Surmounting the Blend Wall: Evaluating Alternative Policies

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Ethanol’s Blend Wall

• U.S. fuel infrastructure incapable of supporting ethanol volume required by RFS2
  – Ethanol production projected to peak in 2015 (EIA 2010)

• RFS2’s corn ethanol goals will fall short by at least 1.2 billion gal.
Overcoming the Blend Wall

• Different methods of dealing with blend wall:
  – Large increase in FFV & E85 sales to absorb additional ethanol production
  – Use of higher blend rate (E15+)
  – Widespread adoption of drop-in biofuels
  – Relax the RFS mandate (e.g. give up)
Issues with E85

- Need more FFVs and E85 pumps
- On surface – accounting costs look low
  - will market follow that through?
- “Chicken and Egg” network issues
  - Need both cars and pumps
- Relative focus of policies on cars, pumps, or fuel
  - Focus on fuels, or infrastructure
Adopting E15+

- Vehicle safety
- Customer acceptance
- Retail adoption
- Infrastructure (rail) issues
- “Kicking the can down the road” – E15 blend wall encountered by 2022 (EIA 2010)
Drop-in Biofuels

• Biofuels capable of utilizing existing fuel infrastructure whether blended or not
  – Few (or no) FFVs needed

• Suitability of infrastructure depends upon method

• Cost uncertainty

• Geographic distribution of infrastructure
  – Most refineries far from biomass
E85 vs. E15 Research Questions

• E85 distribution network “chicken and the egg” issue
  – Role of markets vs. other policies
• Would margins on E85 be substantially different than on E15?
• Role of station mandates and/or subsidies
• Transportation/distribution benefits relative to E15
Research Questions: Drop-in Fuels

• How suitable is existing Infrastructure?
  – Geographic distribution of feedstock and refineries
  – Bio-oil not compatible with infrastructure
    • Although bio-gasoline is
  – Refinery capacity sufficient?
  – How will infrastructure needs drive technology choice?
    • e.g. pyrolysis vs. APR
Further Research Questions (3)

• Biofuels vs. Bioelectricity
  – What are implications of asymmetric policy treatments?
    • Elec. Vehicles Not part of RFS (are included in LCFS)
    • Tax credits for EVs
    • Biomass emissions treated differently under RPS and RFS standards