

TRANSPORTATION'S ROLE IN CLIMATE CHANGE MITIGATION

**TRB Executive Committee Special Policy Session
J. Erik Jonsson Woods Hole Center
Woods Hole, Massachusetts
June 14, 2008**

**Session Rapporteur Presentation
Robert Johns, University of Minnesota**

EMIL FRANKEL

- Growing awareness about transportation and climate change in transportation community
- Connection not strong with elected leaders—few are involving state DOTs
- Transportation's dependence on oil is not sustainable
- Need to maintain transportation's role in enabling economic growth
- GHG reduction in transportation is a daunting task

RICHARD SCHMALENSEE

- If no policy change, risk is substantial
- Temperature impacts of GHG uncertain, but can estimate range
- Many sectors, many gases—need comprehensive, economy-wide strategy
- Challenge is global—China, India, developing countries
- Cap & trade is key strategy for GHG reduction
- Transportation GHG cuts difficult—need R&D, major innovations

JOHN HEYWOOD

- Petroleum use will continue to increase
- 30% to 50% GHG reduction feasible over net 20-40 years with vehicle innovations
- Uncertain path, no compelling strategy—powertrains, fuels, etc.
- Innovation trade-offs: vehicle performance vs. fuel consumption
- GHG reduction more difficult than reduction in fuel consumption
- Impact of advanced technology vehicles greater in long term than near term
- Need R&D, fleet studies, data

STEVE WINKELMAN

- Three legs of stool: vehicles, fuels, VMT
- GHG reduction from VMT most challenging
- Fuel and vehicle innovations not enough
- VMT growth can cancel benefits of CAFE and fuel innovations
- Current VMT changes uncertain—most likely not a permanent shift
- Need R&D—lack of data, models, and analysis methodologies
- Potential Congressional directions: VMT goals, tie GHG to funding

UNCERTAINTY: "SMART PEOPLE DISAGREE"

- Are we in a new environment? A major shift?
- When will oil become too expensive?
- What are implications of GHG policies for freight transportation?
- Bottoms-up increments vs. economy-wide approaches?
- Difficult to grasp necessary concrete actions
- How much change is required in living patterns?
- Does VMT emphasis let vehicle and fuel innovators off the hook?
- How can we develop a global strategy? (institutional limitations)
- "This is depressing."

POSITIVE DIRECTIONS : "VISION OVER PRECISION"

- We know oil is going to get more expensive
- Pressures driving major change: climate, price of gas, security
- Signals of progress: media, students, elected leaders, Europe
- We are just beginning: need humility and integrated strategic framework
- Need to focus on all strategies: vehicles, fuels, VMT
- Cap & trade is key, requiring institutional development
- Technology breakthroughs are essential, especially for developing countries
- Need global engagement and leadership
- "Hope lies on the other side of realism."

POTENTIAL ACTIONS FOR RESEARCH COMMUNITY

- Exciting, rich environment for research and learning
- Expand the boundary of how we think of transportation
- Taking the lead helps engage the global community
- Research Opportunities:
 - Fuels—alternatives, impacts
 - Vehicles—powertrains, batteries
 - VMT reduction strategies—land use, policy options
 - Performance measures/analyses—data, modeling, methodologies
- Basic and applied research
 - Research universities—new knowledge, global benefits
 - Think tanks—power of fact-based advocacy
 - Consultants, private sector—applications, technology transfer

UNIVERSITY OF MINNESOTA STUDY

- Minnesota legislature requested study by Center for Transportation Studies
- Determine options for reducing GHG from transportation sources in Minnesota
- State GHG reduction goals approved by legislature and governor:
 - 15% by 2015
 - 30% by 2025
 - 80% by 2050
- Interdisciplinary faculty research team: CE, ME, Public Policy
- Analyzed 3 strategies: vehicles, fuels, VMT
- Findings: Possible to reach goals only if all 3 strategies used
- June 18 workshop for legislators and staff—15 registered