National Transport Decarbonisation Council (NTDC)

Minutes of the Meeting

Workshop on "Biodiesel as Fuel"

August 24, 2022, 1400-1600 hours IST

TERI organized workshop on "Biodiesel as Fuel" under its project- National Transport Decarbonisation Council (NTDC) on August 24, 2022. It involved experts and policy-makers in the area, as well as the industry stakeholders. The welcome address was delivered by Mr Sharif Qamar, Fellow and Area Convenor, TERI followed by an introductory note on importance of biodiesel as fuel for transport decarbonization and NTDC by Mr Shri Prakash, Distinguished Fellow, TERI. The members were introduced and a brief presentation containing background of biodiesel, feedstock, existing biodiesel market and challenges in India, international Practices followed by various discussion points was given by Mr Faiz Jamal, Research Associate, TERI. The discussion was moderated by Mr I V Rao, Senior Visiting Fellow, TERI, followed by session conclusion and vote of thanks by Mr. Shri Prakash. The discussion involved the following:

1. **Biodiesel effects on vehicle engine specifications**
   a) It is not a technical challenge to run the vehicle existing engines on biodiesel, instead challenge is to produce the kind of biodiesel which suites and meets the engine specifications.
   b) Meeting the oxidation and stability demand is a big challenge.
   c) Since BS-VI norms already addresses the removal of Sulphur from tailpipe emissions, focus should be on increasing the biodiesel concentration and try to achieve at least 2% target which would solve many problems such as foreign exchange, imports, and could boost the biodiesel industry in India without modifying the engines, and later, depending on availability, higher targets can be set.
2. **The current state of biodiesel manufacturing in the country**
   a) Predominantly, the feedstock which is widely used by the manufacturers today in the country is vegetable oils i.e., palm-based products, fatty acids, etc. with certain percent of usage of used cooking oil (UCO) as well.
   b) The availability of feedstock for UCO is minimal due to certain reason like collection mechanism, application of used cooking oil in other industries as the price offered by other industries and much higher that what biodiesel industry can afford.
   c) The current biofuel policy which did not kick started as expected by the manufacturing industry.
   d) Dynamic pricing, which now links biodiesel prices to vegetable oil prices, rather than directly with conventional diesel prices, which is a big boost to the industry, and now blending of biodiesel is expected to increase.
   e) Majority of plants available in the country today are designed for vegetable oils, but slight modification will enable them to use other feedstocks also oils like animal tallows, acid oils, UCO, etc.

3. **Repurpose Used Cooking Oil**
   a) The key focus is to divert and restrict the used cooking oil from re-entering the food chain.
   b) Biodiesel manufacturing is one of the prominent options for used cooking oils but the major challenges faced is the collection gap, aggregators of soap manufacturers and costs and unavailability of UCO aggregators in tier-2 and tier-3 cities.
   c) There are current models where CSIP-IIP has tied-up with a number of restaurants in Uttarakhand and collecting UCO from them for producing biodiesel and compensating the restaurants by providing them back the produced biodiesel to run their gen-sets. A similar mechanism could be achieved at a broader-level.
   d) Mobile unit developed by CSIR-IIP, collects UCO from restaurants and hotels to produce biodiesel on-site.

4. Price of feedstock, production and availability
   a) The pricing of the feedstock is quite high and because of the pricing situation, the industry is ready to supply the material but the OMCs are unable to buy.
   b) Feedstock prices is expected to remain high globally for a variety of reasons, and that the cost of biodiesel to manufacturers will be influenced by these costs.
   c) Expansion of biodiesel production targets will lead to a cost increase and reduce availability of edible oils, either directly if palm oil is used or indirectly if soap manufacturers take away used cooking oils.
   d) A major challenge also includes the export of animal tallows in the European market (which is around 8%-9% of the total capacity) to fulfill the needs of European market, which is directly catering the demand in India and is a direct loss to the Indian manufacturers.
   e) Supply-chain gaps are one of the key challenges being experienced in the industry.
   f) For optimal production of biodiesel, controlling the price of the feedstock and identifying the best technology at the right place becomes very crucial.
   g) The country could introduce a Production Linked Incentives (PLI) scheme to increase biodiesel production.
   h) Biodiesel policies and programs at the state level could be designed to set and achieve targets.

5. Targets and possible solutions
   a) The problems in terms of optimal collection and use of resources like oil seeds, UCO, etc. will only help to reach to a short-term goal, but for long-term solutions, one should go for synthetics like methanol to dimethyl ethers to be blended with diesel.
   b) Using leftover feedstock seeds and converting them into useful products and generating money out of them.
   c) Dimethyl ether could be used as a substitute of diesel from the pollution reduction point of view.
   d) Green diesel is potential long-term solution.

List of participants and organizations

1. Mr. Neil Karani, Vice President and Treasurer, Biodiesel Manufacturer Association of India
2. Mr. Ajit Srivastava, Director General, Biodiesel Manufacturer Association of India
3. Prof. Avinash K Agarwal, IIT Kanpur
4. Dr. Neeraj Atray, Senior Principal Scientist and Head, Biofuels Esterification Area, Biofuel division, CSIR-Indian Institute of Petroleum, Dehradun
5. Dr. Heena Yadav, Technical Officer & Project Coordinator for RUCO initiative, Food Safety and Standards Authority of India
6. Dr. Pankaj Sharma, Add. Director, Petroleum Planning and Analysis Cell
7. Ms. Avantika Garg Tayal, Asst. Director, Petroleum Planning and Analysis Cell
8. Mr. Vijay Kansa, Add. Director, Petroleum Planning and Analysis Cell
9. Mr. Sameer Pandita, Bureau of Energy Efficiency (BEE)
10. Prof. Ashish Verma, Indian Institute of Science (IISc)Bangalore
11. Dr. Chris Malins, Cerulogy
12. Dr. Piyali Das, The Energy and Resources Institute (TERI)
13. Dr. Sanjukta Subudhi, The Energy and Resources Institute (TERI)
14. Mr. Mukesh Nigam, Ex- DG, Indian Railways Institute of Transport Management
15. Ms. Priti Shukla, Shakti Sustainable Energy Foundation
16. Dr A R Sihag, The Energy and Resources Institute (TERI)
17. Mr. Shri Prakash, The Energy and Resources Institute (TERI)
18. Mr. I V Rao, The Energy and Resources Institute (TERI)
19. Mr. Sharif Qamar, The Energy and Resources Institute (TERI)
20. Ms. Ruchika Mattoo, The Energy and Resources Institute (TERI)
21. Mr. Faiz Jamal, The Energy and Resources Institute (TERI)
22. Ms. Akshaya Paul, The Energy and Resources Institute (TERI)