

Faster Freight – Cleaner Air 2004

Next Generation Natural Gas Vehicle (NGNGV) Engine & Vehicle Projects

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NGNGV Activity

- Initiated in 2000
- Focused on medium and heavy-duty trucks
- Supported by DOE, SCAQMD, and CEC
- Program development workshops attended by stakeholders:
 - Engine and vehicle OEMs
 - Fleet operators
 - Industry and trade associations
 - Funding partners
 - Utilities and fuel distributors
 - Equipment suppliers
 - National labs
 - Consultants and universities



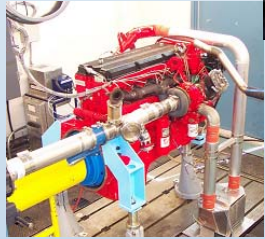
NGNGV Activity

Workshop Results

- Need engine R&D to meet proposed 2007/2010 standards (0.5 g/bhp-hr NO_x, 0.01 g/bhp-hr PM)
- Current plans
 - 2007: 1.2 g/bhp-hr NO_x, 0.01 g/bhp-hr PM
 - 2010: 0.2 g/bhp-hr NO_x, 0.01 g/bhp-hr PM
- Technologies
 - Lean-burn combustion
 - Stoichiometric combustion (EGR)
 - Exhaust after-treatment
- Market research: identify & define best application
- Customer demand for near-term engines/vehicles



NGNGV Integrated R&D Strategy



Commercialization

Research Development

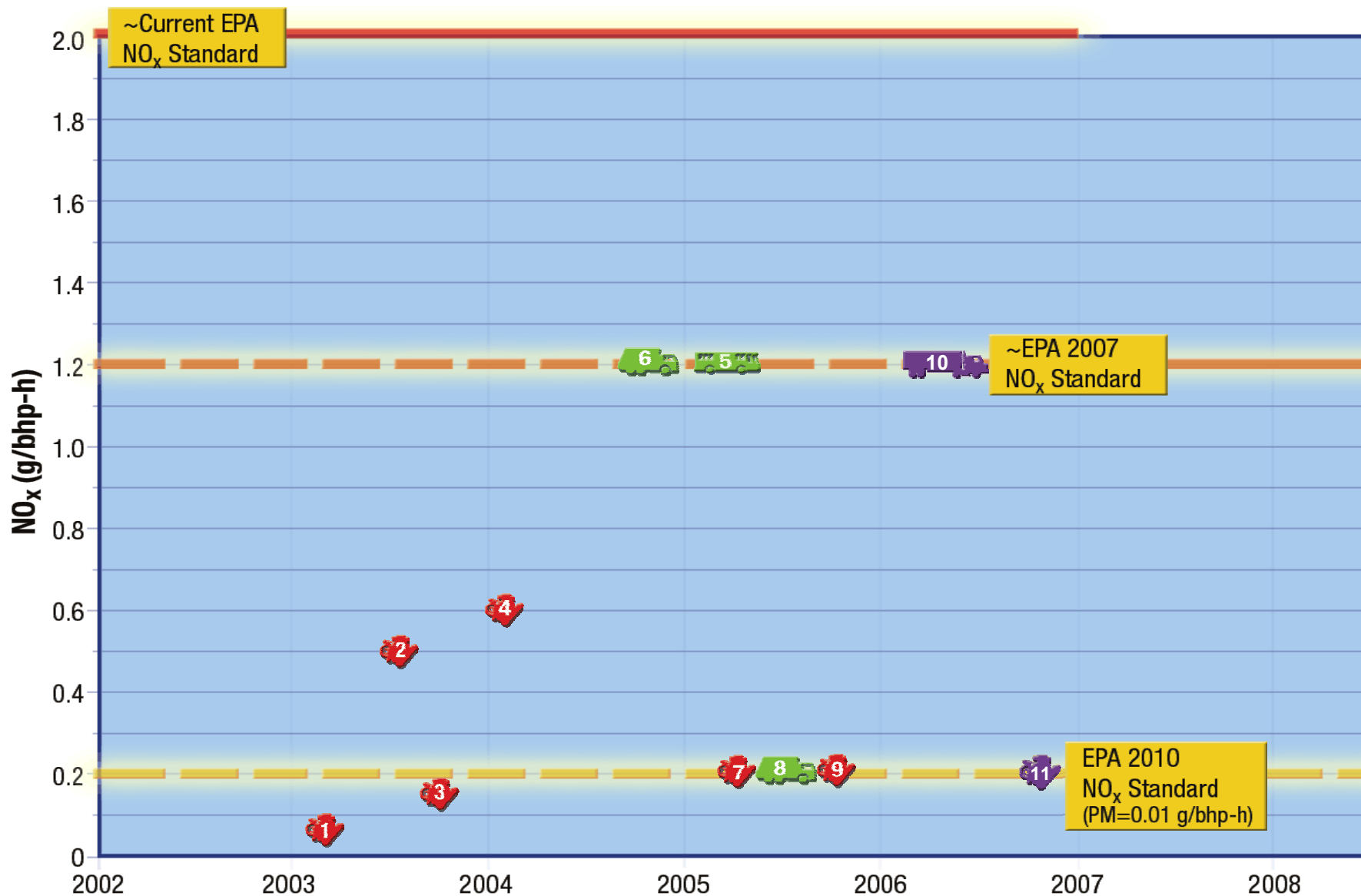
Proof of Concept

Engine Laboratory

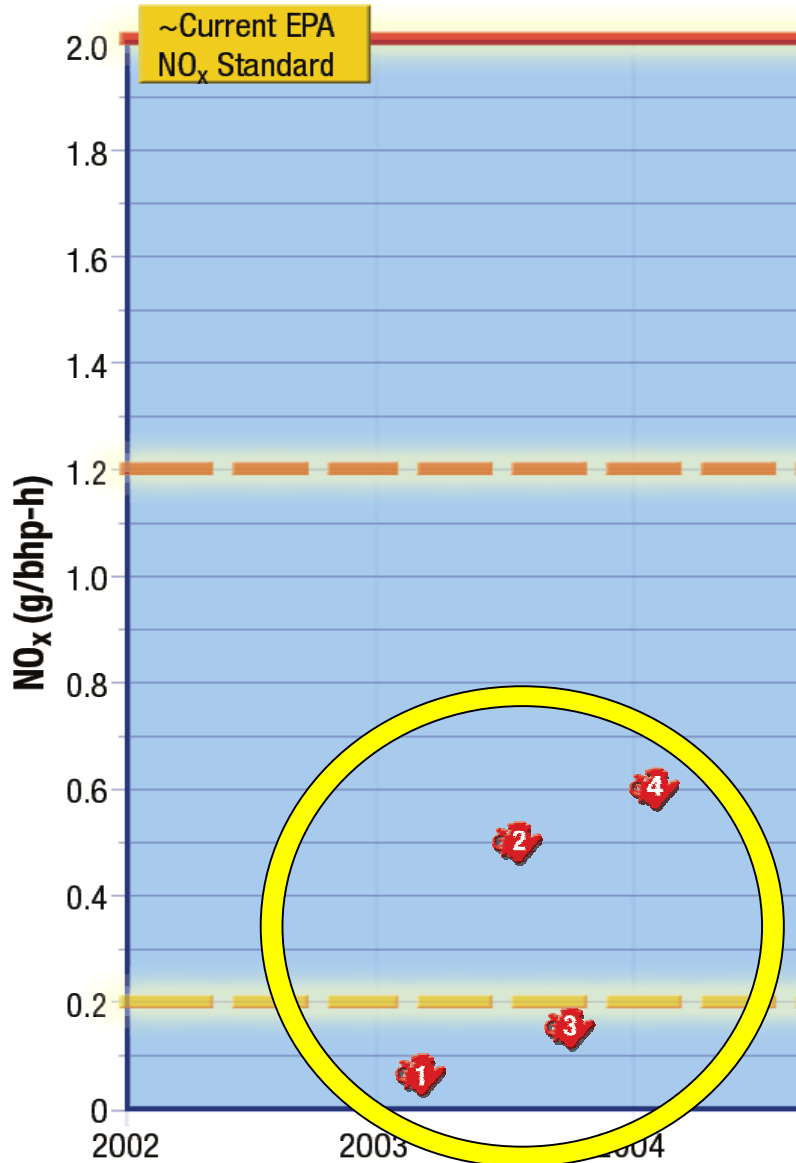
Long-Term Engine/Vehicle

Vehicle Demonstration

Next Generation Natural Gas Vehicle Projects



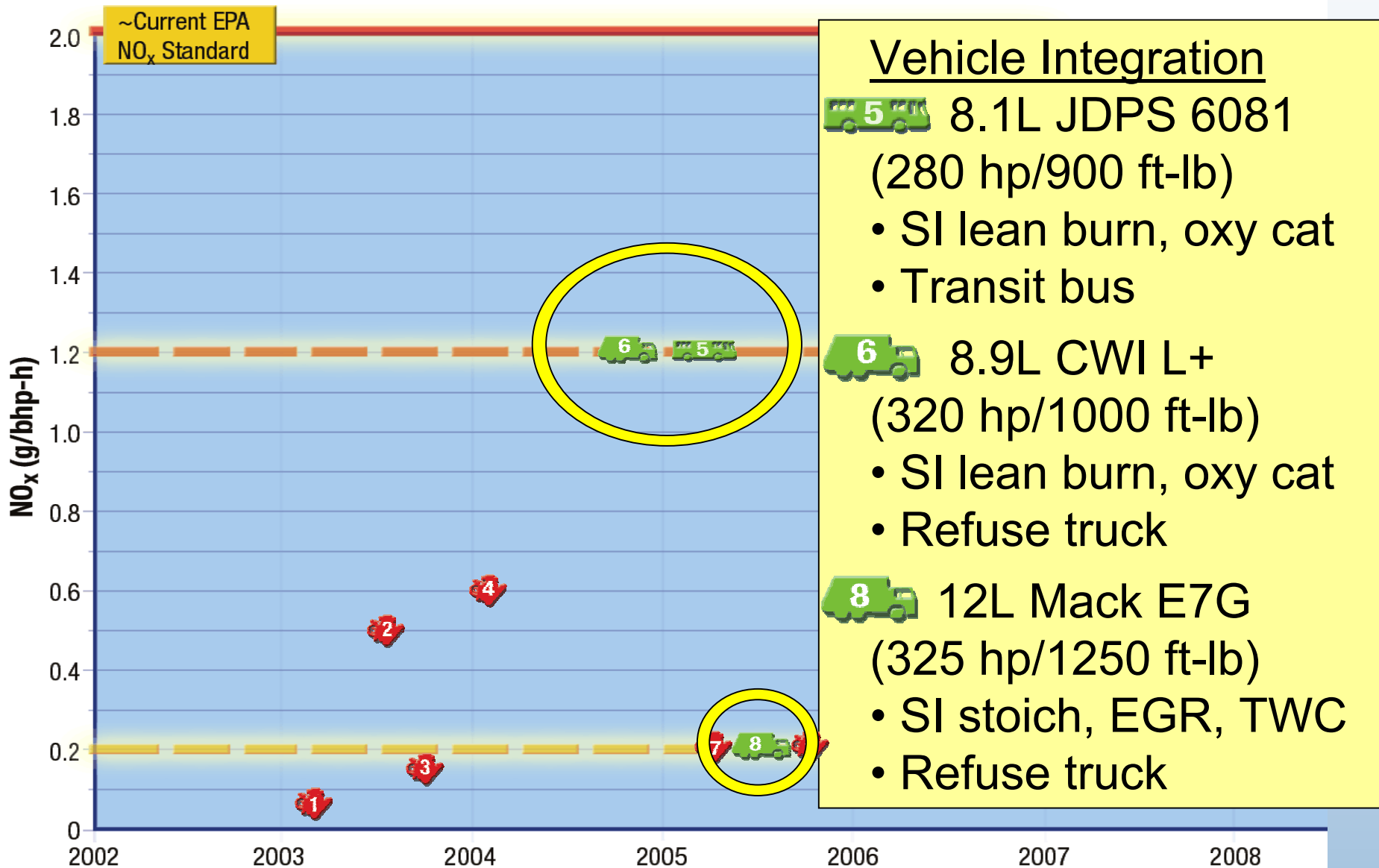
Completed NGENGV Projects



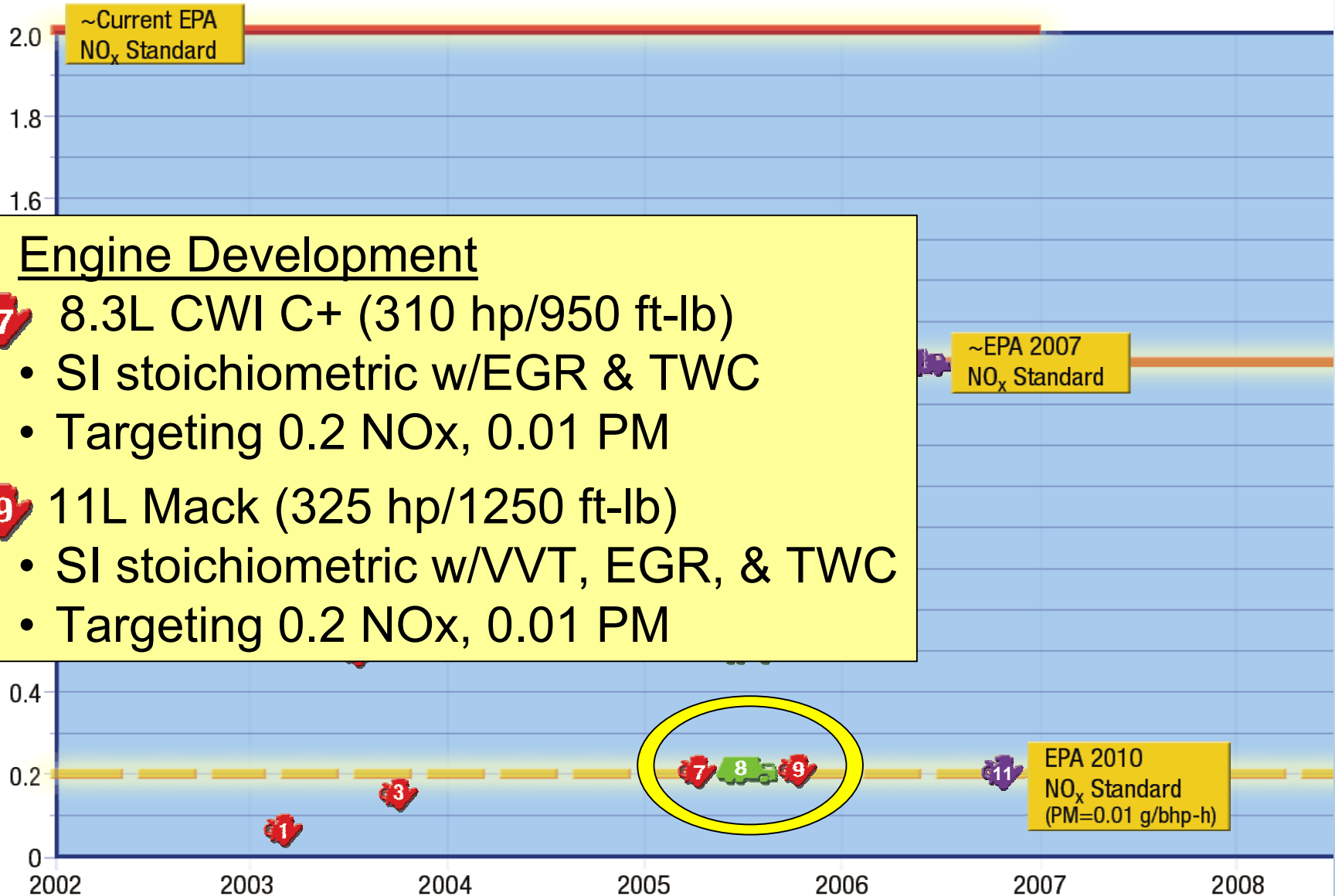
Engine Proof of Concept

- 1** 6L GM (286 hp/317 ft-lb)
 - SI stoichiometric w/TWC
 - 0.08 NO_x, 0.002 PM
- 2** 12L Cat C12 (410 hp/1250 ft-lb)
 - Dual-Fuel w/EGR & CDPF
 - 0.54 NO_x, 0.004 PM
- 3** 5.9L CWI B+ (230 hp/500 ft-lb)
 - SI lean burn w/LNA
 - 0.15 NO_x, 0.01 PM
- 4** 15L CWI ISX (450 hp/1650 ft-lb)
 - HPDI w/EGR & oxidation catalyst
 - 0.6 NO_x, 0.03 PM

Ongoing NNGV Projects



Ongoing NGENV Projects



Upcoming NGNGV Projects

