

Workshop on Cleaner liquid Fuels and Improved Vehicular Technologies

May 31st 2011, India Habitat Center, New Delhi

The transportation sector is an important source of air pollution in terms of carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM), volatile organic compounds (VOCs), and greenhouse gases emissions. Many of these emissions undergo further reactions in the atmosphere, which increases ground level ozone (O₃) and smog levels. The resulting effects of increased air pollution on human and environmental health are substantial.

To mitigate the air pollution impact of vehicles, the Auto Fuel Policy of 2003 laid down a roadmap for vehicular emission and fuel quality standards. This roadmap on vehicular emission standards and fuel quality has been largely implemented. Starting year 2010, Bharat IV standards have been implemented in 13 major cities, while Bharat III standards are in effect in the rest of the country. This first phase of emission reductions from vehicular sources represents a great deal of progress.

Although some progress has been made, air quality in many urban areas continues to be worse than the national ambient air quality standards. As a result of rapid economic growth, the sales of motor vehicles in India have nearly tripled between 2001 and 2010. During the fiscal year 2010-11 the sales of new vehicles rose by 26%, compared to the previous year and double-digit sales growth is expected across the board in 2011-2012. Continued growth in vehicle population will negate the air-quality gains of the past decade in the absence of further policy action.

Thus, further efforts are necessary to reduce the impact of transport vehicles on air quality. From the point of view of vehicle emission standards and fuel quality, there is still a time lag between the European and Indian schedules. The time gap between standards for two- and three-wheelers in India and the European Union is currently three years; while for four-wheelers and heavy-duty vehicles the time gap varies, with major metropolitan areas in India about five years behind the latest Euro standards and the rest of the country almost a decade back as shown in **Figure 1**.

Harmonizing emissions standards nationwide and moving to standards that use the best available emission control technologies would enable India to catch up to advanced countries and yield significant environmental and public health benefits.

The next phase of the auto fuel policy in India will therefore have to decide a roadmap for implementation of Bharat V and VI standards similar to those implemented in Europe and elsewhere in the world.

The International Council on Clean Transportation (ICCT) together with The Energy & Resources Institute of India (TERI) organized a workshop on 'Cleaner liquid fuels and improved vehicular technologies', on May 31, 2011. The objective was to take forward the process of developing a roadmap for moving towards cleaner liquid fuels in the transport

sector. The workshop focused on the need for one country, one vehicle, one fuel and an appropriate policy considering the impacts on human health.

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
India - 2-3 Wheeler	Pre-Euro	India I					Bharat II					Bharat III					
Europe - 2-3 Wheeler	Euro 1				Euro 2			Euro 3					Euro 4 ^(b)			Euro 5 ^(b)	
India - LDV and HDV	Pre-Euro	India I					Bharat II					Bharat III					
LDV and HDV. Delhi, Mumbai, Kolkata, Chennai	Pre-Euro	India I	Bharat II ^(a)				Bharat III					Bharat IV					
LDV and HDV. Bangalore, Surat, Agra, Hyderabad, Pune, Ahmedabad, Kanpur	Pre-Euro	India I			Bharat II		Bharat III					Bharat IV					
Europe - LDV	Euro 2	Euro 3					Euro 4			Euro 5						Euro 6	
Europe - HDV	Euro II	Euro III					Euro IV		Euro V					Euro VI			

a - LDV: Apr 1, 2000 for Delhi, Jan 1, 2001 for Mumbai, Jul 1, 2001 for Kolkata and Chennai

HDV: Oct 24, 2001 for Delhi, Oct 21, 2001 for Mumbai, Kolkata and Chennai

b - Proposed implementation dates

Inaugural session

- Dr. R K Pachauri, Director-General, TERI
 - Dr. Alan Lloyd, President, ICCT
 - Shri B K Chaturvedi, Member, Planning Commission, Govt. of India
- Vote of Thanks - Dr. Arabinda Mishra, Director, TERI

Session 1. Fuel Quality: Current Scenario and Pathway to Ultra-low sulfur fuels

Objective :

1. To understand the developments so far, costs and benefits, and issues & concerns related to cleaner liquid fuels
2. To explore International experience and future pathways for cleaner liquid fuels in Indian context

S1-1 Clean Auto Fuels: Policy initiatives.

Shri L N Gupta, Joint Secretary (Refinery), MoPNG.

S1-2 Transport Sector: Improved Fuel Quality- Indian Perspective and Future Strategies.

Shri Rakesh Hooda, TERI.

S1-3 The Costs and Benefits of Controlling Motor Vehicle Emissions in India.

Dr. Michael P. Walsh, Chairman, ICCT : Background presentation

S1-4 Technological & Infrastructural Requirements for Cleaner Liquid Fuels

Dr. R K Malhotra, Director (Research & Development), IOCL : Technological & Infrastructural requirements for future.

S1-5 Pathway to Ultra Low Sulfur Fuel – Role of oil companies

Dr. N. V. Choudary, General Manager (Process Technologies), HPCL : Role of oil companies.

Discussions

Session 2. Vehicle technology: Current and future technologies

Objective: To analyze the vehicular technological improvements required to achieve advanced vehicular emissions norms and future pathways.

S2-1 **Improved Vehicular Technologies for Compliance of Stringent Emission Norms**

Shri P K Banerjee, Head – Homologation & Product Evaluation Department, Tata Motors Ltd.

S2-2 **Cleaner liquid fuels and improved vehicular technologies**

Dr Arun Jaura, Vice President-Technology, Eaton Technologies Pvt. Ltd.: Response of vehicles on technological and fuel quality improvements for heavy vehicles

S2-3 **Vehicle Technology Improvements: Current and Future**

Dr. Anup Bandivadekar, Passenger Vehicles Program Lead, ICCT : Sharing the international experience

Session 3. Concluding panel discussion

S3-1 **Cleaner Liquid fuels: Way forward**

Shri K.K. Gandhi, Executive Director (Technical), SIAM