



**उच्च प्रौद्योगिकी केन्द्र**  
(पेट्रोलियम एवं प्राकृतिक गैस मंत्रालय, भारत सरकार)  
**Centre for High Technology**  
(Ministry of Petroleum & Natural Gas, Govt. of India)

No. CHT/EC/91/1384

2<sup>nd</sup> August, 2017

To,

कार्यकारी समिति के सभी सदस्यगण (संलग्न सूची अनुसार)

All Members of the Executive Committee of CHT (As per list enclosed)

महोदय,

Dear Sir,

विषय: उच्च प्रौद्योगिकी केन्द्र की 22<sup>वीं</sup> कार्यकारी समिति का कार्यवृत्त

Sub: Minutes of 22<sup>nd</sup> Meeting of the Executive Committee (EC) of CHT.

दिनांक 20 जुलाई, 2017 को स्कोप कन्वेंशन सेंटर, लोधी रोड, नई दिल्ली में संयुक्त सचिव (रिफाइनरीज) की अध्यक्षता में हुई उच्च प्रौद्योगिकी केन्द्र की 22<sup>वीं</sup> कार्यकारी समिति की बैठक का कार्यवृत्त आपकी सूचनार्थ एवं आवश्यक कार्रवाई हेतु संलग्न है।

Please find enclosed the duly approved Minutes of 22<sup>nd</sup> Meeting of the Executive Committee (EC) of CHT held on 20<sup>th</sup> July, 2017 at Scope Convention Centre, Lodhi Road, New Delhi under the Chairmanship of Joint Secretary (R), MoP&NG, for kind information and necessary action.

भवदीय,

Yours sincerely,

**ब्रिजेश कुमार**

(ब्रिजेश कुमार)

कार्यकारी निदेशक

पदेन सचिव, कार्यकारी समिति- उ.प्रौ.के

(Brijesh Kumar)

Executive Director

Member-Secretary, Executive Committee - CHT

संलग्न यथोक्त

Encl: As above

सूचनार्थ प्रतिलिपि :

Copy for information to:

संयुक्त सचिव (रिफाइनरीज), पेट्रोलियम और प्राकृतिक गैस मंत्रालय के निजी सचिव

PS to Joint Secretary (Refineries), MoP&NG

श्री पवन कुमार, अवर सचिव (रिफाइनरीज), पेट्रोलियम और प्राकृतिक गैस मंत्रालय

Sh. Pawan Kumar, Under Secretary (Refineries), MoP&NG

Members of the Executive Committee of CHT

1. Shri Sandeep Poundrik,  
Joint Secretary (Refineries),  
Ministry of Petroleum & Natural Gas,  
Shastri Bhavan,  
New Delhi-110 001
- Chairman
2. Shri Ajit Kumar,  
Dy. Secretary (R),  
Ministry of Petroleum & Natural Gas,  
Shastri Bhavan  
New Delhi-110 001
3. Secretary,  
Oil Industry Development Board,  
OIDB Bhawan,  
Plot No. 2, Sector-73,  
Noida (U.P.) 201 301
4. Director (Refineries),  
Indian Oil Corporation Ltd.,  
SCOPE Complex, Core-2, 5<sup>th</sup> Floor,  
Lodhi Road,  
New Delhi - 110 003
5. Shri V.S.Shenoy,  
Director (Refineries),  
Hindustan Petroleum Corporation Ltd.  
Petroleum House,  
17, Jamshedji Tata Road,  
Mumbai-400 020
6. Shri R.Ramachandran,  
Director (Refineries),  
Bharat Petroleum Corporation Ltd.  
Bharat Bhawan,  
4 & 5 Currimbhoy Road,  
Ballard Estate,  
Mumbai-400 001
7. Director (BD),  
GAIL (India) Ltd.,  
16, Bhikaji Cama Place,  
R.K.Puram,  
New Delhi - 110 066

**Minutes of 22<sup>nd</sup> Meeting of the Executive Committee (EC) of Centre for High Technology (CHT)  
held on 20<sup>th</sup> July, 2017 at SCOPE Convention Centre, New Delhi**

Shri Sandeep Poundrik, Joint Secretary (Refineries), MoP&NG and Chairman of the Executive Committee of CHT chaired the Meeting. The list of participants is enclosed as **Annexure**.

Shri Brijesh Kumar, Executive Director, CHT welcomed the Chairman and Members of the EC and other participants to the Meeting.

Thereafter, ED, CHT made a detailed presentation on the Agenda Items.

The following points emerged out of discussions:

- 1.0 Review of Action Points of the 21<sup>st</sup> Meeting of the Executive Committee held on 17<sup>th</sup> November, 2016 (Agenda Item No. 1)**
- 1.1 Energy Efficiency Improvement Study and Performance Audit of PSU Refineries (Point No. 1.1 of MOM)**

ED, CHT presented the following status with regard to the Energy Efficiency Improvement Study being carried out by EIL.

Refinery	Initial Findings	Remarks
IOCL-BR, JR, HR, MR and PR CPCL BPCL-MR and KR HPCL-MR and VR MRPL NRL	Signed with refineries	Final Report by Oct 2017 to Jan 2018 in phases
IOCL-GR, DR and BGR	By August 2017	

ED, CHT further informed that as part of the above study by EIL, Performance Audit by team comprising of domain experts from refineries and EIL is also envisaged. The nominations from refineries for forming 4 groups for this purpose have already been received. EC suggested that the visit of refinery personnel for Performance Audit may be synchronised with the EIL's visit to refineries for discussions on draft recommendations of the Energy Efficiency Improvement Study. Accordingly, EIL was advised to indicate refinery-wise schedule for their visits for drawing up the final programme.

**Action : EIL/CHT**

### Mandatory Energy Audit (MEA) by PCRA

ED, CHT informed that MEA has been successfully conducted by PCRA for all the 12 PSU refineries (excluding IOCL-Guwahati and Digboi, who are not part of PAT, and BPCL-Kochi who have already completed MEA) in June 2017 as per schedule and the reports have been signed with concerned refinery.

CHT was advised to request PCRA to make a presentation on findings including payback period of various suggestions in the next meeting.

**Action : PCRA/CHT**

Refineries were advised to continually update year wise expected MBN performance from time to time based on all energy saving schemes identified in-house as well as by EIL and PCRA

**Action : Refineries/CHT**

### **1.2 Benchmarking Study by Solomon Associates for 2016 Cycle (Point No. 1.2 of MOM)**

ED, CHT informed that the benchmarking study of PSU refineries by Solomon is progressing as per schedule and presentations would be made by Solomon in Mumbai (for HPCL and BPCL refineries separately) and New Delhi (for IOCL refineries and CPCL) followed by final presentation at MoP&NG as per the contract. MRPL could have presentation either in Mumbai or Delhi.

Refineries desired for presentation at individual refineries. CHT was advised to discuss and explore with Solomon regarding additional presentations at refineries. CHT was advised to include refinery wise presentations by Solomon in the future study.

**Action : CHT**

### **1.3 Performance Improvement Programme of PSU Refineries (Point No. 1.4 of MOM)**

ED, CHT presented the following revised schedule for Performance Improvement Study finalised in consultation with refineries:

Year	No. of Refineries	Refinery
2017-18	7	BPCL : Mumbai, Kochi; IOCL : Guwahati, Digboi, Mathura, Panipat & Paradip
2018-19	6	NRL ; IOCL: Barauni, Gujarat & Haldia ; HPCL :Mumbai & Visakh: Part of refinery
2019-20	1	IOCL-BGR
2020-21	1	CPCL

HPCL indicated desire to participate in 2017-18 cycle. It was also decided that study for CPCL and IOCL-BGR would also be taken up in 2018-19 cycle.



ED, CHT presented salient feature of the global tender document finalised after several meetings with refineries/consultants over almost one year.

CHT was advised to incorporate few suggestions made by HPCL/ BPCL in the tender document.

**Action : CHT**

#### **1.4 Commercialisation of Indigenously developed technologies (Point No. 1.5 of MOM)**

ED, CHT informed that as advised by EC in its last meeting, the Report on the subject has been submitted to MoP&NG on 31-05-2017.

#### **1.5 Refinery Performance Improvement Programme (RPIP-Phase II) by Shell Global at BPCL-Mumbai, HPCL-Mumbai and MRPL (Point No. 2.0 of MOM)**

ED, CHT informed that RPIP programme has been completed at BPCL-Mumbai and some of the Projects for Implementation (PFIs) are on-going at HPCL-Mumbai and MRPL and presented the latest status as under:

	Attributes	BPCL-M	HPCL-M	MRPL	Total
1	PFIs considered for Implementation	13	2	5	
2	Assessed Benefit				
	• Million USD/year	14.230	1.455	19.902	35.587
	• cents/bbl	14.712	2.503	21.520	
3	PFIs Implemented	13	1@	1	
4	PFIs under implementation	-	1@	4	
	Completion by	-	Mechanically Completed. Commissioning in progress	Dec 2018 Dec 2018 Sep 2017 Sep 2018 @	
5	Actual Benefit*				
	• Million USD/year	12.565	1.455	19.701	33.721
	• cents/bbl	12.990	2.503	21.300	
6	Consultant Fee – Million USD	2.511	0.881	3.146	6.538

\* including projected benefit for projects under implementation

@ implementation by refinery on its own

EC took note of the above.

#### **2.0 Status of On-going R&D Projects (Agenda Item No. 2)**

ED, CHT informed that there are 11 R&D projects, which are presently being pursued. These projects were reviewed by SAC in its meeting held in March, 2017. EC reviewed the status of the projects and expressed satisfaction over the progress of R&D projects.

### 3.0 New R&D Proposals and Progress of EOI (Agenda Item No. 3)

#### 3.1 New R&D Proposal on "Development and durability testing of Ethanol-Diesel Blend Engine by ARAI, Pune"

ED, CHT informed that the R&D proposal, at an estimated cost of Rs 110 lakh and completion schedule of 6 months, has been recommended by Working Group on Bio-Fuels of MoP&NG. Subsequently the project was considered and recommended by SAC in its 79<sup>th</sup> meeting held on 17th March 2017.

EC deliberated and approved the above R&D proposal at a cost of Rs 110 lakh with a contribution of Rs 110 lakh by CHT/OIDB.

#### 3.2 Progress of EOI

ED, CHT presented the outcome of 2 EOIs for inviting fresh R&D proposal and informed that 5 proposals have been short-listed by the Steering Committees nominated by Chairman SAC with recommendation for modifications before consideration by SAC. 3<sup>rd</sup> EOI has been published on 14<sup>th</sup> June 2017.

### 4.0 Actual Expenditure 2016-17 and BE 2017-18 (Agenda Item No. 4)

ED, CHT presented the BE, RBE and actual expenditure of CHT for 2016-17 as under :

Particulars	2015-16			2016-17			2017-18
	BE	RBE	Actual	BE	RBE	Actual	BE
REVENUE EXPENDITURE							
Salary	730.00	815.33	828.26	900.00	766.94	847.78@	805.00
Other than Salary	170.00	165.51	148.97	210.40	194.31	181.51	220.00
Sub-total	900.00	980.84	977.23	1,110.40	961.25	1029.29	1025.00
CAPITAL EXPENDITURE	5.00	2.50	2.11	3.00	2.69	2.47	5.00
PROJECTS							
Funding of R&D Projects	1797.00	596.00	593.95	1,182.00	932.81	916.69	1500.00
Special Studies	350.00	390.00	357.88	500.00	240.00	139.70 #	705.00
Sub-total	2147.00	986.00	951.83	1,682.00	1,172.81	1056.39	2205.00
TOTAL EXPENDITURE	3052.00	1969.34	1,931.17	2,795.40	2,136.75	2088.15	3235.00
LESS REVENUE INCOME	0.00	0.00	11.10	0.00	121.21	99.85 *	10.00
NET EXPENDITURE	3052.00	1969.34	1,920.07	2,795.40	2,015.54	1988.30	3225.00
GRANTS FROM OIDB			1,958.76			1982.40	

@ Due to annual claims of PRP by cos. in March 17 (Paid in April in previous years)

# Energy Efficiency Improvement Study by EIL taken up in parallel for all refineries against original plan of Priority-I refineries (CPCL & IOC-JR)

\* Grant of Rs 25 lakh for RTM not taken from OIDB.

ED, CHT informed that the actual expenditure on salary head, although lower than BE, has exceeded the RBE. He expressed that the same was due to oversight of not considering year-end payment to companies in the RBE. CHT was advised to obtain post facto approval for the same.

Action : CHT

The meeting concluded with thanks to the Chair and the participants.

**22<sup>nd</sup> Meeting of the Executive Committee (EC) of Centre for High Technology (CHT) held on  
20<sup>th</sup> July, 2017 at SCOPE Convention Centre, New Delhi**

Participants

MoP&NG

1. Shri Sandeep Poundrik, JS(R) – Chair
2. Shri Ajit Kumar, Dy. Secretary(R)
3. Shri Pawan Kumar, US (R)
4. Shri Shantanu Dhar, SO (OR-II)

OIDB

5. Shri Rajesh Saini, Dy. Chief Finance & Accounts Officer

BPCL

6. Shri R. Ramachandran, Director (R)
7. Shri Sanjay Bhargava, CGM (R&D)

HPCL

8. Shri V.S. Shenoy, Director (R)
9. Dr P.V.C. Rao, CGM (R&D)
10. Shri G.S Joshi, GM, RCD

CPCL

11. Shri Gautam Roy, MD
12. Shri G.S. Murthy, Chief Manager (PE)

MRPL

13. Shri H. Kumar, MD
14. Shri M. Venkatesh, Director (R)
15. Shri Vinay Kumar, CGM (TS)

EIL

16. Shri Ajay N. Deshpande, Director (T)
17. Ms Vartika Shukla, ED (T)

GAIL

18. Shri M.R. Meshram, ED (PC and R&D)
19. Shri Parivesh Chugh, DGM (R&D)

CHT

20. Shri Brijesh Kumar, ED
21. Shri R. Krishnamurthy, Advisor (T)
22. Shri D. Thakur, Advisor (T)
23. Shri S.K. Varshney, Joint Director





# उच्च प्रौद्योगिकी केन्द्र

(पेट्रोलियम एवं प्राकृतिक गैस मंत्रालय, भारत सरकार)

**Centre for High Technology**

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

2<sup>nd</sup> December 2016

CHT/EC/91/8/8

To,

कार्यकारी समिति के सभी सदस्यगण (संलग्न सूची अनुसार)

All Members of the Executive Committee of CHT (As per list enclosed)

महोदय,

Dear Sir,

विषय: उच्च प्रौद्योगिकी केन्द्र की 21<sup>वीं</sup> कार्यकारी समिति का कार्यवृत्त

Sub: Minutes of 21<sup>st</sup> Meeting of the Executive Committee (EC) of CHT.

दिनांक 17 नवम्बर, 2016 को पेट्रोलियम एवं प्राकृतिक गैस मंत्रालय, शास्त्री भवन, नई दिल्ली में संयुक्त सचिव (रिफाइनरीज) की अध्यक्षता में हुई उच्च प्रौद्योगिकी केन्द्र की 21<sup>वीं</sup> कार्यकारी समिति की बैठक का कार्यवृत्त आपकी सूचनार्थ एवं आवश्यक कार्रवाई हेतु संलग्न है।

Please find enclosed the duly approved Minutes of 21<sup>st</sup> Meeting of the Executive Committee (EC) of CHT held on 17<sup>th</sup> November, 2016 at MoP&NG, Shastri Bhawan, New Delhi under the Chairmanship of Joint Secretary (R), MoP&NG, for kind information and necessary action.

भवदीय,

Yours sincerely,

(बृजेश कुमार)

कार्यकारी निदेशक

पदेन सचिव, कार्यकारी समिति- उ.प्रौ.के

(Brijesh Kumar)

Executive Director

Member-Secretary, Executive Committee - CHT

संलग्न यथोक्त

As above

सूचनार्थ प्रतिलिपि :

Copy for information to:

संयुक्त सचिव (रिफाइनरीज), पेट्रोलियम और प्राकृतिक गैस मंत्रालय के निजी सचिव  
PS to Joint Secretary (Refineries), MoP&NG

श्री पवन कुमार, अवर सचिव (रिफाइनरीज), पेट्रोलियम और प्राकृतिक गैस मंत्रालय  
Sh. Pawan Kumar, Under Secretary (Refineries), MoP&NG

**Members of the Executive Committee of CHT**

Chairman

1. Shri Sandeep Poundrik,  
Joint Secretary (Refineries),  
Ministry of Petroleum & Natural Gas,  
Shastri Bhavan,  
**New Delhi-110 001**
2. Shri Ajit Kumar,  
Dy. Secretary (R),  
Ministry of Petroleum & Natural Gas,  
Shastri Bhavan  
**New Delhi-110 001**
3. Shri Sanjiv Mittal,  
Secretary,  
Oil Industry Development Board,  
OIDB Bhawan,  
Plot No. 2, Sector-73,  
**Noida (U.P.) 201 301**
4. Shri Sanjiv Singh,  
Director (Refineries),  
Indian Oil Corporation Ltd.,  
SCOPE Complex, Core-2, 5<sup>th</sup> Floor,  
Lodhi Road,  
**New Delhi - 110 003**
5. Shri V.S.Shenoy,  
Director (Refineries),  
Hindustan Petroleum Corporation Ltd.  
Petroleum House,  
17, Jamshedji Tata Road,  
**Mumbai-400 020**
6. Shri R.Ramachandran,  
Director (Refineries),  
Bharat Petroleum Corporation Ltd.  
Bharat Bhawan,  
4 & 5 Currimbhoy Road,  
Ballard Estate,  
**Mumbai-400 001**
7. Director (BD),  
GAIL (India) Ltd.,  
16, Bhikaji Cama Place,  
R.K.Puram,  
**New Delhi – 110 066**

8. Dr. Anjan Ray,  
Director,  
Indian Institute of Petroleum,  
P.O. Mohkampur,  
**Dehradun-248 005**
9. Shri Ajay N. Deshpande,  
Director (Technical),  
Engineers India Ltd.  
El Bhawan,  
1, Bhikaiji Cama Place,  
**New Delhi-110 066**
10. Shri Brijesh Kumar,  
Executive Director/Member – Secretary, Executive Committee  
Centre for High Technology,  
9<sup>th</sup> Floor, Tower-A, OIDB Bhawan,  
Plot No. 2, Sector-73,  
**NOIDA – 201 301**

**Special Invitees**

11. Shri Gautam Roy,  
Managing Director,  
Chennai Petroleum Corporation Ltd.  
536, Anna Salai,  
Teynampet,  
**Chennai-600 018**
12. Shri H.Kumar,  
Managing Director,  
Mangalore Refinery & Petrochemicals Ltd.,  
Regd. Office: Kuthethoor,  
P.O. Via Katipalla,  
**Mangalore - 575 030**
13. Shri P.Padmanabhan,  
Managing Director,  
Numaligarh Refinery Limited,  
6<sup>th</sup> Floor, Tolstoy House,  
15 – 17, Tolstoy Marg,  
**New Delhi-110001**

**Minutes of the 21<sup>st</sup> Meeting of the Executive Committee (EC) of Centre for High Technology (CHT) held on 17<sup>th</sup> November, 2016 at MoP&NG, New Delhi**

Shri Sandeep Poundrik, Joint Secretary (Refineries), MoP&NG and Chairman of the Executive Committee of CHT chaired the Meeting. The list of participants is enclosed as **Annexure**.

Shri Brijesh Kumar, Executive Director, CHT welcomed the Chairman and Members of the EC and other participants to the Meeting.

Thereafter, ED, CHT made a detailed presentation on the Agenda Items.

The following points emerged out of discussions;

**1.0 Agenda Item No. 1: Review of Action Points of the 20<sup>th</sup> Meeting of the Executive Committee held on 2<sup>nd</sup> September, 2016**

**1.1 Energy Efficiency Improvement Study and Performance Audit of PSU Refineries (Point No. 2 of MOM)**

ED, CHT informed that CHT has finalised the Agreement, including Scope and Payment Terms, and advised refineries on 6<sup>th</sup> October, 2016 to place Work Order to EIL for comprehensive Energy Efficiency Improvement Study and Performance Audit of 15 PSU Refineries.

Completion Schedule: 1 year in phased manner

Total cost: Rs 12.9 crore (excluding Service Tax)

CHT will reimburse 50 % of the base cost and the entire service tax will be borne by refineries.

Targets have been set refinery-wise both for short term and medium term (60 – 70 MBN by 2020-21) over and above energy savings already identified by the refineries.

**Mandatory Energy Audit (MEA) by PCRA**

The Agreement, including Scope and Payment terms, for MEA Study through PCRA finalised by CHT on behalf of industry for 12 PSU refineries (excluding IOCL-Guwahati and Digboi, who are not part of PAT, and BPCL-Kochi who have already completed MEA).



Refineries have been advised to engage PCRA on nomination basis as per the decision taken in the Executive Committee of PCRA in its meeting held on 4<sup>th</sup> October 2016.

Cost of the Study : Rs 5.44 crore (excluding taxes); with entire payment by refineries directly to PCRA

Completion Schedule : June 2017 in phased manner

PCRA to carry out study with 4 zonal teams.

EC took note of the above studies by EIL and PCRA and further decided as under:

- a) While some of the refineries have already placed the Work Order, other refineries were advised to place the Work Order to EIL and PCRA by next week i.e. by 24<sup>th</sup> November, 2016.
- b) EIL will circulate the template for baseline data collection to all the refineries within one month.
- c) EIL to commence the study parallelly to cover maximum number of refineries and submit draft report at the earliest so as to take advantage of quick-wins and finalise all the reports within one year simultaneously to take benefit of cross sharing.
- d) All refineries will nominate domain expert at senior level for single point co-ordination.
- e) CHT was advised to conduct monthly review of the progress with EIL, PCRA and refineries.
- f) EIL and PCRA to participate and present the progress in the meetings of Working Group on Refineries

Action by: Refineries/ CHT

## 1.2 Benchmarking Study by Solomon Associates for 2016 Cycle (Point No. 3 of MOM)

ED, CHT informed that Work Order was issued by CHT for Benchmarking Study for 2016 Study Cycle with Solomon Associates on 5<sup>th</sup> October, 2016 for 15 PSU fuel refineries and 4 lube refineries.

Cost: US\$ 890,000 (~ Rs 6 crore excluding taxes)

Refineries to bear 50 % of the base cost along with entire service tax.

BORL has also been included in the Study and their cost (US\$ 67,500) to be borne by them.





**Schedule:**

Input Data Software	:	Already given by Solomon and sent to refineries
Data Coordinator Seminar	:	12 <sup>th</sup> /13 <sup>th</sup> January 2017 at CHT
Initial data submission	:	15 <sup>th</sup> March 2017
Input Data Review by Solomon	:	15 <sup>th</sup> March to 15 <sup>th</sup> June 2017
Initial Study Results	:	Mid August 2017
Final Study Results	:	Mid October 2017
How-to-use Data Seminar	:	November 2017
Study Presentation and Workshop (Mumbai, Delhi and MoP&NG)	:	November 2017

**EC took note of the above.**

**1.3 Sharing of Expert Group Recommendations (Point No. 4 of MOM)**

ED, CHT informed that in the meeting of GC held in on 10<sup>th</sup> December, 2015, CHT was advised to put up ATR on the various recommendations made in the Report of the Expert Group (dated December, 2013) after discussion in EC.

The above was discussed in the 20<sup>th</sup> meeting of EC held on 2<sup>nd</sup> Sept, 2016. CHT was advised to convene a meeting of all refineries for sharing of the major ideas including ATR on recommendations of the Report of Expert Group.

A meeting was held at CHT on 22.9.16 on the subject. CHT, based on various recommendations and experience gained by refineries over a period of time, has brought out a Compendium including:

- i) Major schemes implemented
- ii) Schemes under implementation
- iii) Schemes identified for future
- iv) Implementable schemes based on experience of other refineries
- v) Status of Expert Group recommendations
- vi) Best practices, including ideas taken from RTMs, Activity Committee meetings, and Innovations Awards

CHT presented Refinery-wise information on the above. The Compendium has been circulated to all the refineries and EIL. Refineries appreciated CHT for the benefits derived from the cross-sharing. After deliberations, CHT was advised to continue to update the Compendium in July every year.



Action by: CHT

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#### 1.4 Performance Improvement Programme of PSU Refineries (Point No. 5 of MOM)

In line with the discussions in 19<sup>th</sup> EC of CHT held on 24<sup>th</sup> May, 2016, CHT consulted reputed Consultants (McKinsey, KBC, Shell Global, Axens, Solomon) and also held several meetings with nominated technical & finance representatives from Industry to discuss the draft tender Document, including Scope, Pre-qualification criteria, payment terms, guarantee & liability clause,

Subsequently, as advised in the 20<sup>th</sup> EC of CHT on 2<sup>nd</sup> September, 2016, ED, CHT presented the phase-wise schedule for undertaking such studies, considering the current studies & on-going major expansions and BS-VI projects, prepared in consultation with PSU Oil Companies.

Three refineries namely, IOCL-Paradip, BPCL-Mumbai & BPCL-Kochi have indicated to undertake the study during 2017-18. Further, MRPL has already awarded a study to KBC.

The tender document was finally discussed in the meeting held at CHT on 27<sup>th</sup> October, 2016 with the concerned expert officials from IOCL & BPCL.

The salient features of the proposed study are as under;

##### Areas of study

- Process Optimization, Operation Strategy, Advanced Process Control, Blend Optimization
- Plant Availability and Reliability including Maintenance / Inspection Best Practices
- Refinery Margin improvements

Following areas are excluded from scope of study:

- Energy & Loss Management
- Crude oil selection and procurement

Only those offers meeting indicated minimum guaranteed benefit of 10 cents/bbl will be considered for evaluation so that refineries are able to retender in case no offers are received with significant benefits.

Selection of refinery-wise consultant will be based on maximum net benefit to the refinery after charge on capital cost (15 % of project cost) and consultant fee (fixed % of quoted annualised savings)



Payment will be made as fixed % of the demonstrated annualised savings after capital charge and adjusting for penalty (50% of fee on differential between guaranteed and actual).

#### Payment terms

A recoverable lumpsum payment equivalent to US \$ 1 Million by each refinery against Bank guarantee of equivalent amount valid till the conclusion of the study.as per following milestones:

- 20% (US \$ 0.2 million) on start of assessment phase i.e. kick off meeting to meet the expenses for mobilization of expert resources, travel, accommodation, etc. and to carry out all activities of Assessment Phase at each Refinery
- 20% (US \$ 0.2 million) after submission of full Portfolio of Projects by the Consultant for approval at the end of Assessment Phase
- 30% (US \$ 0.3 million) after acceptance of short listed Projects by the concerned Refinery (Deduction against cumulative potential Benefits not adding up to guaranteed benefit will apply at this stage)
- 30% (US \$ 0.3 million) after actual realization of aggregate benefits

The Work Order is expected to be awarded by the concerned refineries by Sept 2017, which is aligned with readiness indicated by refineries and the study is expected to be completed in 36 months from award.

ED, CHT informed that as desired by BPCL, it is proposed to interact with consultants and representatives of IOCL/ BPCL once again to finalise the tender document.

The other refineries again indicated to participate in the programme at a later stage after completion of major on-going projects and completion of similar studies already in progress. Chairman advised refineries/CHT to once again review the schedule within one week's time.

Action by: Refineries/ CHT

#### **1.5** Commercialisation of indigenously developed technologies (Point No. 7 of MOM)

ED, CHT informed that a 2-day Workshop was held at CHT to compile information on available technologies with the R&D institutes, EIL and IIP. A Compendium of Indigenously available technologies with gap analysis has been prepared by CHT and circulated to all.





The Committee, constituted by EC under the Chairmanship of Director (R), IOCL, had two meetings on 10<sup>th</sup> May, 2016 and 26<sup>th</sup> October, 2016. The meeting was attended by representatives from oil companies, R&D institutes of oil companies, IIP and EIL. The Committee deliberated on the subject of impediments in commercialisation of indigenous technologies as well as improving commercialisation of CHT funded projects. The following are the salient points:

- (i) Captive commercialisation of indigenous technologies will be considered by Oil companies on case to case basis
- (ii) EIL's technology basket will be declared at the time of offering for PMC and in such cases, the technology selection will be done by the client or EIL may offer selected technologies as part of the package
- (iii) Concept paper for setting up catalyst plant is to be developed for scale up and commercial production of catalysts in India
- (iv) A review of all the CHT funded projects so far, was done and to improve commercialisation;
  - The Grantee institutions were advised to focus on tie-ups for scale-up and commercialisation
  - CHT to consider capability for sustaining development and tie-up for commercialisation while recommending for grant
  - Projects having potential for commercialisation were identified and institutions were advised to put up action plan


Chairman advised to expedite the Concept paper for setting up catalyst plant under Make in India initiative and advised CHT to put up a Report to MoP&NG on the commercialisation of indigenous technologies.

Action by: CHT/ Refineries/ EIL

## **2.0 Refinery Performance Improvement Programme (RPIP-Phase II) by Shell Global at BPCL-Mumbai, HPCL-Mumbai and MRPL (Agenda Item No. 2)**

CHT, on behalf of PSU refineries, engaged Shell Global International Services (SGIS) to carry out Refinery Performance Improvement Programme (RPIP-Phase II) for BPCL-Mumbai refinery, HPCL-Mumbai refinery and MRPL. The programme was initiated in 2011 with a scheduled duration of 36 months.

ED, CHT informed that the RPIP programme has been completed at BPCL-Mumbai and some of the Projects for Implementation (PFIs) are on-going at HPCL-Mumbai and MRPL.



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ED, CHT informed that the RPIP programme has been completed at BPCL-Mumbai and some of the Projects for Implementation (PFIs) are on-going at HPCL-Mumbai and MRPL.



ED, CHT presented the status as under:

	Attributes	BPCL-M	HPCL-M	MRPL	Total
1	PFI considered for Implementation	13	3	5	
2	Annual Benefit*				
	• Million USD	12.565	2.466	19.701	34.732
	• cents/bbl	12.990	4.242	21.300	
3	Consultant fee – Million US \$	2.5112	0.9730	3.3511	6.8353
4	PFI Implemented	13	1	1	
5	PFI under implementation	-	2	4	
	Completion by	-	Jan 2017 Mar 2017	Mar 2017 May 2017 May 2017 2019-20 T/A	

\* including projected benefit for projects under implementation

EC took note of the above.

### 3.0 Energy Consumption Targets for PSU Refineries – 2030 (Agenda Item No. 3)

The Mid-term Target (2020-21) for PSU refineries were finalised in the 19<sup>th</sup> EC meeting held on 24<sup>th</sup> May 2016

Crude capacity > 9 MMTPA	: 60 MBN
Crude Capacity 3 - 9 MMTPA	: 65 MBN
Crude capacity < 3 MMTPA	: 70 MBN

Under INDC (Intended Nationally Determined Commitment), India has projected reduction of specific energy consumption by 33 – 35 % per GDP by 2030 over 2005.

The actual specific energy reduction during 2005 to 2015-16 has been 24.3 %.

Milestone for energy reduction upto 2030 for refining sector (including private refineries) is projected as 36.6 % over 2005 aligning with INDC. The reduction as indicated to NITI Aayog for balance period i.e. from 2015-16 to 2030 is 16.3 % (12.3 % over 2005 base-line).

ED, CHT presented the matrix of refinery-wise yearly MBN targets projections for the sector including Pvt refineries.

EC took note of the above.

### 4.0 Expression of Interest (EOI) for inviting new R&D Proposals (Agenda Item No. 4)

As approved in the 19<sup>th</sup> EC meeting held on 24<sup>th</sup> May 2016, the EOI was published and a total of 15 R&D proposals have been received.

The Steering Committee, constituted by Chairman, SAC, at its meeting held on 4<sup>th</sup> November, 2016 scrutinised the proposals. The Committee has shortlisted 3 project proposals with advice to resubmit proposals after suggested modifications.

EC took note of the above.

#### 5.0 R&D Projects (Agenda Item No. 5)

ED, CHT informed that no new project has been recommended by SAC after the last EC. One project, "Scale-up Studies and Process Development for Hydrogen Production by Catalytic Decomposition of Natural Gas" of HPCL-R&D and IIT-D, which was recommended by EC in its 19<sup>th</sup> meeting held on 24<sup>th</sup> May 2016, will be put up to GC for approval.

#### 6.0 RBE: 2016-17 and BE: 2017-18 (Agenda Item No. 6)

CHT presented the RBE: 2016-17 and BE: 2017-18 for consideration of EC.

(Figs in Rs lakh)

Particulars	2015-16		2016-17			2017-18	
	RBE	Actual	BE	Actual upto Oct 16	Est. Nov 16 to Mar 17	RBE	BE
Revenue							
Salary	815.33	828.26	900.00	406.66	355.00	761.66	805.00
Other than Salary	165.51	148.97	210.40	114.11	75.48	189.59	220.00
Sub-total	980.84	977.23	1110.40	520.77	430.48	951.25	1025.00
Capital	2.50	2.11	3.00	0.69	2.00	2.69	5.00
Funding of R&D Projects	596.00	593.95	1,182.00	210.86	721.95	932.81	1500.00
Special Studies	390.00	401.13	500.00	0.00	240.00	240.00	705.00
TOTAL	1969.34	1,974.42	2,795.40	732.32	1394.43	2126.75	3235.00

CHT clarified that budget provision for Special Studies in RBE:2016-17 and BE:2017-18 is towards contribution of Rs 650 lakh for Energy Performance Improvement Study by EIL and Rs 300 lakh for Benchmarking Study by Solomon.

CHT also clarified that increased allocation for R&D projects in BE:2017-18 is mainly on account of budget provision for:

- Project on Slurry Phase Residue Hydroprocessing - Rs 750 lakh
- Project on Bio-mass Hydrolysis - Rs 490 lakh

EC advised CHT to review the above allocation before putting up for consideration of GC.

Action by: CHT

The meeting concluded with thanks to the Chair and the participants



21<sup>st</sup> Meeting of the Executive Committee (EC) of Centre for High Technology (CHT)  
held on 17<sup>th</sup> November, 2016 at MoP&NG, New Delhi

Participants

MoP&NG

1. Shri Sandeep Poundrik, JS(R) – Chair
2. Shri Ajit Kumar, Dy. Secretary(R)

OIDB

3. Shri Rajesh Saini, Dy. Chief Finance & Accounts Officer

PCRA

4. Shri Alok Tripathi, ED, PCRA (Part)

IOCL

5. Shri Sanjiv Singh, Director (R)

BPCL

6. Shri R. Ramachandran, Director (R)
7. Shri C.J. Iyer, GM(I/C), Mumbai

HPCL

8. Shri V.S. Shenoy, Director (R)
9. Shri M. Rambabu, ED-RCD

CPCL

10. Shri Gautam Roy, MD
11. Shri S. Visveswaran, GM (T)

MRPL

12. Shri H. Kumar, MD
13. Shri M. Venkatesh, Director (R)

NRL

14. Shri P.K. Barua, GM (C&F)

EIL

15. Ms Vartika Shukla, ED (T)

GAIL

16. Shri Jaivinder Singh, DGM (R&D)

CHT

16. Shri Brijesh Kumar, ED
17. Shri R. Krishnamurthy, Advisor (T)
18. Shri D. Thakur, Advisor (T)
19. Shri A.S. Pathak, Director