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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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?