Transition to a Bioeconomy: Environmental and Rural Development Impacts

Financing Growth of Cellulosic Ethanol

Dr. Cole R. Gustafson
Biofuels Economist
North Dakota State University

cole.gustafson@ndsu.edu
Historical Path

- 2005 Renewable Fuel Standard
- Favorable corn prices
- Rising oil prices
- Production standards

Rapid Expansion
Historical Path

- $3 billion new investment in agriculture (WSJ, 2007)
- $1.3 billion state and local tax revenue (Urbanchuk, 2007)

1 percent less local ownership = 1 less job (ISU, 2007)
Current Setting: Margins Converge to Near Nil

MODEL ETHANOL RETURN*, Past Six Years by Month


*PRX model ethanol return is a generalized monthly estimate for the farmbelt, cents per gallon after all costs.
Capacity Utilization vs. Margin

\[ y = 0.2014x + 0.6246 \]

\[ R^2 = 0.41960 \]

Wilson, 2008
Investment Climate Has Cooled

- Corn price and supply uncertainty
- Construction costs have risen
- Tax credits are not certain
- New concerns about environmental impact, resource demands (water), and product quality
- Federal loan programs do not align with scale of new plants
- New biomass technology may render existing corn grain plant technologies less profitable
Creditors are Monitoring

- **AgCountry Farm Credit Services** (DeVos, 2008)
  - Financed 44 of 174 plants operating
  - Three (3) plants closely watched
  - One (1) plant in difficult position

- **VeraSun**

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**Price history - VSE (10/7/2005 - 10/3/2008)**

- Graph showing price history for VeraSun Energy Corp.
Credit for new plants was negligible prior to collapse.

Existing biofuel plants “bruised”
New Ethanol Technology

Need constant innovation to compete in commodity markets (ethanol and corn)

- Fractionation
  - Endosperm, 82% of kernel, 86% starch
  - Germ, 10% of kernel, 80% oil
  - Pericarp, 8% of kernel, gasify

- Gasification of distillers grains

- Fluid Bed Technology

- Cellulosic
2008 Economic Emergency Stabilization Act

- Extension of numerous biofuel credits
- 50% write-off for cellulosic facilities
- $10/ton CO2 (oil recovery)
- $20/ton CO2 (permanent)
  - GAO estimates $1.1 bil. over decade
Issue #1 – Lack of Capital

- Lender portfolios are saturated
- Sweeps – plants have limited reserves
- New technology 4x expensive as 2006 plants, new tax credits are helpful.
Issue #2 – Industry Uncertainty

- Lack of production standards due to diverse feedstock
- Federal tax credits
- Implementation of 2007 EISA (RINS)
- Value of carbon/GHG reduction
  - Tiffany ($0.20-0.40/gal.)
- Gap in biomass feedstock cost
  (producer cost vs. plant ATP)
Issue #3 Wall Street Turmoil

- Reduced GDP for next decade (KC FRB, 2008)
- Lower oil prices
- Higher exchange rate
- Corn price
South America/Mexico Ramp Up and Target U.S.

- Apex Brasil/Unica, $10 million promotion campaign
- Grupo Santos, $12 billion, 60 sugarcane plants
- BP, $60 million sugar to ethanol, Gaois, Brazil
- Bunge and Itochu ink Sugar-Ethanol JV in Brazil

EP Overview 3/3/08, 9/24/08
Questions?

cole.gustafson@ndsu.edu
(701) 231-7096
Agribusiness Seasonal Financing

- September: ($50,000,000)
- October: $0
- November: $50,000,000
- December: $100,000,000
- January: $150,000,000
- February: $200,000,000
- March: $250,000,000
- April: $300,000,000
- May: $250,000,000
- June: $200,000,000
- July: $150,000,000
- August: $100,000,000

Note: The graph shows the seasonal financing trend from September to August.
Agribusiness Seasonal Financing

1) Determine max. credit need

2) Negotiate letter of credit/revolving loan
   a) Pay fee for service
   b) Don’t expect to utilize
   c) Serves as safety net

3) Obtain lower cost credit directly from commercial paper mkt.