

Transition to Soot-free Heavy-duty Vehicles and Fuels: Regional Workshop for Southeast Asia

Date and Time

Date : Wednesday, November 17th 2021
Time : 09.00 – 11.54 WIB
Place : *Zoom Cloud Meeting*

Welcome and Introduction

Greeting and self-introduction of the Moderator, **Aditya Mahalana**

Greeting and self-introduction from ICCT, **Francisco Posada**

- Heavy-duty vehicles have contributed many parts in the economic trade condition of a country but on the other side is also contributing for the carbon emission that polluting the air.
- This discussion as the continuation from the previous agenda which focusing on the transition of heavy-duty vehicles that implement the technology which is more environmentally friendly in order to achieve the zero-emission carbon.
- New technology requires restrictions through regulations and how to push forward the regulations when applied along with the approach which is suitable for each country especially in ASEAN regions.

Greeting and self-introduction from UNEP, **Bert Fabian**

- High level of air pollution has been taken into serious thought throughout the nations, and some countries have taken action to this matter and aiming for a better air quality by implementing strategies towards years ahead.
- This discussion mostly as been under governmental agencies nationwide as well some organization from non-government.

Presentation 1 – ICCT, Francisco Posada

- Development of economic state in countries, as in European, are mostly have correlation with transportations heavy-duty vehicles, such as buses, trucks that insist in the activities. But the vehicles also impacted in level of air pollution.
- Based on the ICCT data, in 2020 ASEAN countries is the fourth largest contributor of global transport CO₂ emissions.
- ASEAN countries big five which still struggling with high levels of air pollution: Indonesia, Vietnam, Myanmar, Thailand, Laos.
- WHO 2020 guidelines of annual average concentration of PM_{2.5} should not exceeding 5 μ /m³ while the 24-hour exposures in average should not exceed 15 μ /m³ more than 3-4 days per year.
- Approaches to develop vehicle and fuel regulations that promote a technology transition:

Reduction of pollution

- o Fuel quality (S<10 ppm).
- o Vehicle emission standards aiming for Euro VI.
- o Vehicle replacement for a low emission zone.

Reduction of GHG

- o Vehicle fuel efficiency standards.
- o Efficiency labels.
- o Fiscal programs f(CO₂).

Which all to be implemented in policies and programs to incentivize adoption of zero emission vehicles.

- New technologies for heavy-duty vehicles a much more environmentally friendly even as if may at first seen as a big cost up front, but at the end the vehicles have a fewer carbon emission, and this of course a much better than the health cost to bare by the people.
- HDV emission standards offer substantial emission reduction levels when paired with proper fuels.
- Selective Catalytic Reduction (SCR) requires Urea (automotive grade) of 2-4% of diesel consumption.

- Euro VI implementation have shown the lowest NOx emission & PM by 93% amongst the Euro IV or even V.
- Zero emission HDV technology in cities may lead to the process of electric vehicles. Such as buses and trucks.
- Electric buses present higher capital costs than the conventional technologies ones. But as of the Total Cost of Ownership evaluation shown savings.

Presentation 2 - ICCT, Kate Blumberg

- Regulatory development in emerging the Euro VI vehicles:

1. Regulatory design.

Full standard includes:

- Durability in life time usage.
- Onboard Diagnosis from the SCR measures.
- Off Cycle Emissions (NTE limit).
- World Heavy-Duty Cycle.
 - First worldwide harmonized test-cycle.
 - Test cycle applied to Euro VI standard.
- In-Service Conformity.

Checking vehicles emissions conformity with portable measurement systems.

2. Regulatory impact assessment and benefits of leapfrogging.

3. Fuel quality and urea supply.

Emissions controls can recover from occasional use of higher sulfur fuel, but regular use could cause lasting damage and would reduce durability of systems.

The main component of DEF is urea.

4. Compliance, enforcement and verification.

Ensure that the registered vehicles meet regulatory requirements:

- Identify cases of noncompliance when they exist.
- Such as pre-, in-, and post-production vehicle.

Hold responsible parties accountable and correct the situation:

- When vehicles are found to be out of compliance with the standards.
- Such as noncompliant vehicle recalls and financial penalties.

Ensure vehicles are operating as intended:

- Remote sensing.
- Fleet programs.

- Compliance and Enforcement practices:

- Establish clear legal authority.
- Avoid conflicts of interest.
- Obtain the necessary resources.
- Conduct reliable testing of all stages (production or use).
- Use corrective actions.
- Prioritize data and information transparency.
- Create a roadmap for program development.

- Requirements for success:

Distribution; lower sulfur fuel availability on major corridors and at regular intervals, accompanied by consumer awareness campaigns.

Pricing; lower sulfur fuel must be priced competitively.

Labelling; fuels must be clearly labelled at the pump and there should also on the vehicle stating the need to refill with lower sulfur diesel.

Enforcement; provide consumers with confidence that they are getting the proper fuel.

- Recommendations for developing countries:

Sufficient funding for enforcement programs.

Clear legal authority for compliance and enforcement activities, to conduct in-use testing, investigate defeat devices, force recalls for failure to comply, and impose fines.

In-use testing and recalls:

- Include vehicles at higher mileage (50.000 km – 100.000 km).
- Recall if >50% of the tested vehicles fail to meet the standards.

- A robust in-use testing program can reduce effort needed on the pre-production program.

Remote sensing programs:

- Low-cost way to help track and identify issues that need more attention.
 - Provide support for and confirmation of inspection and maintenance programs.
- Implementation Euro VI in a full package system, in such case of Brazil which implemented the Euro V but the weakened standards version resulting an even higher emission level. Vehicles in Brazil do not incorporate critical sensors and inducements.
 - Emissions factors studies over Euro VI have shown a huge reduction of PM_{2.5} by 91% and NO_x by 94% than of vehicles that use the Euro V.
 - Countries in Latin America that has applied the Euro VI: Mexico, Brazil, Colombia, and Peru.
 - In Mexico case, updating HDV emissions standards will have twice the benefit of updating LDV standards. Direct diesel PM emissions have the greatest health impact.

Q&A Session

1. Question: Bert Fabian, UNEP.

Some ASEAN countries have set up the ppm limit of 15, what ppm limit actually to be implemented better?

Answer: Kate Blumberg, ICCT.

Through implementation of the new technology lower than 10 ppm is achievable, so no reason of setting in 15 ppm. 10 ppm is better.

2. Question: Bert Fabian, UNEP.

Some countries decided to rolled back the decision of implementing Euro VI because of pandemic, on the other hand, India managed to implement while during pandemic situation. Any certain perception of this matter?

Answer: Kate Blumberg, ICCT.

Actually, it is more to the political willingness from the presidential level. Some heavy-duty vehicle manufacturers have the vehicles ready to be released in the market as long as the fuel supporting it also available.

3. Question: Bert Fabian, UNEP.

How is the preparation of Euro VI implementations on the participant countries here?

Answer: Hien Mai from Vietnam.

Currently we're rolling back to Euro V implementation on the January 1st, 2022. While the Euro VI plan for application in 2025 – 2030.

Answer: Kate Blumberg, ICCT.

Application between Euro IV and V is not much of a different. As long as the Euro V implemented yet keeping the Euro VI application timeline intact.

4. Question: Bert Fabian, UNEP.

How is the practice of testing the vehicle's emission before coming into the market, allowing the manufacturers to conduct the test and eligible for certification? Does this apply in the United States?

Answer: Kate Blumberg, ICCT.

It depends of the trust level from the government towards the manufacturer, if there's a high result then the further testing but it will be in fewer amounts. Random testing vehicles from the manufacturer, to ensure the legitimation certificate issued. Also applicable for a third party to do the testing as well a portable emission monitoring device for emission measuring in the vehicle.

Enforcement for the government is required to ensure the regulations are actually applied.

Answer: Fransisco Posada, ICCT.

Any violation there should be a strict financially consequences given through the authorities involvement for those manufacturers who cheats.

5. Question: Bert Fabian, UNEP.

How much is the cost will be borne by the buses and trucks by implementing the Euro VI?

Answer: Kate Blumberg, ICCT.

There's a difference between manufacturing cost and price. Because through the pricing mechanism the price per vehicle using Euro VI will be cheaper, this is because of the CSR system used in the Euro IV and V is way more expensive than the ones used in Euro VI's vehicles.

6. Question: Bert Fabian, UNEP.

Urea consumption for the fuel mechanism how much will it cost and how frequent to be added in terms of implementing the Euro VI?

Answer: Kate Blumberg, ICCT.

Some preparation by adding a fluid, but with a combination of urea and fuel it will reduce the amount of fuel consumption. Urea is also quite commonly used in the agricultural so it will not to be too difficult to gain, just a little process for obtaining better quality urea.

Summary chat floor – Aditya Mahalana, Moderator.

- Philippine will adopt the Euro VI in 2024.
- Cambodia will implement the Euro IV in January 1st, 2022 then continued to Euro V in 2027 for passenger vehicles.
- Indonesia will adopt the Euro V in 2027.

Mr. Edmundo Esqupio, Philippine.

The Philippines willingness to move to Euro VI in 2024.

Still some obstacles in setting up the time for meeting with the truck manufacturer associations.

Also, the issue regarding harmonization in South East Asia, before further implementing the Euro VI.

Laos.

Currently still implementing the Euro IV around two years ago and still studying the neighbour countries regarding the Euro VI.

Ray, Indonesia.

Currently implementing the Euro IV since 2018 in light-duty vehicles and planned based on the roadmap for implementing the Euro V in 2027. Not yet planned for move toward the Euro VI.

7. Question: Bert Fabian, UNEP.

What is the relation on blended fuels in supporting the Euro VI?

Answer: Kate Blumberg, ICCT.

The bigger concern on green-house emission from biodiesel production.

Answer: Fransisco Posada, ICCT.

In Indonesia around 30-40% to be tested and if it is matches for the Euro VI to be study and discussed further. That is one of technical challenge.

Mr. Edmundo Esqupio, Philippine.

The fuel is under a different department authority so no further comment, just a slight information of 10% fuel mix composition, yet still need further clarification with the related department.

8. Question: Bert Fabian, UNEP.

Opinion on electric vehicles implementation for a zero emission?

Answer: Kate Blumberg, ICCT.

Investment in electrification for vehicles can be defined the benefits from lower fuel cost and life cycle of the vehicle itself. Cost competitiveness in production point of view as example in electric trucks for urban commute, deliveries.