

How to clear the fog and crystal ball

Toward Policy-Relevant Research Agenda for Transportation Energy

“... Gaps in understanding, needed research areas, potential projects for STEPS 2015-2018”

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ITS INSTITUTE OF TRANSPORTATION STUDIES

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Energy Systems

- Scenarios and Simulations (models)
 - Mix and competition of energy sources
 - Across sectors, energy types, domestic/international
 - Forecasting and backcasting
 - Test strategies to meet GHG/energy targets
 - Role of oil prices, technology improvement, consumer demand, policy
- Role of Policy
 - Policy framework in place in Calif for major GHG reductions?
 - But big issues about specific targets
 - But need systems approach (Mike Hartrick)
- Business Models
 - Role of oil and gas industry (and their customers)

Future Vehicles

- Technology Transition: what, when, how?

(LDVs: BEVs, PHEVs, FCVs; HDVs: Biofuels, Biogas, H2, electricity)

- Costs and emissions into future (for EIA et al)

- Role of Policy

(LDV performance stds; HDV stds; ZEV/NEV policies)

- How treat advanced vehicles? (zero upstream, multipliers, etc)
- Increasingly anachronistic regs (emissions not from tailpipe)
- Prices and regulations
 - Post 54mpg/90g/km; feebates; ZEVs; (cars and trucks)

- Role of Consumers

- Preferences for technology (hotwheels, PHEVs?), size, prices (elasticities), across countries and population groups (China/India?)

Future Fuels

- Technology

(biofuels, electricity, hydrogen, fossil)

- Costs and life-cycle emissions (empirical and methodological)

- Role of Policy

- Stimulate investment
- Infrastructure for H₂, electricity
- LCFS/RFS

Passenger and Freight Movement (land-based)

- Passengers (“peak travel”?)
 - Land use clustering
 - New mobility services (Uber/Lyft, buses/vans) and automated vehicles
 - next big thing for Silicon Valley?
 - Demand for travel and mobility services
 - Policy? (pricing, LU, bikes, new mobility, transport funding)
- Freight
 - Logistics sprawl
 - Market for low-carbon vehicles
 - Policy?