



उच्च प्रौद्योगिकी केन्द्र

(पेट्रोलियम एवं प्राकृतिक गैस मंत्रालय, भारत सरकार)

Centre for High Technology

(Ministry of Petroleum & Natural Gas, Govt. of India)

उ.प्रौ.के./जीसी/36/969

CHT/GC/36/969

दिनांक: 24 अगस्त, 2018

Date: 24 August, 2018

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 36वीं बैठक का कार्यवृत्त

Sub: Minutes of 36th Meeting of the Governing Council (GC) of CHT

दिनांक 30 जुलाई, 2018 को सभा कक्ष, पेट्रोलियम और प्राकृतिक गैस मंत्रालय, शास्त्री भवन, नई दिल्ली में सचिव, पेट्रोलियम और प्राकृतिक गैस मंत्रालय की अध्यक्षता में सम्पन्न हुई उच्च प्रौद्योगिकी केन्द्र की गवर्निंग काउंसिल की 36वीं बैठक का अनुमोदित कार्यवृत्त आपकी सूचना और आवश्यक कार्रवाई हेतु संलग्न किया जा रहा है।

Please find enclosed the duly approved Minutes of the 36th Meeting of Governing Council (GC) of CHT held on 30th July, 2018 in the Conference Room, MoP&NG, Shastri Bhawan, New Delhi, under the Chairmanship of Secretary, P&NG, for kind information and necessary action.

भवदीय,

Yours sincerely,

ब्रजेश कुमार

(ब्रजेश कुमार)

कार्यकारी निदेशक

सदस्य-सचिव, गवर्निंग काउंसिल

(Brijesh Kumar)

Executive Director

Member-Secretary, Governing Council - CHT

संलग्न: यथा उपर्युक्त

Encl.: As above

MEMBERS OF THE GOVERNING COUNCIL OF CHT

- | | | |
|-----------|---|-----------------|
| 1. | Dr. M.M. Kutty
Secretary
Ministry of Petroleum & Natural Gas
Shastri Bhawan
<u>New Delhi-110 001</u> | Chairman |
| 2. | Ms Urvashi Sadhwani
Principal Advisor
Ministry of Petroleum & Natural Gas
Shastri Bhawan
<u>New Delhi-110 001</u> | |
| 3. | Shri Rajiv Bansal
Additional Secretary & Financial Adviser
Ministry of Petroleum & Natural Gas
Shastri Bhawan
<u>New Delhi-110 001</u> | |
| 4. | Shri Sandeep Poundrik
Joint Secretary (R)
Ministry of Petroleum & Natural Gas
Shastri Bhawan
<u>New Delhi-110 001</u> | |
| 5. | Shri Amar Nath
Joint Secretary (E)
Ministry of Petroleum & Natural Gas
Shastri Bhawan
<u>New Delhi-110 001</u> | |
| 6. | Shri Ashutosh Jindal
Joint Secretary (M)
Ministry of Petroleum & Natural Gas
Shastri Bhawan
<u>New Delhi-110 001</u> | |
| 7. | Joint Secretary (Gen)
Ministry of Petroleum & Natural Gas
Shastri Bhawan
<u>New Delhi-110 001</u> | |

8. **Shri Ashish Chatterjee**
Secretary (I/c)
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9. **Shri Sanjiv Singh**
Chairman
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New Delhi – 110 049
10. **Shri M.K. Surana**
Chairman & Managing Director
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17, Jamshedji Tata Road
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11. **Shri D. Rajkumar**
Chairman & Managing Director
Bharat Petroleum Corporation Ltd
Bharat Bhawan
4 & 6 Currimbhoy Road
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12. **Shri B.C. Tripathi**
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13. **Shri J.C. Nakra**
Chairman & Managing Director
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- 14. Shri S.N. Pandey**
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- 15. Shri M. Venkatesh**
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- 17. Dr. Anjan Ray**
Director
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- 18. Shri Prabh Das**
MD & CEO
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- 19. Shri Brijesh Kumar**
Executive Director
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9th Floor, Tower-A, OADB Bhawan
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Member Secretary

Minutes of the 36th Meeting of the Governing Council (GC) of Centre for High Technology (CHT) held on 30th July, 2018 in the Conference Room, MoP&NG, Shastri Bhawan, New Delhi

- 1.0** Dr. M.M. Kutty, Secretary, P&NG and Chairman of the Governing Council (GC) of CHT chaired the Meeting. The list of participants is enclosed as **Annexure**.
- 2.0** Shri Brijesh Kumar, Executive Director, CHT and Member-Secretary of the Governing Council welcomed the Chairman and Members of the GC and other participants to the Meeting.

3.0 Confirmation of the Minutes of 35th Meeting of the Governing Council [Agenda No. 1]

There being no comments, the Minutes of the 35th Meeting of GC held on 9th February, 2017 circulated by CHT vide letter No. CHT/GC-35/1059 dated 15th March, 2017 were confirmed and adopted by the Governing Council.

4.0 Review of Action Points of the 35th Meeting of the Governing Council [Agenda No. 2]

The following points emerged out of discussions:

a) Refinery Performance Improvement Programme (RPIP) of PSU Refineries [Point No. 4.0 (a) and 5.1 of MOM]

RPIP for BPCL-Mumbai refinery, HPCL-Mumbai refinery and MRPL through Shell Global

The Programme has been completed at BPCL-Mumbai and HPCL-Mumbai. At MRPL, out of five schemes, two have been implemented; two are planned to be implemented by March 2019; and one is planned during turn-around opportunity in 2019-20.

The total benefit for all the 3 refineries is expected to be ~ 33.7 Million USD/year against the One-time Consultant Fee of 6.54 Million USD.

GC expressed concern over the delay in implementation at MRPL and advised MRPL to expedite the same. A clear road map for implementation may be given to CHT within a month

(Action: MRPL)

RPIP for PSU Refineries

In line with the discussions held in the last 35th GC meeting and subsequent EC meetings, Refinery Performance Improvement Programme through Global Consultants for 15 PSU

refineries (excluding MRPL who have already done a study separately) was taken up by CHT on behalf of the refineries.

The refinery-wise schedule is as under:

Baseline Year	Number of Refineries	Refinery
2017-18	9	IOCL : Guwahati, Digboi, Mathura, Panipat & Paradip Refineries BPCL : Mumbai & Kochi Refineries HPCL : Mumbai & Visakh Refineries
2018-19	6	IOCL : Barauni, Gujarat, Haldia & Bongaigaon Refineries CPCL : Manali Refinery NRL : Numaligarh Refinery

EOI and Tender Document was finalised along with refineries. EOI was hosted on CPP and CHT portal on 10th October 2017. The entire exercise of selecting the refinery-wise H-1 consultant, including pre-bid meeting & refinery visits by consultants, was completed on 28th June 2018. Work Order to the selected consultant shall be placed by refineries by mid-August 2018. The cost for the Study will be borne by the respective refineries.

(Action: Refineries)

b) Performance Benchmarking of PSU Refineries [Point No. 4.0 (b) of MOM]

Benchmarking Study for 2016 Study Cycle with Solomon Associates (SA) for 15 PSU fuel refineries and 4 lube refineries has been completed and the “Findings of the Study” was presented by SA to refineries as well as MoP&NG during November, 2017.

The total cost of the Study was US \$ 890,000 (~ Rs 6 crore excluding taxes). CHT contributed 50 % of the base cost and balance 50% along with entire service tax/ GST was borne by participating refineries. BORL participated in the Study at their cost (US\$ 67,500+GST).

Major findings of the Study

- Energy Cost continues to be a major component of Opex.: 74 % in 2016
- 16 % reduction in EII from 120 in 2010 to 101 in 2016
- Rate of EII improvement – 3 units/year 3 times world average rate
- Reducing Steam System Size is a large opportunity area for EII improvement
- **Strength in PSU refineries**
 - Demonstrated growth and continuous improvement and management commitment
 - Low personnel and maintenance costs
 - World’ Best fired furnace efficiency

- **Areas identified for improvement**
 - Energy Efficiency
 - Operational Availability
 - Stream Sharing
 - Reducing Steam System Size: large opportunity area for EII improvement - 1 % improvement in EII can be realised with each 1 % reduction in refinery steam size

ED, CHT also presented the summary of the refinery-wise Benchmarking Results for the last 4 Study Cycles (2010, 2012, 2014 and 2016) w.r.t. 4 Key Performance Parameters, viz., Energy Intensity Index (EII), Volumetric Expansion Index (VEI), Operational Availability and Cash Operating Expenses. Most of the refineries have shown progressive improvement. However, PSU refineries are still in 3rd/4th Quartile in the area of EII.

ED, CHT presented the broad roadmap for bringing down the specific energy consumption as further detailed under Item 4 (d).

ED, CHT informed that provision has been made in BE 2018-19 towards initial payment for Benchmarking Study for 2018 cycle.

GC took note of the above.

c) Compendium on Experience Sharing (Point No. 4 (c) of MOM)

The Compendium containing the following has already been prepared and shared with all refineries:

1. Refinery-wise schemes under implementation/ planned
2. Best practices
3. Findings of Walk-through Audits
4. Innovations in refining sector
5. Takeaways from Activity Committee Meetings conducted by CHT
6. Feedback from refineries from cross sharing

CHT has also consolidated repetitive failures, operational problems at refineries for capturing areas of improvement in designs of equipment/ processes by EIL.

A Discussion Forum is being launched on CHT portal in various areas for posting queries and response from a panel of domain experts by October 2018.

GC took note of the above.

d) Performance Gap bridging for Specific Energy Consumption and Performance Audit [Point No. 4.0 (d) of MOM]

The Mandatory Energy Audit (MEA) of 12 PSU refineries (excluding IOCL-Guwahati, Digboi and Paradip, who are not part of PAT, and BPCL-Kochi who had already completed MEA) taken up through PCRA at a cost of Rs 5.44 crore (excluding taxes), was completed in June 2017.

The Energy Efficiency Improvement Study and Performance Audit of 15 PSU Refineries by EIL, at cost of Rs 12.9 crore (excluding ST/GST), has also been completed in July 2018.

ED, CHT informed that CHT is organising a meeting, wherein all refineries will present the year wise implementation schedule of all identified energy saving schemes by EIL and PCRA, including in-house schemes. The Long-term schemes that need further detailed study by EIL/Refineries will also be identified. Based on this, a roadmap for implementation will be prepared by 14th August 2018. The same shall be discussed in the next meeting of Executive Committee (EC) of CHT.

(Action: CHT/Refineries)

Roadmap for Energy Reduction upto 2030

Refining Sector has been included in PAT cycle-II (2016-19), commencing 1.4.2016. The energy reduction Target for Refineries is set as 5.49 % by 2018-19 from base line year of 2014-15. The industry Target are apportioned to Refineries based on their specific energy consumption (MBN) in the baseline year- with higher % reduction target for less efficient refineries and lower % reduction target for more efficient refineries.

18 Refineries (except 4 smaller refineries viz. Tatipaka, Cauvery Basin, Guwahati and Digboi; and newly commissioned Paradip Refinery) have been notified as Designated Consumers (DC).

CHT assisted BEE in setting refinery-wise targets including JV/ Pvt. refineries based on MBN. ED, CHT informed that the refining sector will be able to achieve the targeted reduction of 5.49 % by 2018-19.

Target for NITI Aayog: Energy consumption by the refinery sector is aligned with INDC i.e. reduction of specific energy consumption by 33 – 35 % per GDP by 2030 over 2005.

(Action: Refineries/CHT)

e) Supply of Power from the Grid to PSU Refineries [Point No. 4 (e) of MOM]

ED, CHT informed that the requirement of infrastructure for intake of Grid power in PSU refineries is regularly reviewed during the Meeting of Working Group on Refineries, chaired by JS (R), which is also attended by PTC.

Grid power intake by PSU refineries during 2017-18 was at 7.6% of the total power consumption of ~1357 MW, including Paradip at full capacity and expansion of BPCL-K. With various plans undertaken by refineries to enhance grid power intake, the capability of PSU refineries would increase to 35% of current consumption level in next 3 to 4 years.

Refineries stated that they have captive power plants wherein power is co-generated along with process steam needed for refinery processes. The economics of refinery captive power is therefore, different than that of Thermal Power Stations (generating exclusively power). PSU refineries have taken initiatives to augment infrastructure for tapping power from grid, to take advantage of grid power, whenever economical.

Under the current scenario of tax structures, additional charges, frequent interruptions etc. and advantage of co-generated process steam, the economics of grid power intake is currently not favourable at refineries. There is also no effective grievance redressal mechanism at the moment.

A note on important issues and suggestions for maximising grid power intake at refineries has been prepared by CHT for MoP&NG for taking up with Ministry of Power.

PTC is also carrying out a joint study for BPCL and HPCL for taking up long term agreement in Group Captive Mode for renewable power.

GC took note of the above.

5.0 Items put-up before the Governing Council for Information [Agenda No. 3]

5.1 Development of Water Consumption Norms and Reduction of Water Footprint [Agenda No. 3 (1)]

ED, CHT informed that it is proposed to carry out a study for “Development of Water Consumption Norms and Reduction of Water Footprint” by EIL.

Tender document, including terms and conditions, was finalised by the committee comprising refineries’ representatives and CHT.

The fees for the Study for 13 PSU Refineries (excluding MRPL and NRL who have already taken up the study separately) is Rs 5.95 crore, plus GST. CHT will reimburse 50% of base fee to the refineries and GST on the entire fees shall be borne by Refineries. The Study

will be completed within 9 months after placement of work order. EC, in its 25th meeting on 12-06-2018, approved the above proposal.

Refineries are in the process of placing work order on EIL for the study.

GC took note of the above.

(Action: Refineries/EIL/CHT)

5.2 Reduction of Steam Consumption/System Size at Refineries [Agenda No. 3(2)]

EC, during its 24th meeting on 16-02-2018, advised that CHT may line-up consultant to prepare a focused approach paper on Reduction of steam consumption at refineries.

It is proposed to prepare an Approach Paper on demand side management based on the best practices and Indian realities by engaging a consultant following tender/EOI route. The Consultant will finalise the Best practices and the paper after discussions with PSU Directors/ MDs at Mumbai.

EOI has been issued by CHT and Due Date for opening is 31st July 2018.

Schedule: 3 months after placement of Work Order.

Estimated cost: US\$ 200,000 (Based on Budgetary offer from KBC) equivalent to ~ Rs. 1.58 crore, including GST.

EC, in its 25th meeting on 12-06-2018, accorded in-principle approval for the proposal. EC had also approved CHT's proposal to bear the entire cost as it is not a refinery specific study and also cost of study is small.

The proposal will be put for consideration and approval by EC after obtaining firm cost.

GC took note of the above.

(Action: CHT)

5.3 Performance Benchmarking Study for Pipelines 2018 [Agenda No. 3(3)]

ED, CHT informed that it is proposed to carry out Performance Benchmarking Study for Liquid Pipelines in line with Refinery Performance Benchmarking. So far, Pipeline benchmarking studies have been carried out by oil companies in a limited way- by IOCL in 2000 (through M/s Cap Gemini Ernst & Young Canada) and 2004 & 2009 (through M/s

Solomon Associates, USA) and by BPCL in 2016 for 4 pipelines through M/s Solomon Associates, USA.

35 pipelines (crude, product, LPG & gas) & five SPM systems have been identified for the Benchmarking Study for 2018 cycle. The benchmarking study will cover 32,000 km of pipelines out of current total length of around 39,600 km in the country.

The estimated Fee for the identified 35 pipelines & five SPM systems (based on offer from Solomon Associates) is ~ Rs 2.0 crore (excluding taxes). Schedule: 9 months after placement of work order.

CHT will reimburse 50% of base fee to the participating companies. Applicable taxes on the entire fees shall be borne by these companies. Payment shall be made to the consultant by CHT upon receiving the base fees and applicable taxes from the participating PSUs.

EOI, including Scope of Work and Prequalification Criteria, has been finalised by a committee comprising officials from the participating PSUs.

EC, in its 25th meeting on 12-06-2018, accorded in-principle approval for the above proposal.

The EOI has been issued on 29-06-2018. Due Date for opening is 6th August 2018.

The proposal will be put for consideration and approval by EC after obtaining firm cost.

GC took note of the above.

(Action: CHT/IOC/HPC/BPC/GAIL/OIL)

5.4 Feasibility Study for Ethanol Production from Off-gases [Agenda No. 3(4)]

ED, CHT informed that LanzaTech, USA has developed technology for production of ethanol from off-gases containing CO, CO₂ and H₂ through fermentation route. LanzaTech has provided refinery-wise production potential of Ethanol from PSA Off-gases. The estimated total ethanol production potential from PSU refineries, BORL and HPCL-RRP is around 50 crore litres per annum and the preliminary estimated Cash Cost of Production (CCOP) based on US Gulf Coast is around Rs 40 per litre. The approximate Fees for Feasibility Study for 14 refineries is around USD 840,000 (~ Rs 6 crore excluding taxes).

Director(R), IOCL stated that they are putting up a plant with capacity of 33 KTA ethanol production at a cost of Rs 441 crore based on LanzaTech Technology at Panipat refinery which is expected to be commissioned in 3 years.

The Working Group on Refineries in its meeting held on 12th June, 2018, advised CHT to coordinate feasibility studies for production of Ethanol for PSU refineries (except IOC-Guwahati & Digboi which have very low ethanol potential).

It is proposed to issue EOI to carry out Feasibility Study utilizing LanzaTech or any other demonstrated licensed technology for production of ethanol from refinery off gases in PSU refineries and BORL.

CHT is preparing the way forward for feasibility studies in discussion with refineries.

Proposal will be put for consideration and approval by EC after obtaining firm cost.

GC took note of the above.

(Action: CHT/Refineries)

5.5 Refining & Petrochemicals Technology Meet (RPTM) [Agenda No. 3(5)]

ED, CHT informed that CHT regularly organises the Meet in association with oil companies on various topics of interest to the Refining and Petrochemical sector.

The 3 day technical event covers around 70 oral papers in 16 Technical Sessions and around 100 poster papers. Exhibition Stalls are also put up by leading technology/ service providers.

The Meet provides a forum for exposition of recent advances and technological developments. Leading global consultants/technology providers like Shell, UOP, Chevron, ExxonMobil, Haldor Topsoe, Axens, KBR, Solomon, DuPont, Lyondell Basell, Grace, Univation, Mitsui Chemicals, participate in the Meet and make technical presentations.

Around 900 participants from India and abroad.

Since the last GC meeting, CHT successfully organised 2 Meets - 21st RPTM in association with HPCL during April 2017 at Visakhapatnam and 22nd RPTM in association with IOCL during January 2018 at Bhubaneswar.

MoP&NG has approved the proposal of organising the 23rd RPTM by CHT in association with BPCL in Mumbai during January, 2019. The Theme of the RPTM is "Aligning

Refineries towards Sustainable Future". As advised by EC in its 25th meeting on 12-06-2018, CHT is exploring to hold the RPTM during 19-21 Jan 2019 considering Petrotech, which is already scheduled during 22-24 Jan 2019.

The expenditure for the RPTM is met through sponsorship from oil companies, licensors, etc. Considering the experience with last 3 RPTMs, budgetary support from OADB may not be required. However, if required, approval for funding of Rs 25 lakh from OADB will be sought from EC.

GC took note of the above.

(Action: CHT)

5.6 Activities of Scientific Advisory Committee (SAC) [Agenda No. 3(6)]

- a) The term of the SAC on Hydrocarbons of Ministry of Petroleum & Gas expired on 15th October, 2017. SAC, under the Chairmanship of Dr Anil Kakodkar, has been reconstituted by MoP&NG for tenure of 3 years w.e.f. 29th December, 2017.

SAC had three meetings (79th meeting on 17-03-2017, 80th meeting on 06-09-2017 and 81st meeting on 14-03-2018) since the last GC meeting held on 9th February, 2017.

New R&D project proposals, on-going & completed R&D projects were reviewed for consideration/ recommendation.

SAC had recommended the following projects for funding by CHT:

1. Development and durability testing of Ethanol-Diesel blend engine: ARAI, Pune

Objective

- To evaluate the Emission & Power performance of existing old vehicles with ethanol blended diesel vis-a-vis BS-VI norms.

Estimated cost: Rs 1.3 crore (with CHT/OADB contribution of : Rs 1.3 crore)

Completion schedule – 6 months

The Project was recommended by Working Group on Bio-Fuels of MoP&NG. Subsequently, the project was considered and recommended by SAC in its 79th meeting held on 17th March 2017 and approved by EC in its 22nd meeting held on 20th June, 2017.

GC took note of the above.

2. Improving (Speedy) Leak Detection Time in Pipelines by deployment of Real Time Ethernet Protocols: HPCL-VSPL/ECIL

Objective

- To reduce leak detection time from about 15 minutes to 2-3 minutes and
- To reduce leak detection range from current range of + 2-3 km to + 200 metres

Estimated cost: Rs 1.17 crore (CHT contribution: Rs 0.55 crore)

Completion schedule – 18 months

The project was considered and recommended by SAC during the 81st Meeting on 14-03-2018 and recommended for consideration and funding

EC, in its 25th meeting on 12-06-2018 considered and approved the proposal

GC took note of the above.

3. Creation of Solar based H₂ Production System & Dispensing Station for Refuelling H₂ Fuel Cell Vehicle: IOC R&D

The project aims at developing national facility which would enable PSU and other R&D institutes in demonstration of technologies in PV cells, Electrolyser, H₂ Storage, Fuel Cell Vehicles & integration of sub-systems and obtain approval from PESO.

SAC in its 81st Meeting on 14-03-2018 extensively deliberated on the proposal and recommended the proposal with following remarks:

- Project should have flexibility to adopt different pathways for hydrogen production and storage so as to derive cost benefit of innovation and cost cutting in future
- IOCL to procure the best electrolyser that would minimise energy consumption through EOI route even though there may be higher initial capital cost.
- Estimated cost of project is Rs 44 crore, which may go up with suggested actions as above. CHT's share in the project to be capped at Rs 30 crore with the rest to be borne by IOCL. Project duration is 36 months.

EC, in its 25th meeting on 12-06-2018 advised that the project proposal to be put up with firm cost post EOI and minimum contribution of 50 % by IOCL.

IOC R&D has issued EOI and revised cost is expected by 20th Aug 2018.

The Project is proposed to be funded from HCF.

GC considered and accorded in-principle approval for the above proposal.

(Action: IOCL/CHT)

b) Transfer of hydrogen related projects to Hydrogen Corpus fund (HCF)

ED, CHT informed that as already approved by MoP&NG, the following on-going OIDB/CHT funded project is being transferred to HCF:

“Scale-up studies and process development for hydrogen production by catalytic decomposition of NG by HPCL/IIT-D/CeNS” [Project Cost Rs 29.46 crore (CHT: Rs 16.92, HPCL: Rs 12.54)]

Further, the new SAC recommended project “Creation of solar based H₂ production system & dispensing station for re-fuelling H₂ fuel cell vehicle: IOC R&D” shall be funded under HCF after approval.

GC took note of the above.

c) Status of the on-going R&D projects

ED, CHT presented the Status of the on-going R&D projects and the status of New R&D proposals through EOI.

Concern was raised about delay in Coal to Liquid (CTL) project. Director (T), EIL informed that presently challenges are faced in sustaining operation of gasifier due choking in the downstream section. The Expert Group constituted by SAC has recommended modifications in the Pilot Plant which will be completed by October, 2018.

(Action: EIL)

5.7 Other Major Activities of CHT [Agenda No. 3(7)]

a) Activity Committee Meetings

CHT is regularly organising Activity Committee Meetings (ACM) on major areas of refinery operations & pipelines with the aim of sharing of experience and dissemination of information on latest developments. The forum provides an excellent platform for in-depth discussions amongst the working level personnel directly involved in their areas of operations. Besides brief presentation by the members of the Activity Committee, a Question & Answer Session is also held during the meetings for discussions on different queries related to operational performance improvement and best practices.

A New ACM on “Quality Control” has been initiated In line with the demand expressed by the industry and first meeting of this Committee was held on 14-15 June, 2018 at MRPL.

Currently, there are 15 Activity Committees in place.

b) Lab Co-relation Programme

CHT has recently initiated a Lab Co-relation Programme for better coordination of product quality at industry level. MS, HSD and ATF are covered under this programme in 2 phases. For each product, a coordinating refinery lab has been identified for sending the samples and compiling results. The 1st Phase Programme involving one refinery from each zone and R&D labs was launched on 30th June 2018 and Study Results are expected by Oct 2018. The 2nd Phase at zonal levels, associating refineries and selected marketing & pipeline terminals, will be taken up based on the experience of the 1st Phase.

c) Catalyst Manufacturing

India has the 4th largest refining capacity in the world. However, the refining sector is mostly dependent on imported catalysts. The total catalyst market in the refining industry in the country is around 8000 MT for the fixed bed and 40000 MT for FCC/ RFCC valued at around Rs 2800 crore /year. The market for catalysts is expected to double by 2040.

Considering the above, a Committee comprising Directors of EIL/ IIP/ IOC/ HPC/ BPC and ED(CHT) was constituted during the meeting on 'Commercialization of Indigenously Developed Technologies' held under the chairmanship of JS (R) on 30th Oct 2017. The Working Group on Refineries, in its meeting held on 12th June, 2018 advised the Committee to put up detailed note on the proposed business model.

(Action: EIL)

d) Awards

CHT is actively associated with the following Annual Awards instituted by Ministry of Petroleum & Natural Gas, Government of India:

- Refinery Performance Improvement Award
- Oil & Gas Conservation Fortnight (OGCF) Award
- Innovation Award

The Awardees for the first two categories are selected by the selection committee set up by MoP&NG. For the Innovation Award, the Awardees are selected by the committee constituted by Chairman, SAC, based on guidelines of Governing Council of CHT.

CHT was involved in co-ordination, data validation/compilation and providing necessary technical support to the Committees for finalising the awards.

Refinery Performance Improvement Awards for 2016-17, OGCF Award for 2017 and Innovation Awards for 2016-17, finalised by the Committee, were presented to the

winners during the Inaugural function of the 22nd Refining & Petrochemicals Technology (RPTM) on 13th January, 2018 at Bhubaneswar.

e) Meetings of Working Group on Refineries (WGM)

4 number of WGM, under the Chairmanship of JS(R), were held on 22nd Feb 2017, 20th Jul 2017, 30th Oct 2017 and 12th Jun 2018, wherein various issues concerning refining industry including performance of refineries was reviewed.

f) Executive Committee (EC) Meetings of CHT

4 number of EC meetings , under the Chairmanship of JS(R), were held on 20th July, 2017, 30th October 2017, 16th February 2018 and 12th June 2018.

g) Swachhata Ranking 2017-18 for PSU Refineries

Swachhata Ranking of PSU/JV Refineries is a new initiative in 2017 by the Ministry of Petroleum & Natural Gas. Initially one refinery shortlisted from 3 groups each. Subsequently, refineries were ranked by Committee comprising of Group Representatives, CHT & MoP&NG. The Awards for 2017 were given by Secretary, P&NG on 19th February, 2018

First Prize	:	IOCL-Panipat Refinery
Second Prize	:	Jointly to BPCL-M and HMEL
Third Prize	:	IOCL-Paradip Refinery

The Swachhata Index is based on infrastructure available at Refineries not only for its own Employees but also for its Contract Laborers, Cleanliness, Systems and Processes including waste generation and disposals, initiatives taken for Swachhata awareness and its campaign, waste paper recycle and reuse, processing municipal waste in Refineries, etc.

For 2018, inter-group survey is being undertaken during Swachhata fortnight (1-15 July, 2018)

h) Technical Support to MoP&NG

- Facilitating Refinery Performance Review
- Responses to Parliamentary Standing committee, Parliament Questions
- Assistance to Working Group on Enhancing Refining Capacity by 2040
- Recycling of used Lube oils
- Product Quality Improvement
- Review and examination of various technical proposals pertaining to technology, product quality, environment etc. forwarded by MoP&NG

6.0 Items put-up for consideration and approval of GC [Agenda No. 4]

6.1 Appointment of Auditors to Audit the Accounts of CHT for the year 2017-18 [Agenda No. 4(1)]

The Governing Council considered and approved the appointment of M/s I.P. Pasricha & Co., Chartered Accountants, New Delhi as Auditor to Audit the Accounts of Centre for High Technology including proprietary audit/ Tax Audit for the Financial Year 2017-18 at an Audit Fee of Rs 25,000/- p.a., and out-of-pocket expenses of Rs 8000 plus applicable GST

6.2 Adoption of Annual Audited Accounts [Agenda No. 4(2)]

The Governing Council considered and approved the Annual Audited Accounts of CHT for the financial years 2016-17 and 2017-18.

6.3 CHT Budget [Agenda No. 4(3)]

The Governing Council considered and approved the following Budget for CHT:

(Figs in Rs crore)

Particulars	2016-17			2017-18			2018-19
	BE	RBE	Actual	BE	RBE	Actual	BE
REVENUE EXPENDITURE							
Salary	9.00	7.67	8.48	8.05	11.00	8.79	9.80
Other than Salary	2.10	1.94	1.82	2.20	2.19	2.02	2.25@
Sub-total	11.10	9.61	10.30	10.25	13.19	10.81	12.05
CAPITAL EXPENDITURE	0.03	0.027	0.025	0.05	0.05	0.05	0.08
PROJECTS							
Funding of R&D Projects	11.82	9.33	9.17	15.00	15.15	14.68	13.56
Special Studies	5.00	2.40	1.40	7.05	6.21	6.12	4.77
Sub-total	16.82	11.73	10.57	22.05	21.36	20.80	18.33
TOTAL EXPENDITURE	27.95	21.37	20.88	32.35	34.60	31.66	30.46\$
Less Revenue Income			0.96			1.30	
NET EXPENDITURE			19.92			30.36	
GRANTS FROM OIDB			19.82			31.43	
HCF							1.44 #

@ excluding OIDB contribution of Rs 25 lakh for 23rd RPTM scheduled in Jan 2019

\$ OIDB Board has approved Rs 31.90 crore for BE 2018-19 for CHT. This included Rs 1.44 crore for one Hydrogen related project which is now transferred to HCF.

6.4 CAG Audit of CHT for the period April 2016 to March 2017 [Agenda No. 4(4)]

ED, CHT informed that Audit of CHT for the period April 2016 to March 2017 was carried out by CAG Auditors during 17-28 July, 2017. No major Observations were made by CAG during the Audit. CHT furnished replies to all the observations made by the Auditors.

GC advised CHT to obtain closure note from CAG on the replies furnished by CHT.

(Action: CHT)

7.0 Other Points with Permission of Chair

7.1 Case with regard to Demand of Service Tax

ED, CHT informed that the Office of the Commissioner of Service Tax (OCST) had raised a demand of Rs 2.2 crore (including penalties) towards Service Tax liability on withholding tax for the jobs carried out through Shell Global Solutions for Performance Improvement Studies of PSU refineries during 2005-06 to 2014-15. CHT had contended that the total consideration should exclude the withholding tax as it is actually not income in the hands of Shell and it is unreasonable to impose tax on taxes. CHT filed two appeals before CESTAT (Customs, Excise and Service Tax Appellate Tribunal) in consultation with OIDB. The hearing of the first appeal dated 26-05-2014 (for Rs 1.96 crore) by CESTAT took place on 04-07-2018. CESTAT has set aside the impugned order and allowed the appeal of CHT. No date yet fixed for hearing of the second appeal dated 02-12-2016 (for Rs 1.48 lakh). Adjudication is pending for the balance Rs 24.1 lakh.

GC took note of the above.

8.0 The meeting concluded with thanks to the Chair and the Participants.

**36th Meeting of the Governing Council (GC) of Centre for High Technology (CHT)
held on 30th July, 208 in the Conference Room, MoP&NG, Shastri Bhawan, New Delhi**

Participants

MoP&NG

1. Dr. M.M. Kutty, Secretary, MoP&NG – Chair
2. Ms Urvashi Sadhwani, Principal Advisor
3. Shri Rajiv Bansal, AS&FA
4. Shri Sandeep Poundrik, JS(R)
5. Shri Ashutosh Jindal, JS (M)
6. Shri Ashish Chatterjee, Secretary (I/c), OIDB

IOCL

7. Shri B.V. Rama Gopal, Director (R)

HPCL

8. Shri M.K. Surana, CMD
9. Shri Vinod Shenoy, Director (R)

BPCL

10. Shri R. Ramachandran, Director (R)

MRPL

11. Shri M. Venkatesh, MD

CPCL

12. Shri K. Venkatesan, CGM (Tech.)
13. Shri G. Sreenivasamurthy, DGM (Tech.)

NRL

14. Shri B.J. Phukan, Director (T)

EIL

15. Shri J.C. Nakra, CMD
16. Shri L.K. Vijh, Director (T)

GAIL

17. Shri Manoj Jain, Director (BD)

HMEL

18. Shri Prabh Das, CEO

CSIR-IIP

19. Ms Anshu Nanoti, Chief Scientist

CHT

20. Shri Brijesh Kumar, ED

21. Shri R. Krishnamurthy, Advisor (T)

22. Shri D. Thakur, Advisor (T)

23. Shri R.K. Sharma, Joint Director (Finance)