On-road Heavy-duty Engine
Off-cycle Emissions GTR – Status Report for AC.3

Report from the United States
18th Session of Executive Committee AC.3
16 November 2006
Overview

- Background on GTR Development
- Objective of Off-cycle Emission GTR
- Key Elements of draft GTR
  - World-wide Not-to-Exceed
  - Prohibition on Defeat Strategies
- Current Status and Timeline
Background on GTR Development

- March 2005, AC.3 approved the development of a Global Technical Regulation for Off-cycle Emissions (OCE)
  - Based on a proposal from the United States under the 1998 Global Agreement
  - “The proposed regulation will be based on the additional requirements for both type-approval and certification that require adherence to a Not-to-Exceed (NTE) protocol.”
- Informal group of technical experts under GRPE
  - Regular meetings since 2002
  - Transparent process: meeting notes, presentation material, and GTR drafts available on OICA web site
  - Regular reports to GRPE on progress
Objectives of the Off-cycle Emissions GTR

- Address emissions from on-road heavy-duty engines under conditions which may not be well covered by certification test cycle
  - Includes both ambient conditions as well as engine operation not covered in WHDC

- Ensure that heavy-duty engines are not equipped with defeat strategies
  - Defeat strategies can be components or software on a vehicle which unreasonably increase emissions under off-cycle conditions
Off-cycle Emission GTR Overview

- Key elements of draft GTR
  - Provisions prohibiting the use of defeat strategies
  - World-harmonized Not-to-Exceed (WNTE) “Control Area” with performance-based emission limits

- Off-cycle Emission GTR compliments the WHDC GTR

- In-use, on-vehicle emissions testing
  - GTR does not include specifications for in-use vehicle testing or on-vehicle emission measurement equipment
  - WNTE being developed to allow for testing of compliance during in-use, on the road operation of the engine
  - Individual countries and regional authorities may specify their own in-use testing requirements to enforce WNTE
World-wide Not-to-Exceed

- Engines must meet performance-based numerical emission standards during:
  - Broad range of ambient conditions
  - During broad area of engine operation (e.g., engine speed and load)
  - Over short time durations (as little as 30 seconds)
Example WNTE Control Zone Area

Engine Torque Curve

WNTE Control Area

Engine Rotational Speed

Engine Torque
Example WNTE Altitude and Temperature Operating Range

- WNTE Applies without correction factors for PM and NOx
- WNTE Applies with opportunity for correction factors for PM and NOx
- WNTE Does Not Apply
Current Status

- Draft GTR well developed – working on a hand full of remaining issues
- On a path for completion within next 18 months
- Recent contractor technical report from one Contracting Party evaluates alternative approaches to controlling off-cycle emissions (final report has not been released)
  - If pursued, taking a new path could result in an additional 2-3 years development
- GRPE will continue to keep AC.3 appraised of our progress