

C2 Biofuels, LLC

“Licensing Cellulosic Ethanol Technologies”

Georgia House Study Committee on
Bioeconomic Development

September 24, 2007



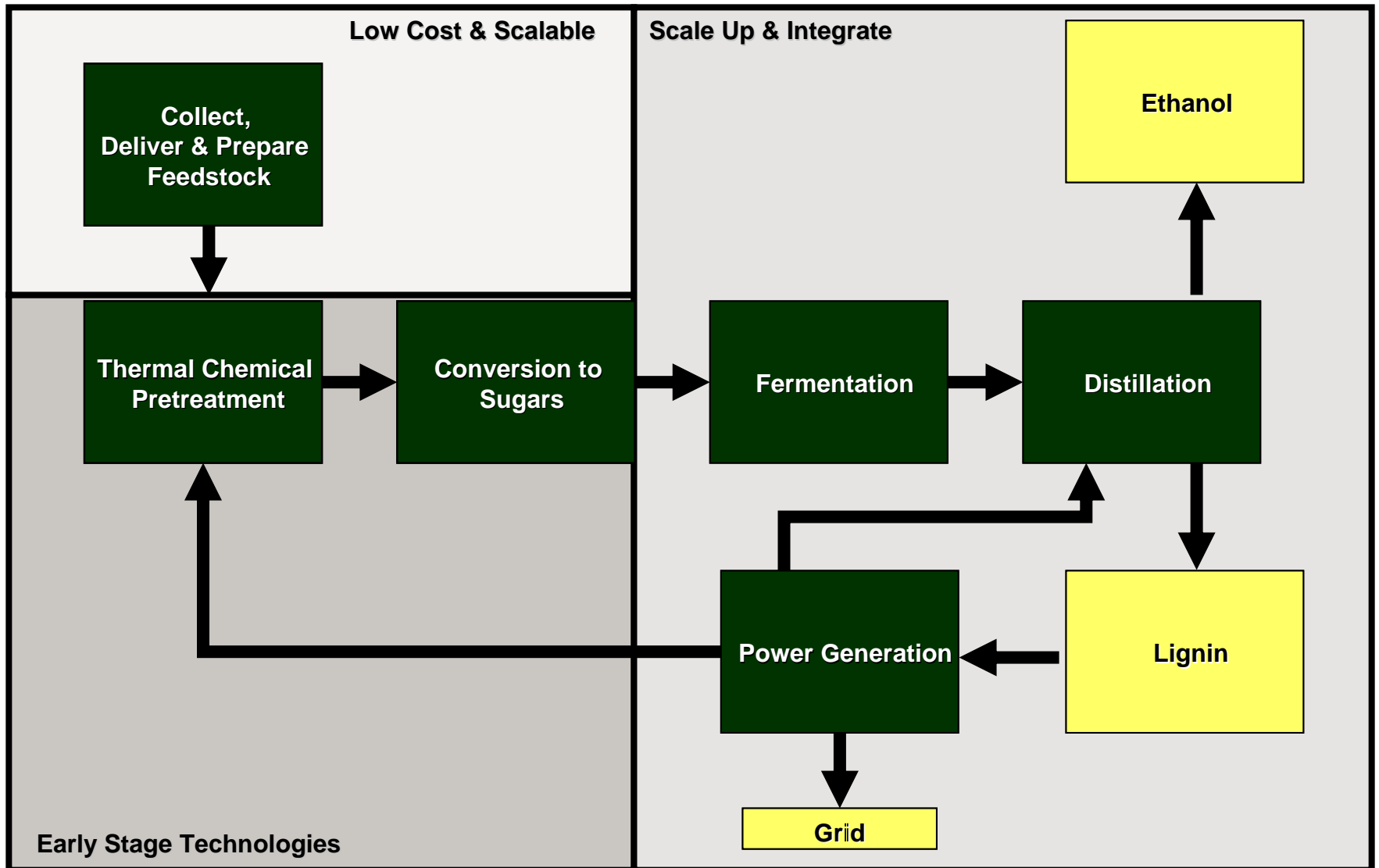
Presentation Overview:

- ❑ C2 Biofuels Company Overview
- ❑ Biofuels Drivers
- ❑ Current Impact of Sector
- ❑ What's Working to Foster Industry Growth?
- ❑ What's Limiting Industry Growth?
- ❑ Recommendations

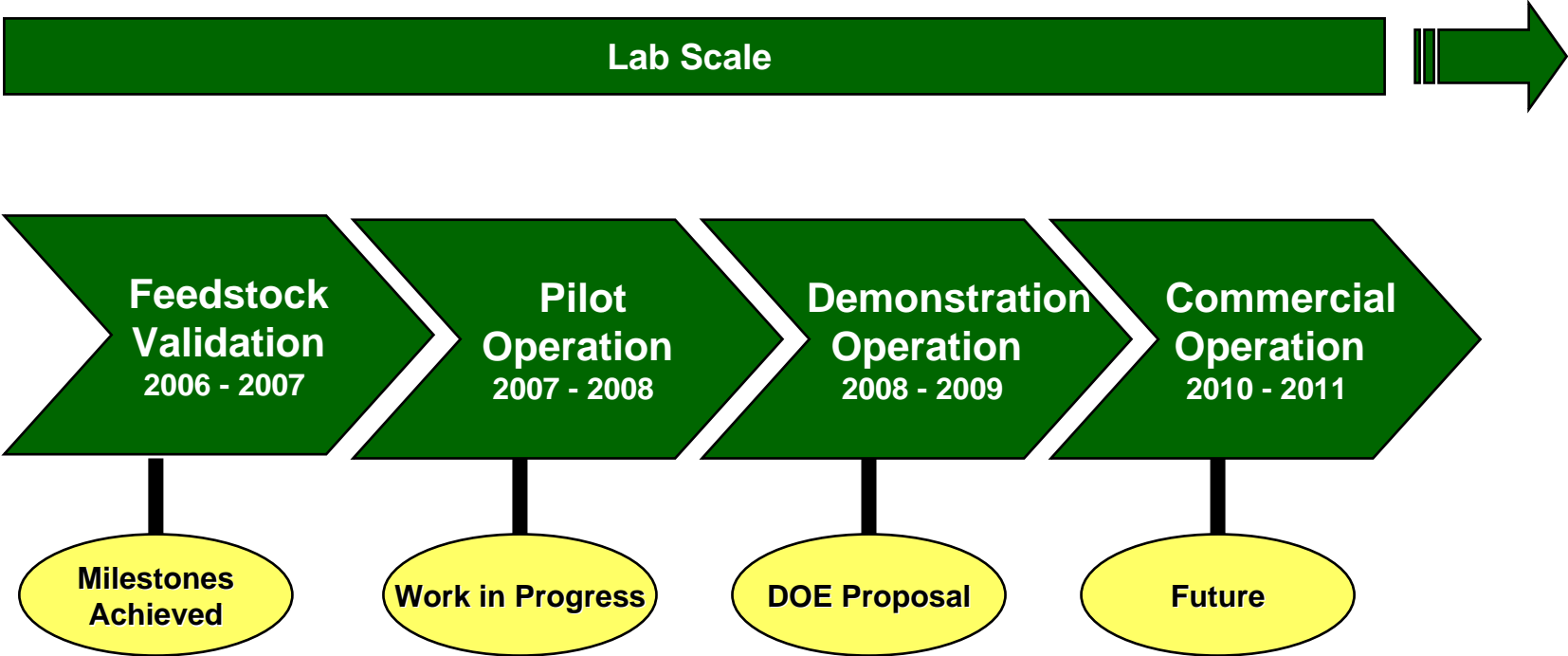
C2 Biofuels Company Overview

- ❑ Licensor of Cellulosic Ethanol Process Technology
- ❑ Established May 2005 Targeting Pine Feedstock
- ❑ Using Biocatalyst Advancements
- ❑ Two OneGeorgia Matching Grants
- ❑ Research Contract with Georgia Tech & University of Georgia
- ❑ Integrator of Multiple Processes

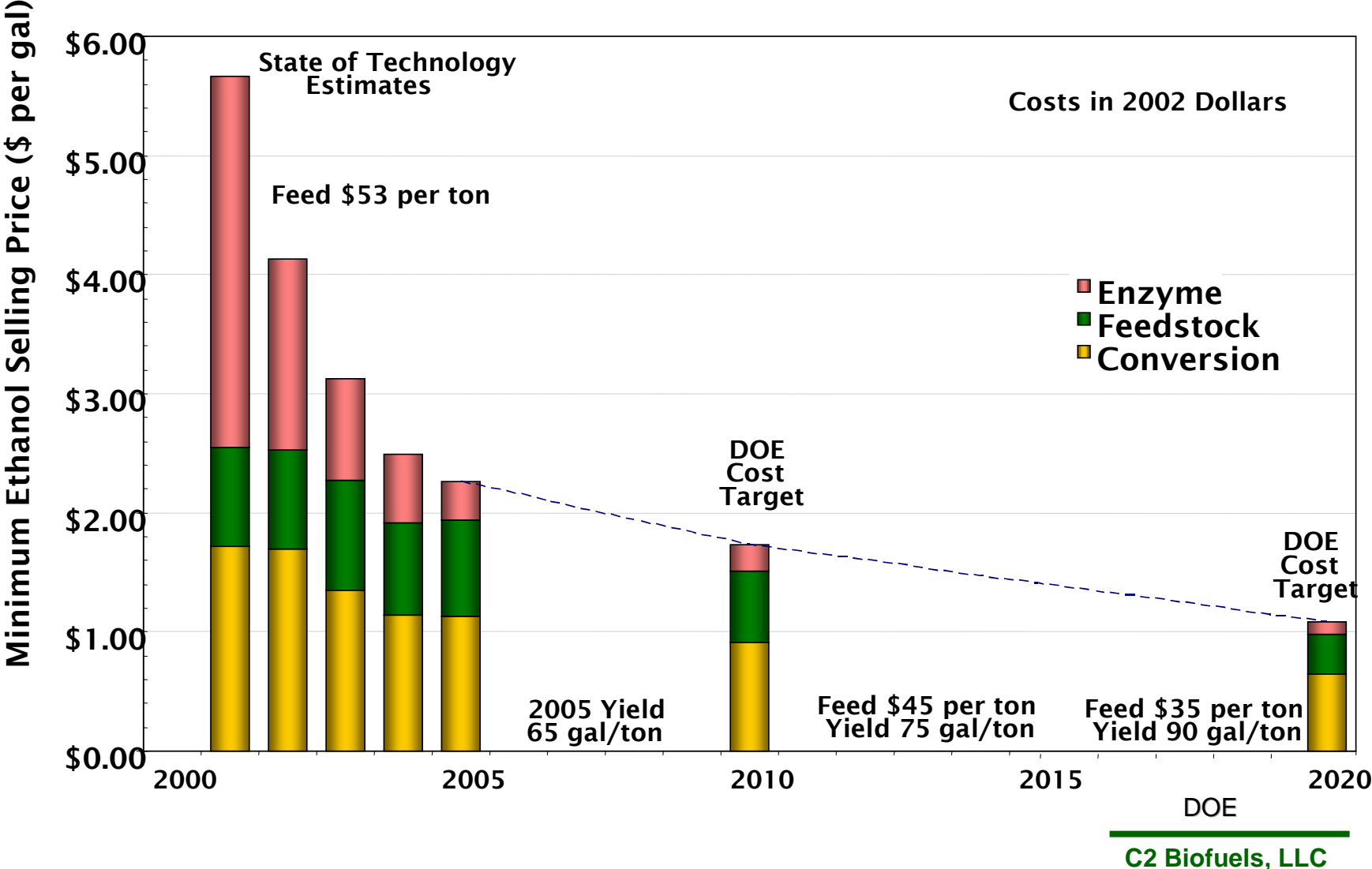
Process Description – The Sugar Platform



Road to Commercialization

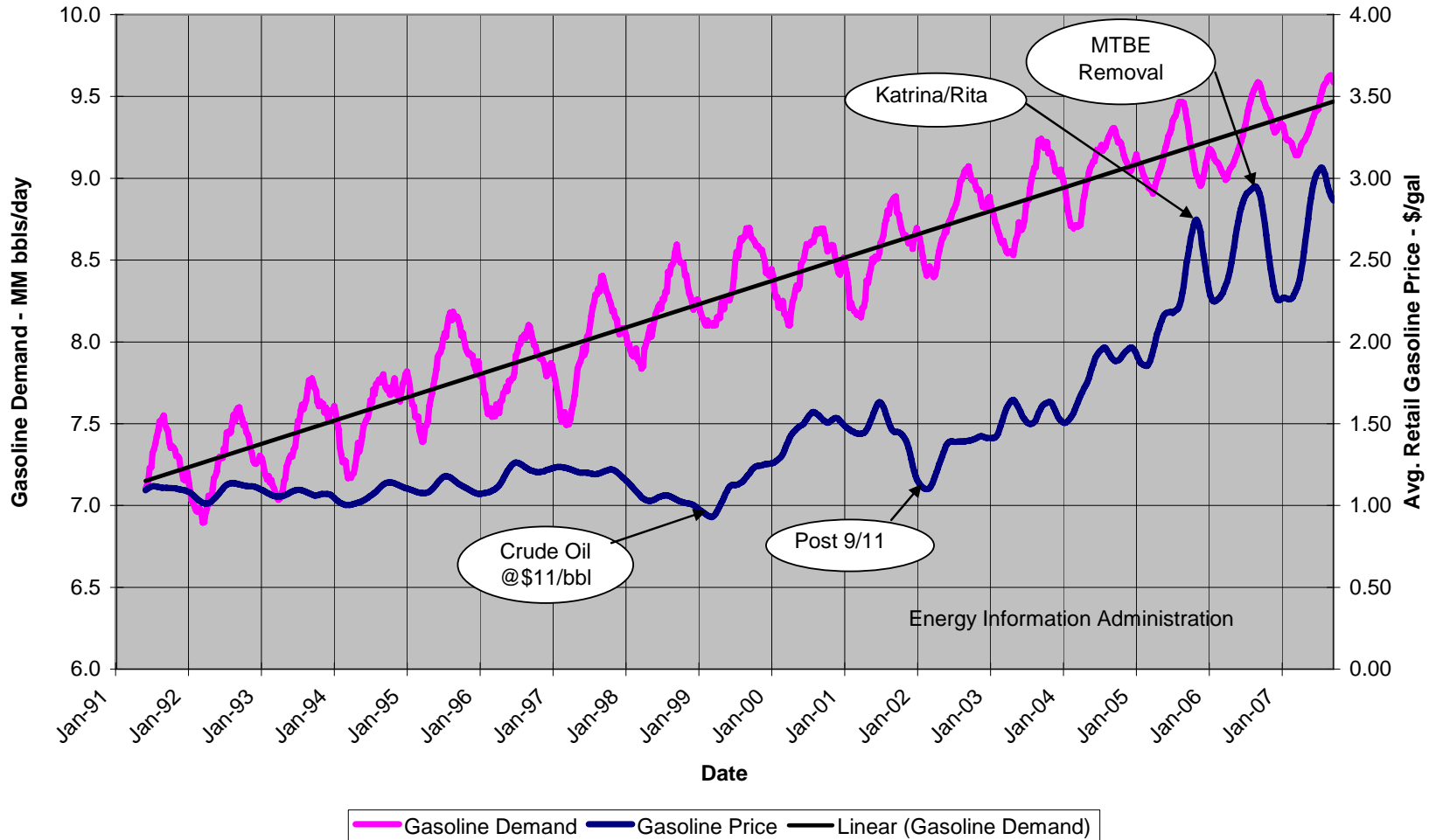


NREL's Estimated Cellulosic Ethanol Cost History and Targets



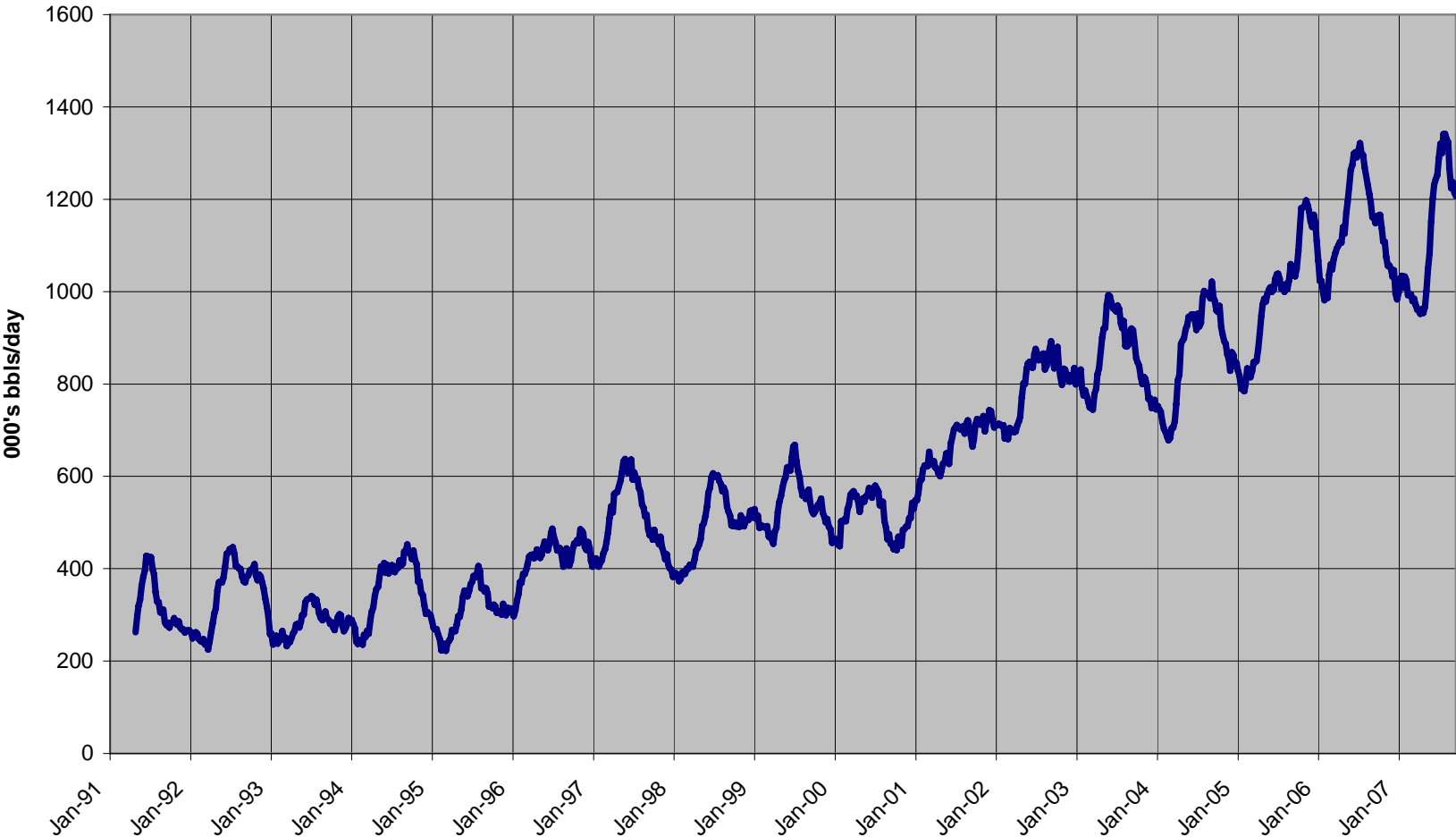
At What Price Will Gasoline Consumption Stop Growing?

U.S. Gasoline Demand Growth Inelastic to Gasoline Price
12 Week Moving Average

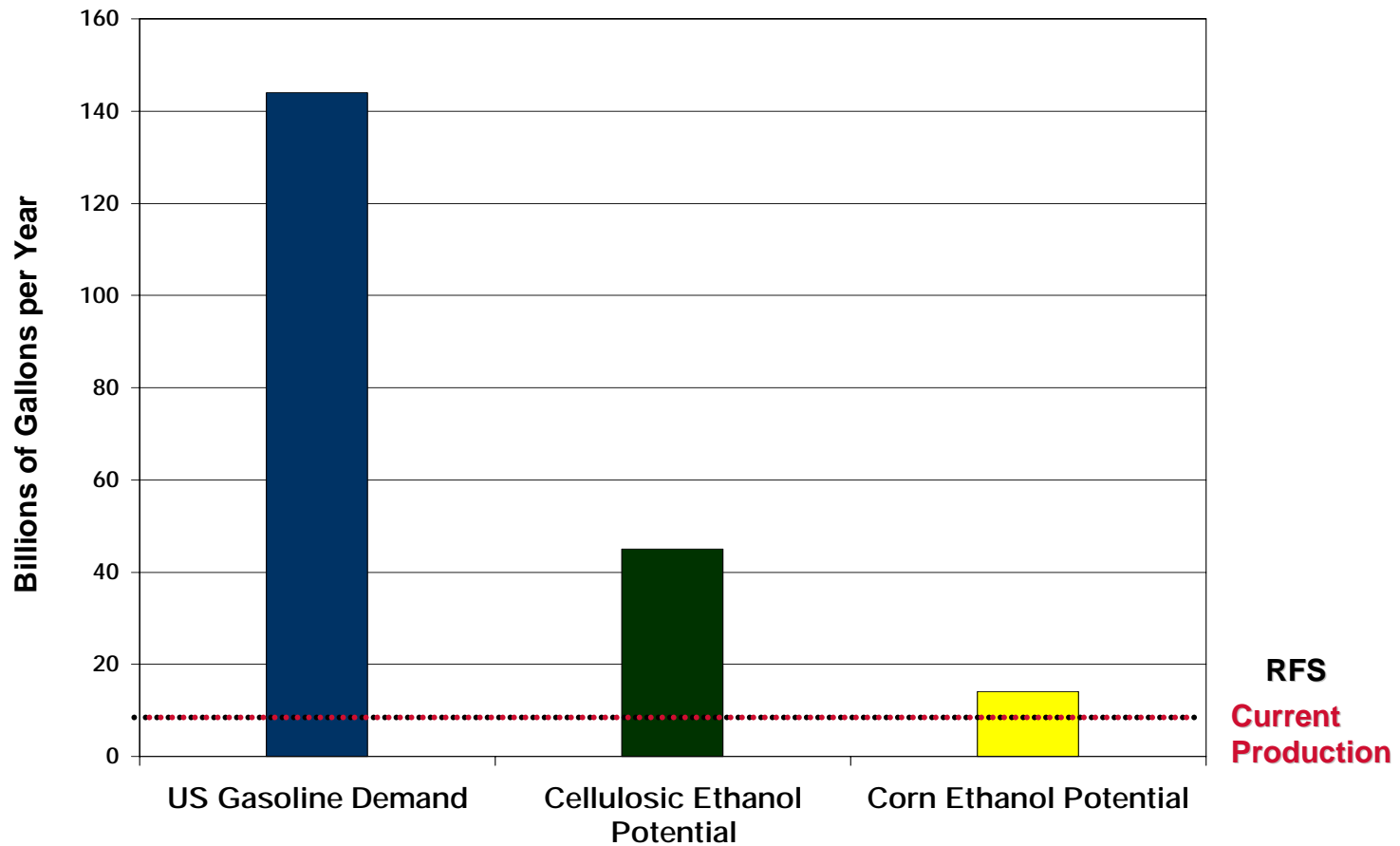


Gasoline Imports Are Rising – Refinery Limits

U.S. Gasoline Imports 12 Week Rolling Avg



Cellulosic Ethanol is Scalable



¹ Source: Energy Information Administration

² Source: Biomass as Feedstock for a Bioenergy and Bioproducts Industry: The Technical Feasibility of a Billion-Ton Annual Supply April 2005

Cellulosic Ethanol Drivers in Georgia

- ❑ Crude Oil above \$40/bbl
- ❑ Advances in Biocatalysts
- ❑ Availability of Georgia's Forestry Resource
- ❑ Rural Economic Development
- ❑ Scalability w/Infrastructure – *Significant Competitive Advantage*

Cellulosic Ethanol in Georgia – Current Impact of Sector

- ❑ ResearchGaining Momentum
 - Basic
 - Applied

- ❑ Initial Commercialization Early Stages

- ❑ Development of \$Multi-billion Industry Future

Growing A Cellulosic Ethanol Industry in Georgia

❑ What's Working

- OneGeorgia Grants – Tifton Agriculture Innovation Center
- Research Institutions – Ga Tech, Univ. of Ga
 - Strategic Energy Institute
 - ATDC/Venture Lab
 - Research Contracts with IP Rights
- DOE Grant Proposal – Matching Funds
 - \$21.5 Million in DOE funds for Demonstration Plant
- Communication of State Stakeholders
- Expedited Permitting Process

Growing A Cellulosic Ethanol Industry in Georgia

❑ Challenges to Growth

- High Capital Requirement for Multi-Step Scale up
- Lengthy Scale Up - High Risk to Investors
- Expedient & Predictable Process for Intellectual Property w/Research Institutions
- Incentive to Replant Pine Forest
 - Taxes

Competiton With Other States

- ❑ Tennessee - \$40 million for Pilot Plant
- ❑ Florida - \$25 million for Pilot Plant
- ❑ New York - \$25 million for Pilot Plant
- ❑ Michigan – Demonstration Plant

Recommendations

❑ Government/Public Policy

- Support DOE Proposals/Awards with State Funds
- Adjust State Fuel Tax for E85

❑ Industry

- Incentives for Cellulosic Ethanol w/Sunset
- Additional Incentives for Georgia Based Companies
- Expand Size of OneGeorgia Grants (\$100K+)

❑ University/Education

- Funding for Applied Research

❑ Infrastructure

- Ensure E85 Fueling along Interstates and For State Fleets
- Incentives for E85 Fueling Installations at Ethanol Production Areas