

# GRPE OFF-CYCLE WORKING GROUP

Palais des Nations  
Geneva Switzerland  
May 19 2003

## EMA Concerns

EMA believes the draft OCE definitions are problematic

- General Concern with AECS definition:
  - Fails to distinguish between basic emission control strategies and strategies that are employed under specific circumstances
  
- Specific Concerns:
  - Potential for misunderstanding and confusion may result by designating a base control strategy as an AECS
  - Exposes a base control strategy to undue scrutiny and inappropriate requirements
  
- Will result in all base maps and strategies being Defeat Strategies

## EMA Concerns - continued

- Any Base Map that sets values for a parameter that affects emissions “modulates the operation of the emission control system”
- Any such Base Map will reduce “the effectiveness under conditions that may reasonably be expected to be encountered in normal vehicle operation and use”
  - Base Maps cover regions of operation that are not “substantially included” in type approval tests
  - Base Map use is not limited to engine or vehicle protection
  - Base Map use is not limited to cold starting and engine warm-up
- **ALTHOUGH NOT INTENDED, LITERAL APPLICATION OF THE PROPOSED OCE DEFINITIONS WILL RESULT IN ALL EMISSION CONTROL BASE MAPS BEING AECSS AND DEFEAT STRATEGIES**

## EMA New Proposed Definitions

- EMA proposes that the definition for Element of Design remain the same as the OCE draft definition
- EMA proposes new definitions for the following critical terms:
  - Emission Control System
  - Base Emission Control System
  - Auxiliary Emission Control System
  - Defeat Strategy
- EMA proposes that the definition for Irrational Emission Control Strategy be eliminated

## Element of Design

Element of design means any control system (i.e., computer software, electronic control system, emission control system, computer logic), and/or control system calibrations, and/or the results of systems interaction, and/or hardware items on a motor vehicle or motor vehicle engine.

# Emission Control System

Emission Control System (ECS) means an element or set of elements of design that is incorporated into the overall design of an engine or vehicle for the purposes of controlling exhaust emissions.

# Base Emission Control System

Base emission control system (BECS) means an emission control system that is active throughout the speed and load operating range of the engine unless an AECS is activated.

# Auxiliary Emission Control Strategy

Auxiliary emission control strategy (AECS) means an emission control system strategy that becomes active or that modifies the base emission control system for a specific purpose or purposes and in response to a specific set of ambient or operating conditions.



## Defeat Strategy

Defeat strategy means:

- An AECS that reduces the effectiveness of the emission control relative to the BECS under conditions that may reasonably be expected to be encountered in normal vehicle operation and use, unless:
  - the operation of the AECS is substantially included in the applicable type approval or certification test procedures; or
  - the AECS is activated only temporarily and under certain reasonable conditions for the purposes of protecting the engine system and/or vehicle from damage or accident; or
  - the AECS only is activated during cold start, warm up and cold ambient conditions; or
  - the AECS is used to trade-off the control of one set of emission constituents in order to maintain control of another set of emission constituents under specific ambient or operating conditions. The overall affect of such an AECS is to compensate for naturally occurring phenomena and do so in a manner that provides acceptable control of all emission constituents;

or

- A BECS that discriminates between operation on a standardized type approval or certification test and other operations and provides a lesser level of emission control under conditions not substantially included in the applicable type approval or certification test procedures

# EMA's New Proposed Definitions-Rationale

- EMA's new proposed set of definitions:
  - Provides improved clarity
  - Distinguishes between base and auxiliary control strategies
  - Allows appropriate levels of scrutiny and justification of base and auxiliary strategies during the type approval/certification process
  - Allows for a regulatory structure that will prevent the use of rogue base strategies while minimizing the burden associated with explaining/justifying base strategies

## EMA's New Proposed Definitions-Rationale

- AECS's used to ensure adequate control of all emission constituents must not be defeat strategies
- Under EMA's proposed definition, an AECS that is "used to trade-off the control of one set of emission constituents in order to maintain control of another set of emission constituents under specific ambient or operating conditions. The overall effect of such an AECS is to compensate for naturally occurring phenomena and do so in a manner that provides acceptable control of all emission constituents" would be excluded from being a Defeat Strategy
- This exclusion is necessary to allow accepted strategies such as
  - Transient smoke control
  - Altitude compensation
  - Cold operating adjustments