

## Jonathan Rubin *University of Maine*

Jonathan Rubin was trained as an economist, though his work as Director of the University of Maine’s Margaret Chase Smith (MCS) Policy Center allows him to work with colleagues across many disciplines. Rubin was one of the first graduates affiliated with the Institute of Transportation Studies at University of California, Davis, after it was established in 1991.

Specializing in the economics of transportation energy and greenhouse gas emissions, Rubin also studies connected and autonomous vehicles, low-carbon transportation fuels, biofuel pathways, and the economic and environmental impacts of trading greenhouse gases and fuel-efficiency credits for automobiles and light-duty trucks. His research has been supported by the U.S. State Department, the National Science Foundation, the U.S. Environmental Protection Agency, and the U.S. Department of Energy.



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At the MCS Policy Center, a nonpartisan public policy research unit, Rubin takes pride in managing the center as trusted source for unbiased information. “The center’s namesake, Maine Senator Margaret Chase Smith, was the first member of the Senate to denounce the tactics used by Joseph McCarthy in his anticommunist crusade,” Rubin notes, referring to Chase Smith’s 1950 speech, “A Declaration of Conscience.”

Rubin’s recent research has focused on the economics of cellulosic biofuels, in particular low-carbon biofuels from woody biomass. Maine is the most heavily forested state in the country, containing approximately 17.6 million acres of forest—nearly 90 percent of the state’s land area. Because 95 percent of that forestland is classified as timberland, Rubin’s research explores how to make cellulosic biofuels more economical by simultaneously producing biochemical coproducts. To do this he works with the Forest Bioproducts Research Institute, a multidisciplinary team of chemical engineers, economists, and forestry faculty and graduate students

“As researchers, we all want to have an impact that can be universally helpful—but we all come from a particular place,” he points out. “We need a way both to reduce the environmen-

tal impact of transportation fuels and to add more value to the forest products industry.”

Rubin also is investigating the environmental impact of autonomous vehicles. The ways in which autonomous vehicles are used will determine their impact on energy use, emissions, and travel demand and congestion, but baseline information about consumer acceptance and intended use generally are unanswered or underinvestigated. Although these impacts are difficult to estimate, Rubin comments, they are highly relevant for determining social costs.

“Because autonomous vehicles can change how people assess their time in vehicles—both in terms of quantity and quality—it is important to design robust policies that can allow the market development of autonomous vehicles to take advantage of the vehicles’ private benefits and to establish incentives for beneficial environmental and social outcomes,” Rubin observes.

The growth of vehicle use around the world and the interconnectedness of freight systems have lent an urgency to research on reducing the environmental impact of transportation systems, he adds. Specific, applied research topics can include the types of alternative fuel projects that are beneficial and economically viable as well as basic research on human behavior.

“No single technological fix will both reduce transportation’s environmental footprint and maintain an acceptable mobility of goods and people,” Rubin comments. “This means that we need to be open to learning from and working with a wide range of disciplines and viewpoints.”

Rubin currently serves as chair of the Transportation Research Board’s Environment and Energy Section. He joined the Standing Committee on Alternative Transportation Fuels and Technologies in 1995 and the Standing Committee on Transportation Energy in 1997. He has served on both committees ever since, including as chair for the Transportation Energy Committee. He also has served as a member of project panels for the Airport Cooperative Research Program (ACRP) and National Cooperative Highway Research Program (NCHRP).

“One of the great aspects of being involved with TRB and serving on NCHRP and ACRP panels is that it has given me a lot of exposure to real-world research issues that I can bring back to the classroom,” Rubin notes. “My students want to make a difference in the world. When we discuss the specific ways that airports can reduce fossil fuel energy use and possibly make money, that really resonates with them.”

“What motivates me is learning new things,” he adds. “That is what keeps me going after 25 years.”