



UC Davis STEPS PROGRAM: TRANSITION SCENARIO BREAKOUT DISCUSSION

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STEPS 2015-2018 (STEPS3): Understanding Critical Transition Dynamics for Sustainable Transportation

Key Research Themes

1. Initiating Transitions 2015-2030

What is required for early alternative fuel/vehicle transitions to succeed?

2. The Future of Fuels and the Oil and Gas Industry

How will changing geopolitical landscapes and disruptive technology in the oil and gas and clean technology industries impact future business models and the competition of fuels?

3. The Future of Global Urban Sustainable Transport (GUSTO)

How will a rapidly urbanizing world affect transport and energy demand?

4. Modeling Analysis, Verification, Regulatory and International Comparisons (MAVRIC)

What do improved and cross-compared energy/economic/environmental/transportation models tell us about the future of transportation?

2016 STEPS TRANSITION SCENARIO PROJECTS

Transport sector transition scenarios to meet climate goals for California and US. Transition cost, breakeven year, vehicle and infra investments, energy use, emissions, for H2, Biofuels, electricity across all transportation sectors.

Understanding the transition to alternative-fueled medium- and heavy-duty freight trucks: Model emissions, costs, fuel infrastructure, and decision-making for future truck scenarios.

Analysis of near term transitions to alternative fueled vehicles, using spatial regional consumer choice & fuel infrastructure model.

Assess role of natural gas as a bridge to H2 in transportation.

Deep Decarbonization Scenarios for CA (CA-TIMES)

EARLY RESULTS:

- Transport sector transition scenarios to meet climate goals for California and US.
 - *Draft paper LDV US transition analysis*
 - *California Transition spreadsheet development*
- Understanding the transition to alternative-fueled medium- and heavy-duty freight trucks.
 - *Truck choice project*
 - *California Transition spreadsheet development*
- Analysis of near term transitions to alternative fueled vehicles, using spatial regional consumer choice & fuel infrastructure model
 - *EVS paper (Ramea et al.) and WHEC2016 paper*
- Assess role of natural gas as a bridge to H2 in transportation
- Deep Decarbonization Scenarios for CA (CA-TIMES)

QUESTIONS FOR DISCUSSION

- How soon and how much do we decarbonize fuels for different transport sub-sectors? (LDV vs. HDV?; electricity, liquid fuels, H2?)
- How do we compare carbon reduction costs across subsectors?
- Time horizon for transition analysis?
- What happens with feedstocks?