Honda Tier 3 Briefing for OMB

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Honda is supportive of Tier 3

- Tier 3 will align Federal and California emissions regulations which will enable one fleet of vehicles to meet all US regulations
- Tier 3 complements a key objective of President Obama's May 21, 2010 Memorandum: "The national program should seek to produce joint Federal standards that are harmonized with applicable State standards, with the goal of ensuring that automobile manufacturers will be able to build a single, light-duty national fleet"

Tier 3 and the 2017 – 2025 Fuel Economy and GHG Standards are related

- Efforts to improve Internal Combustion Engine (ICE) efficiency (such as hybrid, GDI and GDI Turbo-Downsizing technologies) reduce waste heat
- Reduced waste heat lowers catalyst temperatures
- Catalysts operating at lower temperatures will be poisoned by sulfur in the fuel

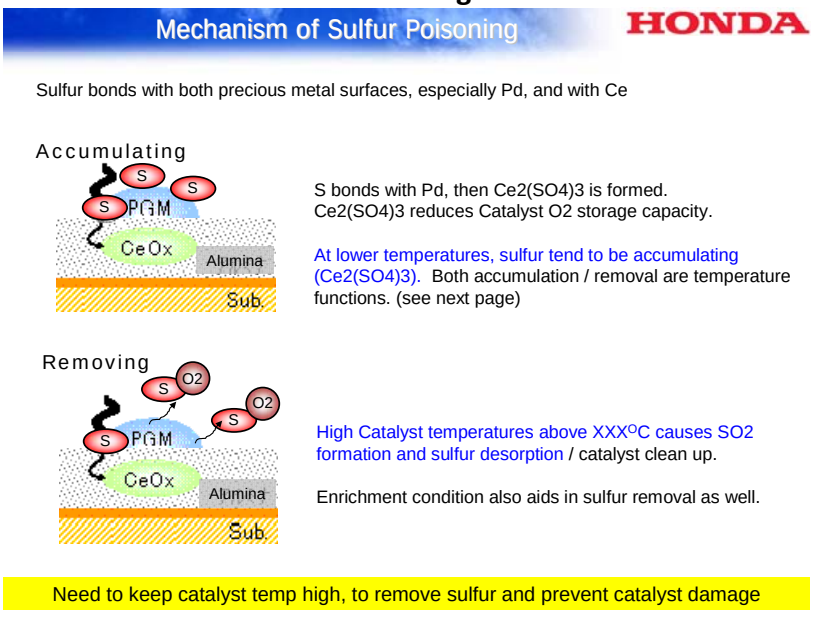
The Goal of Tier 3 is to reduce adverse health effects from automobile emissions

- Sulfur-poisoned catalysts will result in real-world increased emissions.

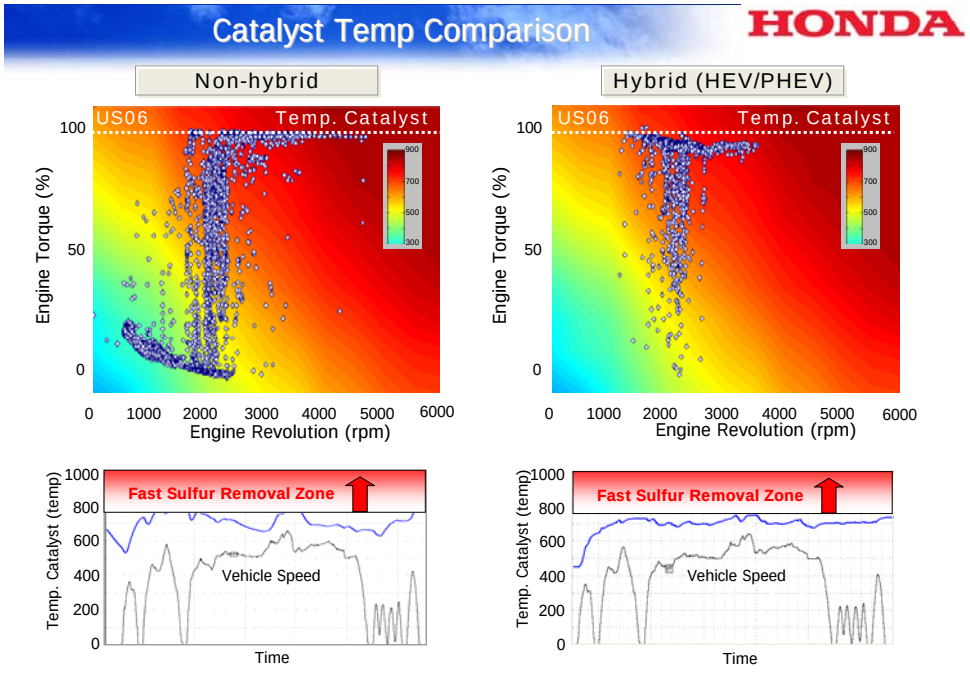
Conclusion

A national fuel sulfur standard consistent with California's standard is an important attribute of the Tier 3 regulation. The Tier 3 Regulation is important to enable a single national fleet to address all emissions regulations, and to reduce real-world emissions and improve public health.

Technical Background

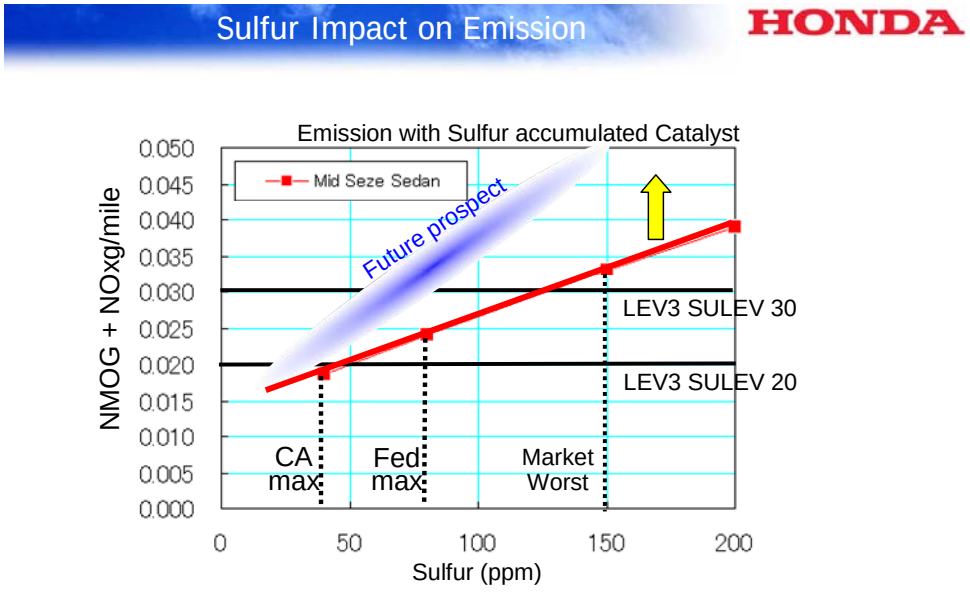


Sulfur bonds with the catalyst and accumulates. At higher temperatures, Sulfur is removed from the catalyst. At higher temperatures, sulfur is removed faster.



High thermal efficiency tech reduce catalyst temp, result in sensitive to Sulfur poisoning

Currently, non-hybrid ICEs periodically run very hot which cleans out the catalyst. More advanced ICE engines, like Hybrids and downsized, GDI Turbo Charged engines, are more efficient and have less waste heat. Catalysts will rarely get hot enough to remove the sulfur adsorption.



Sulfur poisoning have big effect on emission and its impact will be larger with future technologies because of lower exhaust/catalyst temperature

Federal sulfur level should be reduced to the California level

The current Federal specification for sulfur in fuel (Avg 30 ppm and Max 80 ppm) is not clean enough to allow OEMs to achieve the lowest emissions category in LEV III (and now Tier 3) which is SULEV 20. As ICEs get more efficient and cooler, the future prospect is that vehicles will not be able to achieve LEV III, SULEV 30. Without these emissions categories, Honda believes that achieving a single, national standard for emissions (harmonization between LEV III and Tier 3) is impossible.