



# भारतीय मानक छूरो BUREAU OF INDIAN STANDARDS

### (PETROLEUM, COAL & RELATED PRODUCTS DEPARTMENT)

| AGENDA   |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
| 2 August 2024, Friday, 1330 - 1700 h   |  |  |  |  |  |  |  |
| Petroleum and their Related Products of Synthetic or E<br>Natural Origin Sectional Committee | Biological or 52 <sup>nd</sup> Meeting |  |  |  |  |  |  |
| Chairperson: Dr. Harender Singh Bisht, Director, CSIR -                                      | Member Secretary: Ms. Kreeti<br>Das    |  |  |  |  |  |  |

**Meeting Information** 

Meeting mode: Virtual

**Meeting link**:

https://bismanak.webex.com/bismanak/j.php?MTID=m7b67762828ef76993e7f3a63ae38c631

**Meeting number**: 2518 179 0166

Password: Pcd3#52

## ITEM 0 WELCOME AND INTRODUCTORY REMARKS

**0.1** Welcome by BIS

0.2 Opening Remarks by the Chairperson

#### ITEM 1 CONFIRMATION OF THE MINUTES OF THE 51st MEETING OF PCD 03

The minutes of the 51st meeting of PCD 03, held in hybrid mode on 22 February 2024, was circulated to all members through BIS portal and email on 14 March 2024. No comments received on the minutes.

The Committee may **CONFIRM** the minutes, as circulated.

#### ITEM 2 TITLE, SCOPE AND COMPOSITION OF PCD 03

**2.1** The title of the Committee is given below:

TITLE - Petroleum and their Related Products of Synthetic or Biological or Natural Origin Sectional Committee

#### The Committee may NOTE.

**2.2** a) The scope of the Committee is given below:

**SCOPE** – "To formulate Indian Standards for terminology; petroleum, petroleum products, biofuels (liquid and gas), fuels and e-fuels produced through synthesis route, specification for natural gas, hydrogen and other renewable fuels, diesel exhaust fluids and codes of practice for storage, handling, transport and application."

The Committee may **NOTE**.

52<sup>nd</sup> Meeting of PCD 03



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## b) LIAISON with ISO Committees

- ISO/TC 28 Petroleum and related products, fuels and lubricants from natural or synthetic sources (so far as it concerns its own scope)
- ISO/TC 28/SC 4 Classifications and specifications
- ISO/TC 28/SC 7 Liquid biofuels
- ISO/TC 193 Natural gas
- ISO/TC 255 Biogas

The Committee may NOTE.

### c) LIAISON with BIS Technical Committees

- TED 02 Automotive prime mover, transmission system and internal combustion engines Sectional Committee
- PCD 01 Methods of Sampling and Test for Petroleum, its Products, Gaseous Fuels and Lubricants Sectional Committee
- PCD 25 Lubricants and their related products Sectional Committee
- CHD 06 Industrial Gases Sectional Committee.

The Committee may NOTE.

## 2.3 Composition of PCD 03

**2.3.1** The present composition of PCD 03 is given in **Annex I**.

The Committee may **NOTE**.

- **2.3.2** A panel for review of composition of PCD 03 was created consisting of following members:
- a) Dr Harender Singh Bisht, Director, CSIR-IIP, & Chairperson PCD 03 Convenor
- b) Dr Y.P.Rao, Convenor, PCD3:1;
- c) Shri V Nanda Kumar, Convenor, PCD3:2, and
- d) Dr M.O.Garg, Convenor, PCD3:5

The panel met virtually on 14 May 2024 and recommended the following changes:

#### I. Recommendation for PCD 3:

- Co-option Requests:
  - FIPI, New Delhi: Organization was removed due to non-participation. Fresh
    nomination received and organization confirmed participation in future meetings
    and committee work. Hence, the panel recommended for co-option of the
    organization in PCD 3.
  - **M/s India Carbon Ltd.**: Organization's interest is limited to PET coke standard IS 17049. Hence, the panel recommended NOT to co-opt the organization in PCD 3.
  - **PNGRB:** Considering relevance of the organization to gaseous fuels and that it is already a member in PCD 3:5, the panel recommended NOT to co-opt in PCD 3.
  - Yantra Fintech: Considering that the organization is a biodiesel manufacturer and exporter and BDAI is already a member of PCD 3, the panel recommended NOT to co-opt in PCD 3 as percentage of industry is already exceeding the recommended 1/3<sup>rd</sup> limit.
  - **Indian National Shipowners' Association:** The panel recommended to co-opt the organization in PCD 3:1 and NOT in PCD 3

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- Nutzen Engineering Solutions LLP: The panel recommended to co-opt the organization in PCD 3:5 and NOT in PCD 3
- II. Recommendation for PCD 3:1 Automotive, Aviation and Industrial Fuels Subcommittee
  - i. Co-options:
    - Indian National Shipowners' Association
    - Hyundai Motors
    - **IIT Roorkee** (relevant contact to be provided by Shri V Nanda Kumar)
    - **IIT Kanpur** (relevant contact to be provided by Dr. Y P Rao)
  - ii. Withdrawals:
    - CIMAC India, Faridabad
    - IIT Delhi
    - Indian Sugar Mills Association, New Delhi
    - RDSO, Lucknow
- III. Recommendation for PCD 3:5 Gaseous Fuels Subcommittee
  - i. Co-options:
    - Nutzen Engineering Solutions LLP
    - Maruti Suzuki India Ltd.

The Committee may **CONSIDER**.

#### ITEM 3 REFORMS IN STANDARDIZATION

### **Committee Efficiency Index Parameters:**

- a) **Participation in Meetings:** Less than 50% attendance in meeting by organizations (not attending two consecutive meetings) may result in withdrawal of the organization from Committee. Only the principal and/or the alternate members nominated from the organization should attend the meetings to record attendance.
- b) **Comment on P-drafts:** It is mandatory for Committee members to comment on P-drafts as it is solely for the review of Committee. The members may agree to the draft/provide comments/mention that the subject does not relate to their area of expertise. However, members must provide their input on P-drafts on BIS portal.
- c) **Comment on Drafts/Standards:** Comments on drafts under development and published standards are to be given through BIS portal only.

The Committee may **NOTE**.

#### **ITEM 4 ACTIVITIES OF PCD 03**

**4.1** The program of work and list of standards published under PCD 03 are given in **Annex II**.



Annex II.pdf

The Committee may NOTE



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#### 4.2 Details of Subcommittee Meetings

| Details of Subcommittee  | Date of the meeting         | Minutes                                  |
|--|-----------------------------|--|
| 39th Meeting of PCD 03:1<br>Automotive, Aviation, and<br>Industrial Fuels Subcommittee                                 | 29 July 2024, 1100 – 1600 h | Minutes%2039th%2<br>0Meeting_Finalized.c |
| 23 <sup>rd</sup> Meeting of PCD 03:2<br>Aromatic Hydrocarbons,<br>Petroleum Solvents and<br>Preservatives Subcommittee | 11 June 2024, 1000 - 1200 h | Minutes%2023rd%2<br>0Meeting_Draft.docx  |
| 32 <sup>nd</sup> Meeting of PCD 03:5 Gaseous<br>Fuels Subcommittee   | 24 July 2024, 1400 – 1600 h | Minutes%2032nd%2 Omeeting_Draft.docx     |

The Committee may CONSIDER and ENDORSE the recommendations of the Subcommittees.

### 4.3 Revision/Reaffirmation of Standards Due for Review

| Sl.<br>No. | Indian Standard  | Due Date   | Current Status   |
|------------|--|------------|--|
| 1.         | IS 11254 : 2009 Code of practice for dispensation of aviation fuel and allied products | April 2024 | <ul> <li>In last meeting of aviation fuel panel, it was deliberated that this standard needs revision and the panel will prepare the revised draft.</li> <li>The Committee may CONSIDER reaffirming the standard with revision.</li> </ul> |

#### **ITEM 5 INTERNATIONAL ACTIVITY**

### 5.1 P Membership and Participation

## 5.1.1 ISO/TC 28, ISO/TC 28/SC 4, ISO/TC 28/SC 7 and WGs

It is proposed to have a joint meeting between PCD 1, 3, and 25 in the week of 12 - 16 August to review the current registrations in ISO/TC 28, its SCs and WGs, deliberate changes required, and decide on the Indian delegation for upcoming ISO/TC 28 meeting.

The Committee may **NOTE** 

## 5.1.2 8th Plenary Meeting of ISO/TC 255 - 10 to 12 September 2024 (Hybrid)

The  $8^{th}$  plenary meeting of ISO/TC 255 and its WGs are scheduled from 10 to 12 September 2024 in Hai Dian Qu, China. Draft agenda is attached:





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255\_N160\_First anno

Please refer to item **4.2.1** in the minutes of 32<sup>nd</sup> meeting of PCD 3:5. The Committee may **CONSIDER** the following delegation for participation in the meetings of ISO/TC 255 in virtual mode:

| Sl.<br>No. | Meeting  | Delegates   |
|------------|--|---|
| i.         | ISO/TC 255/WG 1 Terms,<br>definitions and classification scheme<br>for the production, conditioning and<br>utilization of biogas<br>11 Sep 2024 (4:30 pm – 5:30 pm<br>IST) | Shri Debasis Sarma, Reliance – Expert<br>Kreeti Das, Member Secretary, PCD 3 – Document Monitor   |
| ii.        | ISO/TC 255/WG 4 Safety and<br>environmental aspects &<br>ISO/TC 255/WG 6 Biomass<br>gasification<br>Joint meeting – 11 Sep 2024 (5:30<br>pm – 7:30 pm IST)                 | Shri Debasis Sarma, Reliance – Expert<br>Kreeti Das, Member Secretary, PCD 3 – Document Monitor   |
| iii.       | ISO/TC 255 Biogas<br>11 Sep 2024 (7:30 pm – 8:30 pm<br>IST)  | Shri Debasis Sarma, Reliance – Committee Member<br>Kreeti Das, Member Secretary, PCD 3 – Committee Member<br>Head, PCD – Committee Member |
| iv.        | ISO/TC 255 Biogas<br>12 Sep 2024 (3:30 pm – 11:00 pm<br>IST)   | Shri Debasis Sarma, Reliance – Committee Member<br>Kreeti Das, Member Secretary, PCD 3 – Committee Member<br>Head, PCD – Committee Member |

#### **ITEM 6 ANY OTHER BUSINESS**

## ITEM 7 ANNUAL MEETING CALENDAR

The annual meeting calendar of PCD 03 is proposed as under:

| Sl.<br>No. | Sectional Committee / Subcommittee   | Dates  | Venue          |
|------------|--------------------------------------|--|----------------|
| 1          | PCD 03, PCD 03:1, PCD 03:2, PCD 03:5 | 10 14 June 2024<br>Held between Jul-Aug 2024 | Hybrid (Delhi) |
| 2          | PCD 03, PCD 03:1, PCD 03:2, PCD 03:5 | 9 – 20 December 2024                         | Hybrid (Delhi) |

The Committee may CONSIDER.

### **ITEM 8 VOTE OF THANKS**



# FOR BIS USE ONLY 52nd Meeting of PCD 03

Annex I

Composition of PCD 03 Petroleum and their Related Products of Synthetic or Biological or Natural Origin

Details of Last Three Meetings

| No. of Meeting     | Date             | Place  |
|--------------------|------------------|--------|
| <b>49</b> th       | 3 May 2023       | Hybrid |
| $50^{\mathrm{th}}$ | 2 August 2023    | Hybrid |
| 51st               | 22 February 2024 | Hybrid |

| Sl.<br>No. | Organization                                      | Member Name        | Member Email                         | Member<br>Designation                  | Role                  | 50 <sup>th</sup> | 51st | Total |
|------------|---|--------------------|--------------------------------------|--|-----------------------|------------------|------|-------|
| 1.         | CSIR - Indian Institute of<br>Petroleum, Dehradun | Dr. Harender Singh | director@iip.res.in                  | Director                               | Chairperson           | -                | -    | -     |
|            | Ashok Leyland Limited,<br>Chennai                 | Mr. Balakrishnan D | Balakrishnan.D2@asho<br>kleyland.com | Vice President                         | Alternate<br>Member   |                  |      |       |
| 2.         |   | Mr. Mahesh P       | Mahesh.P@ashokleylan<br>d.com        | Vice President                         | Principal<br>Member   | Y                | Y    | 2/2   |
|            |   | Shri Muthukumar N  | muthukumar.n@ashokl<br>eyland.com    | DGM -<br>Regulations &<br>Homologation | Young<br>Professional |                  |      |       |

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| Association of State Road 3. Transport Undertakings, New | Capt. V V Ratnaparkhi                             | ed.asrtu@gmail.com   | Executive<br>Director                  | Principal<br>Member     | Y                     | Y | 2/2 |      |
|--|---|--|--|-------------------------|-----------------------|---|-----|------|
| 3.   | Delhi   | Shri R R K Kishore   | dt.asrtu@gmail.com                     | Director<br>(Technical) | Alternate<br>Member   | Y | ĭ   | 2/2  |
|  |   | Shri M A Bawase  | bawase.aml@araiindia.c<br>om           | General<br>Manager      | Principal<br>Member   |   |     |      |
| 4.   | Automotive Research<br>Association of India, Pune | Shri M I Jamadar   | jamadar.edl@araiindia.c<br>om          | Dy. General<br>Manager  | Alternate<br>Member   | N | N   | 0/2  |
|  |   | Debjyoti Bandyopadhyay   | bandyopadhyay.pte@ar<br>aiindia.com    | Engineer                | Young<br>Professional |   |     |      |
| 5.   | Bajaj Auto Limited, Pune                          | Shri Yogesh. R. Mahajan  | yrmahajan@bajajauto.c<br>o.in          |                         | Principal<br>Member   | Y | Y   | 2 /2 |
| 5.   |   | Shri Ramesh Goykar   | rgoykar@bajajauto.co.in                | Manager                 | Alternate<br>Member   | 1 | 1   | 2/2  |
| 6.   | Bharat Petroleum Corporation                      | Shri R Subramanian  Shri R Subramanian  subramanianr@bharatp etroleum.in  Principal Member | Y                                      |                         | 1/2                   |   |     |      |
| 0.   | Limited, Mumbai                                   | Shri C Shanmuganathan  | shanmuganathanc@bha<br>ratpetroleum.in |                         | Alternate<br>Member   | I | N   | 1/2  |
| 7.   | Bio Diesel Association of India,                  | Shri N. S. Balamukundan  | president@bdai.org.in                  | President               | Principal<br>Member   | Y | N   | 1 /2 |
| /.   | Mumbai  | Shri Sanjeev Gupta   | sanjeev.gupta@aemetis.<br>com          |                         | Alternate<br>Member   | Y | N   | 1/2  |

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| 8.  | Biogas Forum India, New Delhi                     | Nomination awaited           |  |                        | Principal<br>Member | 1 | -  | -    |
|-----|---|------------------------------|--|------------------------|---------------------|---|----|------|
| 9.  | Bosch Limited, Bengaluru                          | Dr. Venkatesh R              | venkatesh.r@in.bosch.c<br>om                   | Manager                | Principal<br>Member | Y | N  | 1/2  |
| 10. | CSIR - Indian Institute of                        | Dr. Anil Kumar Sinha         | asinha@iip.res.in                              | Chief Scientist        | Principal<br>Member | Y | Y  | 2/2  |
| 10. | Petroleum, Dehradun                               | Dr. Thallada Bhaskar         | tbhaskar@iip.res.in                            |                        | Alternate<br>Member | ĭ | ĭ  |      |
| 11. | Centre for High Technology,<br>New Delhi          | Shri Rajesh Agarwal          | ed.cht@cht.gov.in                              | Executive<br>Director  | Principal<br>Member |   | Y  | 2 /2 |
| 11. |   | Shri Shekar Kulkarni         | kulkarni@cht.gov.in                            | Additional<br>Director | Alternate<br>Member | Y | ĭ  | 2/2  |
| 12  | Centre for Science and                            | Ms Anumita<br>Roychowdhury   | Anumita@cseindia.org                           | Executive<br>Director, | Principal<br>Member | V | V  | 2 /2 |
| 12. | Environment, New Delhi                            | Shri Vivek<br>Chattopadhyaya | vivek@cseindia.org                             | Senior<br>Programme    | Alternate<br>Member | Y | Y  | 2/2  |
| 13. | Chennai Petroleum<br>Corporation Limited, Chennai | Shri Abdul Kareem            | kareem@cpcl.co.in                              | DGM (QC)               | Principal<br>Member | Y | N  | 1/2  |
| 1.4 | Consumer Guidance Society of                      | Dr. Sitaram Dixit            | sitaram.dixit@gmail.co<br>m, cgsibom@gmail.com | Chairman               | Principal<br>Member | V | NT | 1 /2 |
| 14. | India, Mumbai                                     | Dr. M. S. Kamath             | dr.m.s.kamath@gmail.c<br>om                    | General<br>Secretary   | Alternate<br>Member | Y | N  | 1/2  |

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| 15. | DRDO - Centre for Military   |                                |  | Shri R. Shanmugavel                               | r.shanmugavel@cemilac<br>.drdo.in |     | Principal<br>Member | - Y  | N | 1/2 |
|-----|--|--------------------------------|--|---|-----------------------------------|-----|---------------------|------|---|-----|
| 15. | Certification, Bengaluru   | R Kamalakannan                 | r.kamalakannan@cemil<br>ac.drdo.in             | Group Director<br>(AT & FOL)                      | Alternate<br>Member               | 1   | 11                  | 1/2  |   |     |
| 16. | Directorate General of<br>Aeronautical Quality<br>Assurance, New Delhi | SH Santosh Namdeo              | dirppfol.dgaqa@nic.in,<br>ssoi117-dgaqa@gov.in | JOINT DIRECTOR DGAQA MINISTRY OF DEFENCE          | Principal<br>Member               | Y   | N                   | 1/2  |   |     |
|     | 7. Directorate General of Civil<br>Aviation, New Delhi                 | Shri Rakesh Kumar              | rakeshkumar.dgca@nic.<br>in                    |   | Principal<br>Member               |     |                     |      |   |     |
| 17. |  | Shri Amit Gupta                | amit.dgca@nic.in                               |   | Alternate<br>Member               | Y   | Y                   | 2/2  |   |     |
|     |  | Shri Dharmendra Singh<br>Yadav | dsyadav.dgca@nic.in                            |   | Alternate<br>Member               |     |                     |      |   |     |
| 10  | Directorate General of Quality   | Dr. O P Singh                  | omprakash.singh75@go<br>v.in                   | Principal<br>Scientific Officer                   | Principal<br>Member               | - N | V                   | 1 /2 |   |     |
| 18. | Assurance, Ministry of Defence,<br>Kanpur                              | Shri Vikin Jain                | vikin.jain2630@gov.in                          | SSO - II  | Alternate<br>Member               |     | Y                   | 1/2  |   |     |
| 19. | Gulf Oil Lubricants India<br>Limited, Mumbai                           | Shri K Swaminathan Iyer        | swaminathan@gulfoil.c<br>o.in                  | Sr. General<br>Manager -<br>Technical<br>Services | Principal<br>Member               | N   | N                   | 0/2  |   |     |

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|     |  | Shri M.P.Sajeev                                      | mp.sajeev@gulfoilltd.co<br>m           | Vice President -<br>Global<br>Technology       | Alternate<br>Member |   |   |     |
|-----|--|--|--|--|---------------------|---|---|-----|
|     |  | Shri Jencen Mathai                                   | jencen.arivannoor.ch@g<br>ulfoil.co.in | Manager -<br>Global<br>Technology              | Alternate<br>Member |   |   |     |
| 20. | Hero Motocorp Limited, New                         | Shri Feroz Ali Khan                                  | Feroz.khan@heromotoc<br>orp.com        |  | Principal<br>Member | Y | Y | 2/2 |
| 20. | Delhi  | Shri Rakesh Sharma                                   | rakesh.sharma@herom<br>otocorp.com     |  | Alternate<br>Member | 1 | I | 2/2 |
|     | Hindustan Petroleum<br>Corporation Limited, Mumbai | Shri Elecheran Kumar ekumar@hpcl.in Principal Member |  |  |                     |   |   |     |
| 21. |  | Shri S N Sheshachala                                 | shesha@hpcl.in                         | CGM R&D  | Alternate<br>Member | Y | Y | 2/2 |
|     |  | Shri Shitanshu Pati<br>Tripathi                      | shitanshuptripathi@hpc<br>l.in         | Chief Manager -<br>Quality Control             | Alternate<br>Member |   |   |     |
| 22. | Indian Biogas Association                          | Dr. A R Shukla                                       | shuklaar@yahoo.com                     | President                                      | Principal<br>Member | N | Y | 1/2 |
| 23. | Indian Oil Corporation Limited,<br>New Delhi       | Shri Manish Malhan                                   | mmalhan@indianoil.in                   | Dy. General<br>Manager<br>(Quality<br>Control) | Alternate<br>Member | Y | Y | 2/2 |
|     | New Benn   | Shri A. S.<br>Krishnamoorthy                         | krishnamoorthyas@indi<br>anoil.in      | Senior Manager<br>(QC)                         | Alternate<br>Member |   |   |     |

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|     |   | Shri R K Kaushik Singha | Kaushik singha@indian<br>oil.in        | Chief General<br>Manager                                    | Principal<br>Member |   |   |     |
|-----|---|-------------------------|--|---|---------------------|---|---|-----|
|     |   | Dr. Y S Jhala           | JHALAYS@INDIANOIL.I<br>N               | Chief Quality<br>Control Manager<br>(Head of<br>Department) | Alternate<br>Member |   |   |     |
| 24. | Indian Oil Corporation (R and<br>D Centre), Faridabad       | Dr Ajay Kumar Arora     | aroraak1@indianoil.in                  | General<br>Manager, Fuels<br>and Additive<br>Department     | Principal<br>Member | Y | Y | 2/2 |
| 25. | Lubrizol India Limited,<br>Mumbai                           | Shri Anand Redkar       | anand.redkar@lubrizol.<br>com          |   | Principal<br>Member | Y | N | 1/2 |
| 26. | Mahindra and Mahindra                                       | Shri R. Ramaprabhu      | r.ramaprabhu@mahind<br>ra.com          | Sr Principal<br>Engineer – Fluid<br>Technology              | Principal<br>Member | Y | Y | 2/2 |
|     | Limited, Mumbai   | Shri T Karuppasamy      | Thangaraj.karuppasamy<br>@mahindra.com | Lead Engineer -<br>Homologation                             | Alternate<br>Member |   |   |     |
| 27. | Mangalore Refinery and Petro<br>Chemical Limited, Mangalore | Shri Sudheer Pai M      | sudheerpai@mrpl.co.in                  | Chief General<br>Manager<br>Process<br>Engineering          | Principal<br>Member | N | Y | 1/2 |
|     |   | Shri Yogeesha           | yogeesha@mrpl.co.in                    | Chief Manager –<br>Quality Control<br>Laboratory            | Alternate<br>Member |   |   |     |
| 28. | Maruti Udyog Limited,<br>Gurugram                           | Shri Ajay Kumar         | Kumar.Ajay@maruti.co.i<br>n            | General<br>Manager  | Principal<br>Member | Y | Y | 2/2 |

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|-----|--|------------------------|--|--|---------------------|-----|---|-----|
|     |  | Shri Gururaj Ravi      | gururaj.ravi@maruti.co.<br>in          | Vice President –<br>Global<br>Regulatory<br>Affairs & Policy | Alternate<br>Member |     |   |     |
| 29. | Ministry of Petroleum and<br>Natural Gas, New Delhi      | Shri Manish Sarda      | sarda.mm@nic.in                        |  | Principal<br>Member | Y   | Y | 2/2 |
|     |  | Shri Rajesh Manocha    | manocha.rajesh@gov.in                  |  | Alternate<br>Member |     |   |     |
| 30. | Nayara Energy Limited,<br>Mumbai                         | Shri Pratik Shah       | pratik.shah@nayaraene<br>rgy.com       |  | Principal<br>Member | Y   | Y | 2/2 |
|     |  | Shri Milan Vasoya      | milan.vasoya@nayaraen<br>ergy.com      |  | Alternate<br>Member |     |   |     |
| 31. | Oil and Natural Gas<br>Corporation Limited, New<br>Delhi | Shri Gour Mohan Dass   | das_gm@ongc.co.in                      | Group General<br>Manger-Chief<br>Labs                        | Principal<br>Member | Y   | Y | 2/2 |
|     |  | Smt. Leena John        | leena_john@ongc.co.in                  | General<br>Manager   | Alternate<br>Member |     |   |     |
|     |  | Dr. Devkishan Chhimpa  | chhimpa_devkishan@on<br>gc.co.in       | Chief Chemist  | Alternate<br>Member |     |   |     |
| 32. | Reliance India Limited,<br>Mumbai                        | Shri Balasubramanian K | Balasubramanian.kuppu<br>swamy@ril.com | Vice President   | Principal<br>Member | - Y | Y | 2/2 |
|     |  | Shri Pramod mall       | pramod.mall@ril.com                    | Vice President   | Alternate<br>Member |     |   |     |

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|-----|---|------------------------------------|-----------------------------------|---|----------------------|---|---|-----|
| 33. | Society of Indian Automobile<br>Manufacturers (SIAM), Delhi | Shri Prashant Kumar<br>Banerjee    | pkbanerjee@siam.in                | Executive<br>Director                                 | Principal<br>Member  | Y | Y | 2/2 |
|     |   | Dr. Sandeep Garg                   | sgarg@siam.in                     | Dy. Executive<br>Director                             | Alternate<br>Member  |   |   |     |
|     |   | Shri Diwit Prajapati               | diwit@siam.in                     |   | Alternate<br>Member  |   |   |     |
| 34. | TVS Motor Company Limited,<br>Hosur                         | Shri Manish Gopal                  | manish@tvsmotor.com               | DGM ( Material<br>science Group –<br>R&D)             | Principal<br>Member  | N | Y | 1/2 |
|     |   | Shri M S Anandkumar                | ms.anandkumar@tvsmo<br>tor.com    | General<br>Manager (R&D)                              | Alternate<br>Member  |   |   |     |
|     |   | Shri N Arun                        | arun.n@tvsmotor.com               | Senior Manager  | Alternate<br>Member  |   |   |     |
| 35. | Tata Motors Limited, Pune                                   | Shri Sethuramalingam<br>Tyagarajan | t.sethu@tatamotors.co<br>m        | General<br>Manager, Engine<br>Design &<br>Development | Principal<br>Member  | Y | Y | 2/2 |
|     |   | Shri Gowrishankar P. S.            | p.gowrishankar@tatam<br>otors.com | General<br>Manager                                    | Alternate<br>Member  |   |   |     |
| 36. | In Personal Capacity  | Dr Y. P. Rao                       | yprao2012@gmail.com               | Chairman  | Personal<br>Capacity | Y | Y | 2/2 |