

# National Transport Decarbonisation Council (NTDC)

## Minutes of the Meeting

### Workshop on “Emission Reduction and Efficiency Improvement”

September 01, 2022, 1400-1600 hours IST

TERI organized a workshop on “Emission Reduction and Efficiency improvement” under its project-National Transport Decarbonisation Council (NTDC) on September 01, 2022. It involved experts and policymakers in the area, as well as industry stakeholders. The welcome address by Mr. Sharif Qamar, Fellow and Area Convenor, TERI was followed by an introductory note on the importance of reduction in vehicular emission and efficient fuel economy for transport decarbonization by Mr. Shri Prakash, Distinguished Fellow, TERI. Ms Ruchika Mattoo Associate Fellow’s brief presentation highlighted the existing as well as future projections of transport emissions and energy demand, current fuel efficiency, and vehicular emission standards and comparison with international experiences. The discussions with various stakeholders moderated by Mr. I V Rao, Senior Visiting Fellow, TERI, brought the following points

#### **Improvement of the existing fuel economy and vehicular emission norms and future timelines:**

- CAFÉ norms are meeting the said targets till now however there are a few challenges in stage II and regarding that, some provisions in terms of the powertrain have been considered to achieve the regulatory targets.
- The next stage of norms deliberation is yet to be taken place. 2027 is the tentative timeline for the upcoming stages.
- Compare to other countries such as the US CAFÉ stage II are less stringent despite of being less gross vehicle weight.
- CAFÉ III should include the norms for all vehicle segments especially two-wheelers and HCV.
- Existing emissions standards BSVI are aligned with EURO VI, also on track with Real Driving Emission (RDE) implementation.
- Both fuel economy and vehicular emissions norms should be implemented together to optimize development timelines and cost.
- Review the provision of super credits for some technology offerings improving the fuel economy.

#### **Alternative fuel options:**

- The introduction of E20 gasoline for two-wheelers and CNG for four-wheelers will greatly impact the decarbonization of the transport sector.
- Integration of E 20 and upcoming CAFÉ stage III is deliberated to have proper thought on how the fuel alternatives are taken to be in consideration.
- Under the A Step Towards Sustainable Future (SATAT) scheme government is planning to implement 5000 compressed Biogas plants (CBG) across India.

- Hydrogen mixed with CNG is the next generation fuel and is in the experimental stage which expects a substantial decrease in emissions.
- The tentative timeline for implementation of E20 is 2025.
- Need to consider the Low Carbon Fuel Standards (LCFS) a concept from California on life cycle analysis.
- As India is the larger emitter of methane, there is a potential to reduce methane emission by utilizing waste as the potential feedstock for biogas as a substitute for Natural gas for the transport sector.

#### **Technological intervention to lower emissions:**

- To achieve the net zero by 2070 complete electrification and hydrogen fuel will play an important role and there is a need for long-term visioning for the EV industry beyond 2024 to provide clarity to the industry on the timelines and continuation of incentives.
- To have a holistic approach to electric mobility, it is important to look at the life cycle of electric vehicles. A comparative analysis on life cycle analysis (LCA) study done by ICCT has analyzed the present electric grid is superior to the conventional ICE vehicles.
- Direct electrification should be prioritized for the road sector while hydrogen can be used for shipping.
- Auto industry can encourage the adoption of solar energy which further dovetails the electricity used in the transport sector.
- Technological intervention such as low rolling resistance tyres could be the game changer in terms of emission reduction in heavy-duty commercial vehicles.

#### **Testing procedure innovation to reduce emission:**

- World Harmonized Light testing procedures (WLTP) have been in discussion and there is a strong recommendation for considering WLTP as a testing procedure.
- Need to improve the existing test procedure constant speed fuel consumption (CSFC) method does not correlate well with the real-world situation. There is a requirement of simulation tools VECTO to improve the existing test procedure for heavy-duty vehicles. Bharat VECTO is still being developed by ARAI and BEE. This is required to be accelerated for implementation for next stage fuel efficiency norms.

#### **Evolving a long-term road map for improvement**

- For fuel economy norms, a long-term road map is required not only to strengthen energy security but also to accelerate electrification.
- Need a clear road map for not only E20 , but also other fuel options for finalization of CAFÉ III norms for M1 category and developing fuel efficiency norms for 2W and 3W .

## Implementation and enforcement mechanism

- Penalty provision under the energy conservation act 2001 has been modified and passed under Lok Sabha which specifies the penalty for noncompliance to CAFÉ norms limits at Rs. 25000 per vehicle/gm.
- With BSVI regulatory enforcement, vehicles are required to meet the emission limits on actual road testing very close to the lab results. Also, the authorized test agencies test the vehicle from production line for emission testing as part of Conformity of Production. This has been extended to pick the test vehicle from the stock at dealer end. BS VI also has included the testing of vehicle in use by a customer for emission performance check.
- Existing on-road emissions monitors are outdated. Remote sensing of emissions from vehicle on-road will help to monitor the emissions from vehicles better.
- Carbon trading could be considered in future for promoting vehicles with lower emissions and carbon footprint

## List of participants and organizations

1. Mr. P.K Banerjee, Executive Director, Society of Indian Automobile Manufacturer (SIAM)
2. Dr. Reji Mathai, Director, Automotive Research Association of India (ARAI)
3. Ms. Anumita Roy Chowdhury, Executive Director, Centre for Science and Environment (CSE)
4. Mr. Ambuj Sharma, Ex-Additional Secretary, DHI
5. Dr. Pankaj Sharma, Add. Director, Petroleum Planning and Analysis Cell
6. Mr. Anoop Bhat, Executive Vice President, Maruti Suzuki
7. Dr. S.K Sharma, Director (Gas) Federation of Indian Petroleum Industry (FIPI)
8. Dr. Pierpaolo Cazolla, Independent Consultant
9. Ms. Chetna Nagpal, Rocky Mountain Institute (RMI)
10. Mr. Sudeept Maiti, Program Head – Transport, WRI
11. Ms. Avantika Garg Tayal, Asst. Director, Petroleum Planning and Analysis Cell
12. Mr. Vijay Kansal, Add. Director, Petroleum Planning and Analysis Cell
13. Mr. Nitant Kumar, The Climate group
14. Mr. Ajay Kumar, General Manager, Maruti Suzuki
15. Prof. Ashish Verma, Indian Institute of Science (IISc)Bangalore
16. Mr. Narayan Sreekumar, Shakti Sustainable Energy Foundation
17. Mr. Aditya Ramji, University of California, Davis
18. Mr. Aviral Yadav, International Council on Clean Transport (ICCT)
19. Ms. Priti Shukla, Shakti Sustainable Energy Foundation
20. Dr. A R Sihag, The Energy and Resources Institute (TERI)
21. Mr. Shri Prakash, The Energy and Resources Institute (TERI)
22. Mr. I V Rao, The Energy and Resources Institute (TERI)
23. Mr. Sharif Qamar, The Energy and Resources Institute (TERI)
24. Ms. Ruchika Mattoo, The Energy and Resources Institute (TERI)
25. Mr. Faiz Jamal, The Energy and Resources Institute (TERI)
26. Ms. Akshaya Paul, The Energy and Resources Institute (TERI)

