

Biofuels Infrastructure: Regional Needs and Barriers

Emerging Fuels Issues Workshop
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Alan Jones

Manager, Environmental Policy Office
Tennessee Dept. of Transportation

Infrastructure Needs for Bioenergy Development

- Defining goals for bioenergy development
- What are the components of bioenergy infrastructure?
- What are the issues and what barriers exist?
- The path forward

Goals for Bioenergy Development

- To capture for our region the maximum possible benefits from this evolving industry
 - Rural and urban economic development
 - Increased farm income
 - Potential for new energy crops
 - Reduced dependence on petroleum
 - Improved air quality

Obtain Maximum Benefits

- A “farm to vehicle fuel tank” approach
- Establish infrastructure at all levels of the production chain
- Vertically integrated infrastructure in the Southeast
- Capture as much value added in our region as possible
 - NBB study shows biodiesel could add \$24B to U.S. economy from 2005-2015

Components of Biofuels Infrastructure

- Feedstock production
- Feedstock processing
- Production
- Distribution
- Storage and blending
- Retail sales
- Marketing and public education

Feedstock Production

- Soybeans, corn, grain sorghum now
 - Maximize regional production of these biofuel feedstocks
- Switchgrass, corn stover, forest waste, municipal solid waste in future
 - May be feasible in areas not suitable for corn or soybeans
 - Prepare for time when production processes are improved and more price-competitive

Feedstock Production Issues

- Biomass production possible, but expensive
- Still difficult to break cellulose bonds
- Landowners willing to grow switchgrass, but no market yet
- 25 X 25 goal requires biomass production
- Corn can only produce limited volume of ethanol
- Some argue corn-based ethanol will raise prices of other foods (e.g., chicken)

Feedstock Production Actions

- Determine which crops are best suited to region
- Identify best crops for selected geographic areas
- Begin discussions with agricultural community
- Plan for efficient transport of feedstocks to processing facilities, especially biomass
- Consider feedstock collection, storage and transport system

Feedstock Processing

- Large regional facilities for processing biofuel feedstocks (e.g., soybean crushing plants) are more efficient
- Process crops in our region instead of shipping crops elsewhere
- Processed feedstock availability a magnet for fuel production facilities
- Soybean crushing facilities typically located near crops and/or production facilities

Feedstock Processing Issues

- Few soybean processing facilities in region
- Adequacy of transportation modes (barge, rail, truck)
- Must consider transportation for both
 - Soybeans to the processing facility
 - Soy oil to biodiesel production plants
- Need adequate storage for soybeans and soy products (e.g., meal, oil, etc.)

Feedstock Processing Actions

- Develop an approach for strategically locating soybean crushing facilities based on
 - Proximity to feedstocks
 - Proximity to biofuel production facilities
 - Transportation availability

Biofuel Production

- Growing number of biofuel production facilities in region; more needed
- Access to feedstocks and transportation important to attract investors

Biofuels Production Issues

- Growing demand will put pressure on prices unless production can keep up
- Fuel quality, particularly biodiesel
 - Easy to produce biodiesel; very difficult to produce **QUALITY** biodiesel
 - Fuel testing is expensive
- Ethanol production facilities
 - Take a long time to complete construction
 - Expensive (i.e., \$158 million for new plant in Tennessee)
 - Waiting list to hire facility construction firms

Biofuels Production Actions

- Job 1 – Ensure fuel quality
 - Need consistent adoption and enforcement of fuel quality standards across region
- Develop markets for valuable co-products (biorefinery concept)
- Develop markets for biofuels
 - Local production will reduce transportation costs
 - Producers often prefer local markets

Biofuel Distribution

- Southeast lacks terminal/tank farm storage capacity for biofuels
- Rely heavily on truck transport and storage at bulk plants
- Transportation costs increase price of fuel

Biofuel Distribution Issues

- Cannot use petroleum pipelines
- Consider viability of barge vs. rail vs. truck transport
- Must have loading and unloading operations for barge/rail/truck
- Must maintain fuel quality throughout distribution process

Biofuels Distribution Actions

- Build partnerships to strengthen biofuels distribution system
- Partnerships with
 - Production facilities
 - Rail/barge/trucking companies
 - Fuel terminals
 - Fuel distributors
 - Fuel retailers

Biofuels Storage and Blending

- Terminal/tank farm storage and blending provides advantages
 - Allows tankers to load blended fuel (e.g., E85 or B20)
 - Blending equipment more accurate than splash blending
 - Reduces need for expensive blending equipment at bulk plants
 - Helps reduce costs for suppliers and distributors

Biofuels Storage and Blending Issues

- Requires dedicated storage
 - Need for dedicated storage for ULSD may discourage investment in biofuel storage
- B100 and high blends may require special handling
- Ethanol and biodiesel susceptible to water

Biofuels Storage and Blending Actions

- Education/outreach to entities that store and blend biofuels
 - Best practices
 - Quality control
- Encourage bulk storage and blending at terminals/tank farms where feasible

Retail Sales

- Need a network of publicly accessible fuel stations along interstate corridors and major highways
 - Allow travelers and fleets to travel to major destinations using biofuels
- Retailers should sell only biofuels that meet quality standards
 - Request certification information for each load

Retail Sales Issues

- American Petroleum Institute's public criticism of E85
- Reluctance of some major oil companies to market biofuels
- To be or not to be "under the canopy"
- Need OEM support for B20
- Need ASTM standard for B20
- Need to build customer base -- sales may be low at first

Retail Sales Actions

- Governments share capital costs of refueling infrastructure
 - CMAQ a possible funding source
- Governments help promote use of biofuels
- Retailers promote sales locally (e.g., partnerships with auto dealers)

Marketing and Public Education

- Raise public awareness and encourage biofuel use
- Target both public and private sector fleets and citizens
- Target owners of flexible fuel vehicles capable of using E85
 - Many flexible fuel vehicle owners may not know they can use E85

Marketing and Public Education Issues

- Need consistent, recognizable signage along interstate corridors for refueling locations
 - Blue logo signs before exits
- FHWA rules on interstate signage

Marketing and Public Education Actions

- Develop uniform interstate signage for region
- Collaborate on outreach efforts and educational messages
 - Government agencies, Clean Cities, OEMs, clean air partnerships, Farm Bureaus, agricultural community, etc.