Panel Discussion:
Finance and Economics of New Energy Projects

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Introduction

• Slow uptake of investment in renewable energy technologies
  – Cost considerations (cellulosic biofuels)
  – Future of energy prices (e.g. natural gas price)
  – Government policy (e.g. Renewable Fuel Standard)
  – Technological constraints (e.g. wind energy)

• Investment decisions in renewable energy are dependent on the valuation method used.
Net Present Value vs. Real Option

• Net present value analysis
  – Discounting the future cash-flow and comparing it to the investment outlay
  – Now-or-never approach

• Real Options Approach
  – Investor has a valuable option to wait before making the investment to gather new information
  – Significantly increases the investment threshold
  – Complications to calculate the investment threshold
Real Option Analysis

• Characteristics that warrant real option analysis:
  – Irreversibility (Sunk cost)
  – Uncertainty
  – Switching cost

• Examples
  – Farmer deciding to produce switchgrass, co-firing with biomass, fuel switching (natural gas vs. coal)
Biomass in Indiana

• Plentiful biomass resources in Indiana
  – Agricultural residues, bioenergy crops, forest residues

• Transportation fuels
  – Corn ethanol
  – Cellulosic ethanol

• Biomass co-firing
Biomass Production

- Farmers reluctance to adopt bioenergy crops
Co-Firing Potential
High production cost, low biomass price
Conclusion

• Reducing in cost is important but so is uncertainty.

• Questions, feedback, comments:
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