

# GLOBAL CLIMATE CHANGE AND THE TRANSPORTATION SECTOR: AN UPDATE ON ISSUES AND MITIGATION OPTIONS

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## ABSTRACT

It is clear from numerous modeling exercises that addressing the challenges posed by global climate change will eventually require the active participation of all industrial sectors and consumers on the planet. Yet, these and similar modeling exercises indicate that it is the large stationary CO<sub>2</sub> point sources (e.g., refineries and fossil-fired electric powerplants) that are likely to be the first targets for serious CO<sub>2</sub> emissions mitigation. While focusing on large stationary point sources might be a useful starting point, these efforts ultimately must be expanded to include all other sectors of the global economy. Because of its operating characteristics, price structure, dependence on virtually one energy source (oil), and enormous installed infrastructure, the transportation sector will

likely represent a particularly difficult challenge for CO<sub>2</sub> emissions mitigation. Our research shows that climate change induced price signals (i.e., putting a price on carbon that is emitted to the atmosphere) are unlikely to result in fundamental shifts in demand for energy services or to transform the way these services are provided in the transportation sector. We believe that a technological revolution will be necessary to accomplish the significant reduction of greenhouse gas emissions from the transportation sector. This talk will present an update of ongoing research into a variety of technological options that exist for decarbonizing the transportation sector and the various tradeoffs among them.