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1 June 2004  
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# OCE Working Definitions

Presentation to GRPE Working Group  
on Off-cycle Emissions  
June 1, 2004

EPA

# Outline of Presentation

- Purpose of Session – to reach agreement on working definitions
- Review of Proposed Edited Definitions
  - Element of Design
  - Emission Control Strategy
  - Basic Emission Control Strategy
  - Auxiliary Emission Control Strategy
  - Defeat Strategy
- Next Steps

# Element of Design

...means, in respect of a vehicle or engine,

(a) any control system, including computer software, electronic control systems and computer logic;

(b) any control system calibrations;

(c) the result of systems interaction; or

(d) any hardware items.

■ **No change from Windsor Meeting**

# Emission Control Strategy

## EMA Proposal:

...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.**

## EPA Recommendation:

...means an element or set of elements of design that is incorporated into the overall design of an engine or vehicle **and used in controlling emissions.**

## Rationale:

Ensures definition includes all elements of design that are used in controlling emissions (example, fuel injectors) and all emissions not just exhaust.

# Base Emission Control Strategy

EMA Proposed Definition:

...means an emission control strategy that is active **throughout** the speed and load operating range of the engine unless an AECS is activated.

EPA Proposed Definition:

...means an emission control strategy that is active **throughout essentially the entire [?]** speed and load operating range of the engine unless an AECS is activated.

Rationale: Will there always be a single base map?



# Auxiliary Emissions Control Strategy

EMA Proposed Definition:

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

EPA Proposed Definition:

...means an emission control strategy that modifies the base emission control strategy. This includes any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other ambient or operating parameter or condition for the purposes of activating, modulating, delaying, or deactivating the operation of the base emissions control strategy.

Rationale: EPA believes it is important to be more specific and as clear as possible in the range of potential “modifying” acts

# Defeat Strategy

EMA Proposed definition:

... 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 for the purposes of protecting the engine and/or vehicle from damage or accident; or
  - the AECS is only 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.

# Defeat Strategy

EPA Proposed Definition:

...means:

- (1) 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 for the purposes of protecting the engine and/or vehicle from damage or accident, **warm up or cold ambient conditions**; or
  - the AECS is only activated during cold start;

Or

- (2) A BECS that **reduces the effectiveness of the emission control under conditions that may reasonably be expected to be encountered in normal vehicle operation and use**, under conditions not substantially included in the applicable type approval or certification test procedures, **relative to the BECS under conditions included in the applicable type approval or certification test procedures**.

Rationale: 1. Move warm up and cold ambient conditions under “purposes of protecting engine” bullet.

2. Eliminate bullet four on trade off. Currently and under an NTE this is already understood to be the case but with in certain limits. It must meet the standard on average over the test procedure and always be under the NTE limit.



# NEXT STEPS

- Circulate Working Definitions
- Revisit Definitions at the completion of the GTR drafting