director
Oil & Natural Gas Corporation
5, Nelson Mandela Marg,
Vasant Kunj II, Vasant Kunj,
New Delhi - 110 070
11. **Shri Sushil Chandra Mishra**
Chairman & Managing Director
Oil India Limited
Plot No. 19, Near Film City,
Sector 16A,
Noida – 201 301
12. **Shri M.K. Surana**
Chairman & Managing Director
Hindustan Petroleum Corporation Ltd.
Petroleum House
17, Jamshedji Tata Road
Mumbai - 400 020
13. **Shri K. Padmakar**
Chairman & Managing Director
Bharat Petroleum Corporation Ltd
Bharat Bhawan
4 & 6 Currimbhoy Road
Ballard Estate
Mumbai - 400 001

- 14. Shri Manoj Jain**
Chairman & Managing Director
GAIL (India) Limited
16, Bhikaiji Cama Place, R.K. Puram
New Delhi - 110 066
- 15. Shri R.K. Sabharwal**
Chairman & Managing Director
Engineers India Ltd.
El Bhawan
1, Bhikaiji Cama Place
New Delhi - 110 066
- 16. Shri Rajeev Ailawadi**
Managing Director (I/C)
Chennai Petroleum Corporation Ltd.
536, Anna Salai, Teynampet
Chennai - 600 018
- 17. Shri M. Venkatesh**
Managing Director
Mangalore Refinery & Petrochemicals Ltd.
Regd. Office: Kuthethoor
P.O. Via Katipalla
Mangaluru - 575 030
- 18. Shri S.K. Barua**
Managing Director
Numaligarh Refinery Limited
122A, R.G. Barua Road
Guwahati – 781 005
- 19. Dr. Anjan Ray**
Director
Indian Institute of Petroleum
P.O. Mohkampur
Dehradun - 248 005
- 20. Shri K.K. Jain**
Executive Director
Centre for High Technology
9th Floor, OIDB Bhawan, Sector-73
NOIDA – 201 301

Member Secretary

Minutes of the 40th Meeting of the Governing Council (GC) of Centre for High Technology (CHT) held on 16th Feb'21 through VC

- 1.0** Shri Tarun Kapoor, Secretary, P&NG and Chairman of the Governing Council (GC) of CHT chaired the Meeting. The list of participants is enclosed as **Annexure-1**.
- 2.0** Shri K. K Jain, Executive Director, CHT, welcomed the Chairman & Members of the GC and other participants to the Meeting.
- 3.0** The Minutes of the 39th meeting of the Governing Council held on 16th July'20 was circulated to the Members vide letter No. CHT/GC/39 dated 24th July'20. Since no comments on the minutes have been received from the members, the same were confirmed and adopted by GC.

4.0 Items for information of GC [Agenda No: 2]

4.1 Refinery Performance Improvement Programme (RPIP) for PSU Refineries

CHT informed that RPIP is in progress at 7 Refineries (IOCL-PR, MR, PDR), HPCL-M, V and BPCL-M, K with an estimated benefit of 3172 Crores. The summary of the assessed benefits, based on mutually signed-out numbers, the Year wise implementation schedule is enclosed as **Annexure-2**.

CMD BPCL informed that most of the intended benefits were based on past prices and not during the assessment and realization phase, because of which the benefits calculated are not in line with the estimate. BPCL is going slow on this project as the benefits are not based on current cracks but the older ones.

ED CHT clarified, that the refinery and the consultant have to jointly firm up the baseline data along with the price set which has to be considered and this can be an average of three-year price or as agreed during the kick off meeting post award of work. The price sets are not part of the tender and the consultant has quoted benefits based on their own internal assessments. This has been clearly outlined in the tender. Post award of the job, Assessment phase shall start only when the set of operational as well as economic data has been mutually agreed and signed out. The consultant has to achieve the quoted benefits based on the agreed price sets.

ED CHT informed that for RPIP Phase-II, the committee formed shall once again deliberate the pricing clause in detail. ED CHT further clarified that fee is solely based on the % of the actual benefit derived post implementation of a particular idea and the same is one time only after which the refinery shall get recurring benefit.

On a query, ED CHT informed that in case consultants are not able to demonstrate benefit, there is a provision of penalty.

ED CHT informed that EOI for RPIP Phase II for remaining 8 refineries (i.e IOC-BR, JR, HR, BGR, GR, DR, CPCL & NRL) was floated on 30th July 2020 to identify additional consultants. Offers from two more consultants were received, however, both could not meet the Pre-Qualification Criteria. Consultants of last RPIP have already confirmed willingness to participate.

Due to COVID impact on operations, Refinery wise tender is expected by March 2021 or later depending upon availability of at least 3 months of optimal refinery operation data instead of 1 full year for tender and go ahead from the refinery as decided by EC of CHT.

GC took a note of above.

4.2 Reduction of Water Footprint at PSU Refineries

ED CHT informed that Water Footprint reduction study for 13 PSU Refineries through EIL was completed by March 2020 and based on identified initiatives, a roadmap of water consumption reduction has been prepared. Savings of 23% in Short Term (<2 years) and further 22% in Long Term (> 2 years) have been identified (**Annexure-3**). The targets couldn't be met for current year due to COVID, however the same is expected to be made up in subsequent years. Further, 4 new technologies for pilot study have been identified jointly by EIL and industry to reduce water consumption. These may be taken up later on commercial scale.

Chairman, IOC informed that IOC, MR shall replace all its fresh water requirement with treated sewage water from Mathura City under Namami Ganga Project by June-July 21. The concessionaire shall treat the water and IOC shall bear the O&M cost.

GC took a note of the above.

Action: EIL/Refineries/ CHT

4.3 Performance Benchmarking Study of PSU refineries & Pipelines by Solomon

PSU Refineries:

ED CHT informed that as advised by GC, a Long-Term Agreement has been signed with Solomon for 5 cycles of the period 2020 to 2028. The long-term agreement includes complimentary deliverables like Remote support, refinery specific gap closure report, additional online workshops on Steam system size reduction, Life cycle management and OA. Calendar Year 2020 study is in progress as per schedule.

PSU Pipelines:

CHT informed that the Pipelines Benchmarking for 2020 cycle is in progress as per schedule. Long Term contract for Pipelines will be taken up after completion of two cycles including previous cycle 2018 and upon obtaining consent from all the participating companies.

Chairman IOC advised CHT to deliberate with PTAI, which carries out benchmarking for petrochemicals as most of the PSUs are intensifying petrochemical activities. MD MRPL informed that PTAI had carried out benchmarking for their Aromatic complex and the report was good. ED CHT informed that CHT has already initiated a meeting with PTAI in coming week to deliberate on petrochemical benchmarking of PSU refineries.

GC took a note of the above.

Action by: CHT

4.4 MBN Roadmap and Actual Performance

CHT presented performance of PSU refineries for 20-21 against MBN Roadmap (upto 2030), approved by GC (attached as Annexure-4). The performance during the year was suboptimal due to COVID, however, the gaps would be made up in subsequent years.

GC took a note of the above

Action by: Refineries/CHT

4.5 Petrochemicals Study

CHT informed that the committee constituted by MoPNG, to identify feasibility of production of various petrochemicals from different refineries has submitted its report on 21st January 2021. The report highlights the Petrochemical Outlook, feedstock availability & management, global perspective, policy issues, etc. As per the plan submitted by Indian refineries (PSU, JV and Pvt), the Petrochemical production shall increase from 17.5 MMTPA to 57.2 MMTPA by 2029-30 with corresponding increase of Petrochemical intensity from current 7.0% to 12.9%.

GC took note of the above.

4.6 Catalyst Manufacturing Unit in India

CHT informed that MoP&NG constituted a Committee to interact with prospective partners and suggest path-forward including business model for catalyst manufacturing unit. Committee has submitted the report on 9th Feb'21. The Committee has shortlisted 5 prospective catalyst companies for formation of JV after extensive deliberations. HPCL, BPCL and EIL have expressed willingness to participate in JVs with one or more parties for catalysts manufacturing with aim to progressively develop marketing capability, indigenous

raw material production, metal recovery & disposal of used catalysts and scale up facilities for indigenously developed catalyst in the JV. In order to move further, a detailed economic analysis needs to be performed and viability of the JV to be assessed. The deliberations held so far will help PSUs to develop business model for the Joint venture. M/s HPCL has offered to lead further discussions with the prospective partners.

GC noted the above.

Action by: HPCL/BPCL/EIL

4.7 Study on Additional Strategic / Operational Crude Oil Storage

CHT informed that Committee constituted by MoP&NG, has submitted the report on 31st Dec'20. Current storage capacity is for 87 days against IEA norms of 90 days. Further by 2030, storage capacity shall be of 84 days only due to planned increase in refining capacity. Therefore, additional 5 MMT storage is required to meet the guideline of 90 days.

The Committee has interacted with private operators for their willingness to participate in the project based on their strength including access to Land, capability, models offered, financial implications of various models etc. Four parties namely Aegis Logistics, Adani Ports & SEZ, Vopak and East India Petroleum Ltd have shown willingness. Industry may be encouraged to build additional capacities through PPP and policy framework / incentives to enhance long term energy security.

GC took note of the above

4.8 Feasibility Study by M/s LanzaTech for Ethanol Production from Off-gases

CHT informed that Feasibility study has been carried out by BPCL-MR out of 6 refineries identified under Group 1&2. IOC-JR, IOC-HR, BPC-KR and BORL could not pursue due to space constraint & feed stock availability. MRPL is trying to integrate with 2G Ethanol plant.

Out of Group-3 & 4 refineries, feasibility study has been awarded by NRL on 30th Sep'20. Other refineries could not take up the study due to space constraints.

BPCL-MR Base IRR is 6.3%. Further, IRR has improved to 9.4% through power cost rationalisation and by-products value addition. There will be additional benefit of RON and will further improve IRR. BPCL has been requested to review the project considering Octane benefits as well as advancement of 20% Ethanol blending program by 2025.

GC took note of the above.

Action by BPCL / NRL / CHT

4.9 Feasibility Study for manufacture of Reference Fuel

CHT informed that based on lab study, Reference Gasoline is feasible at IOC PR and for Reference Diesel, study with IOC-PR and MRPL streams shall be completed by Feb'21.

Based on lab study, Business model will be prepared by EIL by April'21.

GC took a note of the above

Action by: IOC/ MRPL/EIL/CHT

4.10 Finalization of Refinery Performance and Innovation Awards

Committee constituted by MoP&NG has finalized 2 awards for Refinery Performance Improvement and 1 Saksham Award. Further, Committee constituted by Chairman SAC as per the guidelines of GC has also finalised Innovation Awards in 3 categories. Details are given in Annexure-5. These awards are given in RPTM.

GC congratulated the Awardees.

4.11 Status on PM JI-VAN Yojana

CHT informed that Steering Committee approved 4 commercial & 1 demo projects on 1st June'20. Budget provision of Rs 31.8 crore for FY 2020-21 cannot be utilised as there is delay in delivery of Proprietary equipment and consequent delay in erection due to COVID.

For 2nd round under Phase-1, one proposal from SAIL was received for setting up Commercial plant. SAC did not recommend the same as DFR was not submitted. Further, SAC recommended fresh RFS for balance projects (8 commercial & 9 Demonstration) to be issued after amendment in the scheme. MoPNG is in the process of amending scheme.

GC took a note of the above

4.12 Extension of Scientific Advisory Committee (SAC) on Hydrocarbon of the MoP&NG

CHT informed that term of SAC has been extended for one year upto 29th Dec'21.

GC took a note of the above

4.13 Status update on HCF and major CHT funded R&D projects

CHT informed the status of ongoing projects (3 under HCF and 11 through OADB funding). All the projects are having a Commercial Partner. Progress of R&D projects are being reviewed by SAC and EC. Few projects having technological challenges are being reviewed by Expert Group constituted by SAC for necessary guidance.

GC took a note of the above.

5. Items for approval of GC [Agenda No: 3]

5.1 Adoption of Annual Audited Accounts for Financial Year 2019-20

CHT informed that Audited accounts of CHT for FY 2019-20 have been shared with OADB on 6th Aug'20 and report enclosed as attachment B of Agenda papers. There is no adverse comment from Auditor.

GC approved the Annual Audited Accounts for financial year 2019-20.

5.2 RBE for 2020-21 and BE for 2021-22

ED CHT presented the Actual expenditure in 2020-21 against BE/RBE and BE for 2021-22.

(Fig in Rs crore)

	Particulars	2019-20	2020-21			2021-22
		Actual	BE	RBE	Act till Jan'21	BE
A	Revenue Expenditure					
	Manpower	9.19	12.00	10.54	7.53	12.00
	Other than Manpower	1.61	2.00	1.65	0.81	2.00
	Sub-total (A)	10.80	14.00	12.19	8.34	14.00
B	Capital Expenditure	0.19	0.37	0.34	0.15	0.21
C	Special Studies	6.79	5.00	2.90	1.61	6.34
D	R&D Projects	3.07	6.65	2.28	0.53	5.40
E	TOTAL (A+B+C+D)	20.85	26.02*	17.71	10.63	25.95
F	HCF	7.70	27.61	12.79	0.11	54.65
G	Total - (D+F)	10.77	34.26	15.07	0.64	60.05

BE has been revised due to COVID-19 impact and actual expenditure for 2020-21 is expected to be in line with RBE

GC deliberated and approved the above Budget.

6.0 Other Items with the permission of chair [Agenda No: 4]

CHT informed that 4 officers from BPCL are to be repatriated soon owing to strategic disinvestment. Also, last year 1 officer of NRL repatriated on his personal ground and another officer of NRL has completed tenure. CHT requested for replenishment of 6 technical manpower. CHT proposed to consider increase in deputation period from 5 to 7 years in line with PPAC and PCRA. Secretary, OADB informed that a Committee has been constituted by MoPNG to bring uniform policy in this regard.

GC advised CHT to send a note on the above issue to MoPNG.

Action by: CHT

**40th Meeting of the Governing Council (GC) of Centre for High Technology (CHT)
held on 16th Feb'21 through VC**

Participants

1. Shri Tarun Kapoor, Secretary, P&NG – Chair
2. Shri Rajesh Aggarwal, AS&FA
3. Shri Ashish Chatterjee, JS (GP)
4. Shri Sunil Kumar, JS (R)
5. Shri Amar Nath, JS (E)
6. Dr Navneet Mohan Kothari, JS (M)
7. Shri Niranjana Kumar Singh, Secretary, OADB
8. Shri S.M. Vaidya, Chairman, IOCL
9. Shri K. Padmakar, CMD BPCL
10. Shri Manoj Jain, CMD, GAIL
11. Shri Sushil Chandra Mishra, CMD, OIL
12. Shri R.K. Sabharwal, CMD, EIL
13. Shri M. Venkatesh, MD, MRPL
14. Shri S.K. Barua, MD, NRL
15. Dr. S.S.V. Ramakumar, Director (R&D), IOCL
16. Shri V.S. Shenoy, Director (R), HPCL
17. Ms. Vartika Shukla, Director (T), EIL
18. Shri Rajeev Ailawadi, MD (I/C), CPCL
19. Shri P.V. Ravitej, ED, I/C (Refineries), BPCL
20. Shri Manoj Sharma, ED (O), IOCL
21. Shri Bhaskar Phukan, Director (T), NRL
22. Shri D.V. Shastri, ED, GAIL
23. Shri K.K. Jain, ED, CHT

Annexure-2**Refinery Performance Improvement Programme (RPIP) for PSU Refineries**

Refinery (Consultant)	All units in Cents/Barrel					Remarks
	Quoted Benefit	Assessed Benefit	Completed 2019-20	Planned/ Completed 20-21	Planned Beyond 2021	
IOC-PR (KBC)	68	61.4	0.0	40.3/9.8	16.6	Benefits of 4.5 cents/barrel for 1 initiatives was later found infeasible post Assessment Phase.
IOC-PDR (Mkinsey)	110	115.0	22.5	24.6/0	67.9	--
IOC-MR (KBC)	78	78	0.95	38.1/21.6	39.2	--
BPC-M (BCG)	105	111.0	0.39	41.1 / 0	69.5	--
BPC-K (BCG)	125	112.8	0.0	10.2/-	102.6	Award of Job:14 th Dec18. Final sign off post Assessment phase pending for remaining ideas.
HPC-M (KBC)	75	75.3	0	1.3/-	Yet to be finalized.	Award of job:5 th Sept 18.Reassessment of all schemes to be carried out post major revamp (21-22).Accordingly schedule shall be finalized. Refinery and KBC to mutually agree.
HPC-V (KBC)	72	72.4	0.0	51.4/20.7	21.0	2021-22: 1.6 Cents / Barrel and rest beyond Mar 2022 as it required M&I shutdown.

Annexure-3

Water reduction targets (Savings in M3/Hr)											
Refinery	Base Year Cons (2018-19)	2018-20		2020-21		2021- 22	ST Tar upto Mar'22	% redn in ST	LT Tar(Post Mar 22)	Total Redn (ST+LT)	Total (ST+LT) %
		Tar	Act	Tar	Act	Tar					
IOCL-JR	1540	232	232	100	40	184	516	33.5	525	1041	67.6
IOCL-GR	165	17	17	34	7	2	53	32.2	89	142	86.2
IOCL-DR	109	0	0	27	0	0	27	24.8	40	67	61.5
IOC-BGR	248	0	0	6	1	19	25	10.1	90	115	46.4
IOCL-BR	686	0	0	35	28	24	59	8.6	50	109	15.9
HPCL -M	348	0	0	2	2	4	6	1.7	27	33	9.5
IOCL-MR	655	0	0	30	30	10	40	6.1	130	170	26.0
IOCL-PR	1558	75	75	105	45	230	410	26.3	145	555	35.6
IOCL-HR	626	0	0	5	2	30	35	5.6	88	123	19.6
IOC-PDR	1781	282	282	137	119	38	457	25.7	1200	1657	93.0
HPCL-V	722	40	0	59	100	85	184	25.5	142	326	45.1
CPCL	1135	0	0	94	0	103	197	17.4	0	197	17.4
BPCL-K	1989	0	0	271	128	332	603	30.3	50	653	32.8
Total	11561	646	606	905	502	1061	2612	22.6	2576	5188	44.9

Reduction of Water Footprint at PSU Refineries

Annexure-4**MBN Roadmap and Actual Performance**

	2019-20 Achieved	2020-21 (Target)	2020-21 (Cum Dec 20)	2021-22 (Target)	2022-23 (Target)	2023-24 (Target)
DR	101.7	93.6	108.6	92.7	91.3	90.4
GR	121.2	103.3	129.8	98.7	97.7	96.6
BGR	96.8	77.0	106.1	74.5	73.8	73.0
HR	88.3	69.5	93.7	68.8	64.6	64.0
BR	75.9	72.5	79.2	71.8	66.0	65.3
MR	65.8	61.7	63.6	61.1	58.1	57.5
PR	64.5	58.5	69.1	56.9	56.3	55.7
PDR	64.1	65.1	73.0	57.0	56.5	55.9
JR	77.4	68.6	83.0	67.9	67.2	61.3
BPC-M	63.0	62.0	65.9	61.0	60.3	59.7
BPC-K	68.2	68.4	73.8	66.8	66.1	65.5
HPC-V	84.4	72.3	81.5	67.7	67.0	66.4
HPC-M	84.8	71.0	96.6	70.2	69.5	68.8
MRPL	75.3	72.6	85.9	71.9	70.8	67.3
CPCL	81.5	70.6	89.9	69.6	68.9	68.2
NRL	64.8	62.0	65.4	61.4	60.8	60.2
PSU	72.8	67.6	78.6	65.6	64.6	63.2

Refinery Performance Improvement and Saksham Awards

Award	Category	Winner
Refinery Performance Improvement Award 2019-20	First Prize	BPCL – Kochi Refinery
	Second Prize	BORL Refinery
	Appreciation Certificate	RIL (SEZ)
Saksham Award: 2020	Best Improvement in Furnace Efficiency	MRPL Refinery

Innovation Awards

Category	Innovation related to	Winner
Best Indigenously Developed Technology	INDAdept@technology: A reactive adsorption based process for removal of sulphur from cracked gasoline streams	IOC (R&D)
Best Innovation in Refinery (To be shared jointly)	i. In-house Digital solution (tool) developed for Refinery wide Optimization by BPCL team ii. Unsteady state operation in APC: A unique and highly beneficial technique iii. APC & Real time Optimization in Amine Regeneration Units	BPCL-Mumbai Refinery Award Committee has lauded the efforts of BPCL Mumbai refinery under the guidance of Management in the area of digitalization and Advance process control and recommended their 3 applications for the award.
	Implementation of Indigenously developed State of Art Delayed Coker Technology in the Revamp of Coker-A & Critical Furnace Revamp at IOCL Barauni Refinery	EIL & IOCL
Best Innovation in R&D Institute	Development & Commercialization of indigenous Eco-friendly Drilling Base Fluids: A step towards Atmanirbhar Bharat	BPCL R&D