

I. SULFUR

- A. Sulfur is the lead of the new century.
- B. Reducing fuel sulfur content in gasoline and diesel is crucial to any serious effort to reduce air pollution from existing and new vehicles.
- C. Reducing sulfur in all transportation fuels (including non-road machines) provides immediate air quality and public health benefits. Benefits include reduced particulate matter (PM) emissions from all vehicles as well as reduced acidification. For vehicles equipped with any type of catalyst technology, sulfur reductions also reduce emissions of carbon monoxide (CO), hydrocarbons (HC), nitrogen oxides (NO_x), and secondary PM.
- D. Near-zero sulfur fuels² (10ppm or less) are required for advanced vehicle technologies, which are necessary for regions with severe air pollution problems, or countries that envision moving to world-class vehicle emissions standards.
- E. It has been demonstrated that going directly from several thousand ppm to near-zero sulfur is cost effective and provides greater benefits than reducing sulfur in steps. Real-world costs have been consistently and significantly lower than projections.
- F. Recent findings (US EPA non-road rule) have shown health benefits from near-zero sulfur fuel and associated-vehicle emissions control technologies exceeding costs by 50:1.
- G. Some of the cost of sulfur reduction can be offset through reduced vehicle maintenance and increased reliability. In addition, in conjunction with aftertreatment technologies, near-zero sulfur can result in reduced fuel consumption by allowing greater use of advanced fuel efficient technologies.
- H. The economic benefits of sulfur reduction have been demonstrated for a variety of conditions, but financing can be an obstacle.
 - 1. Tax incentives can stimulate rapid and early introduction of these fuels.
 - 2. Intelligent financing options used to reduce sulfur can also spur modernization of refineries.

² The ICCT participants agreed for this statement that fuels with a sulphur content of 10 ppm or less should be termed “near-zero sulfur.”

I. In addition to sulfur, other fuel characteristics are important. Optimal benefits of sulfur reductions will be obtained by packaging them with a full set of improved fuel specifications.

J. Fuel standards without adequate enforcement are ineffective.

Considerations for Jurisdictions That Might Reduce Sulfur in Steps

K. It is most cost-effective to go directly to near-zero sulfur (10ppm) countrywide: allowing two different sulfur standards in one country will reduce overall effectiveness, complicate and raise the cost of fuel distribution systems, and can permanently damage advanced pollution control technologies.

L. For countries that need to move in steps, the following considerations should be taken:

1. Refinery technology paths should target an ultimate reduction to 10ppm without wasted funds along the way.
2. If different standards are necessary, countries should adopt safeguards to minimize cost inefficiencies, and to prevent mixing and misfueling.
3. To avoid institutional inertia, a stepped reduction strategy should have an enforceable long-term plan to get to near-zero levels.