



**Office of the Chief Economist
Office of Energy Policy and New Uses**

What We Know and What We Need To Know

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**Presented at Transition to a Bioeconomy:
Environmental and Rural Impacts
Hyatt Regency – Union Station
St. Louis, Missouri
October 16, 2008**



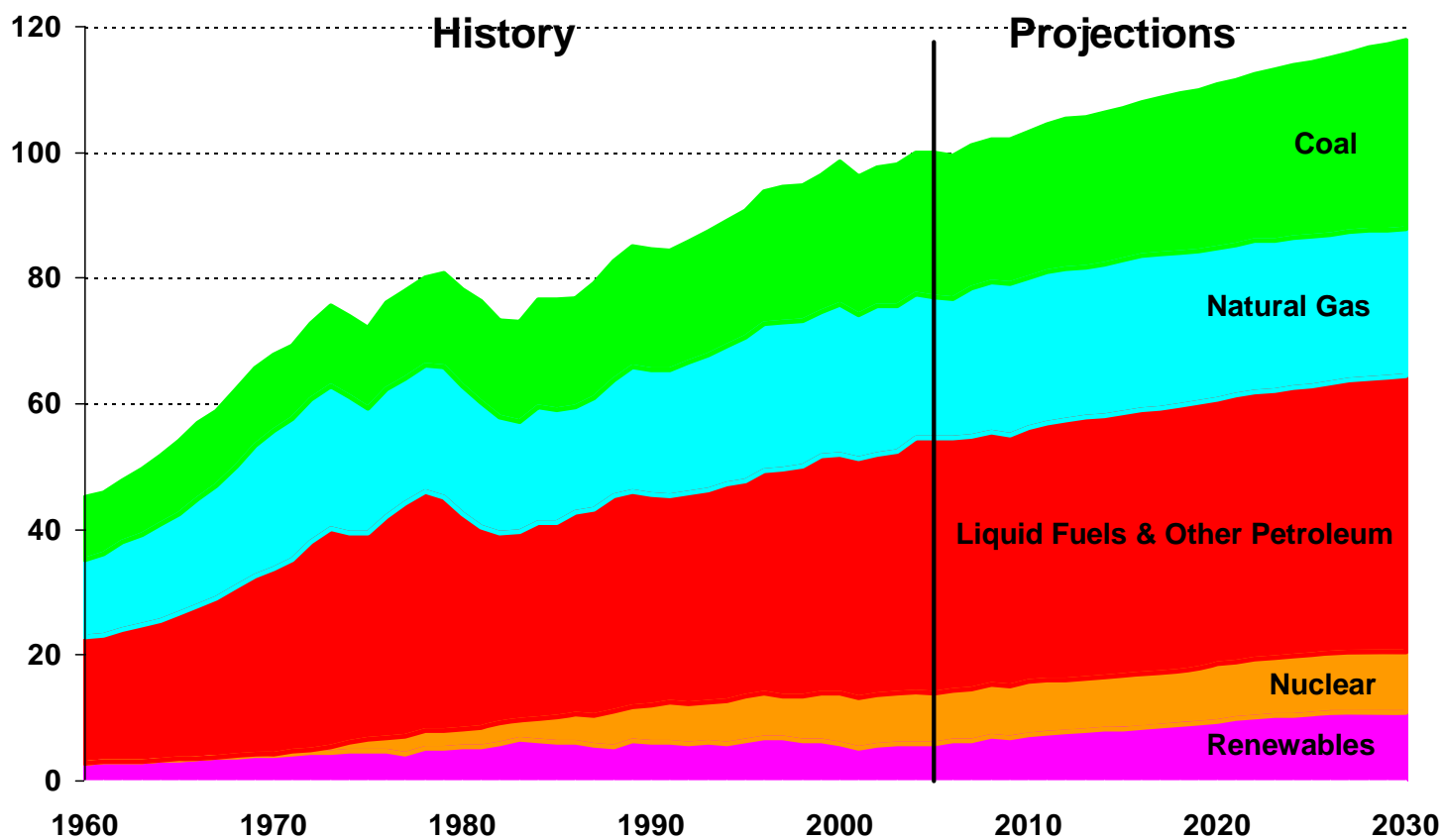
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OVERVIEW

- What We Know?
- What We Need To Know?



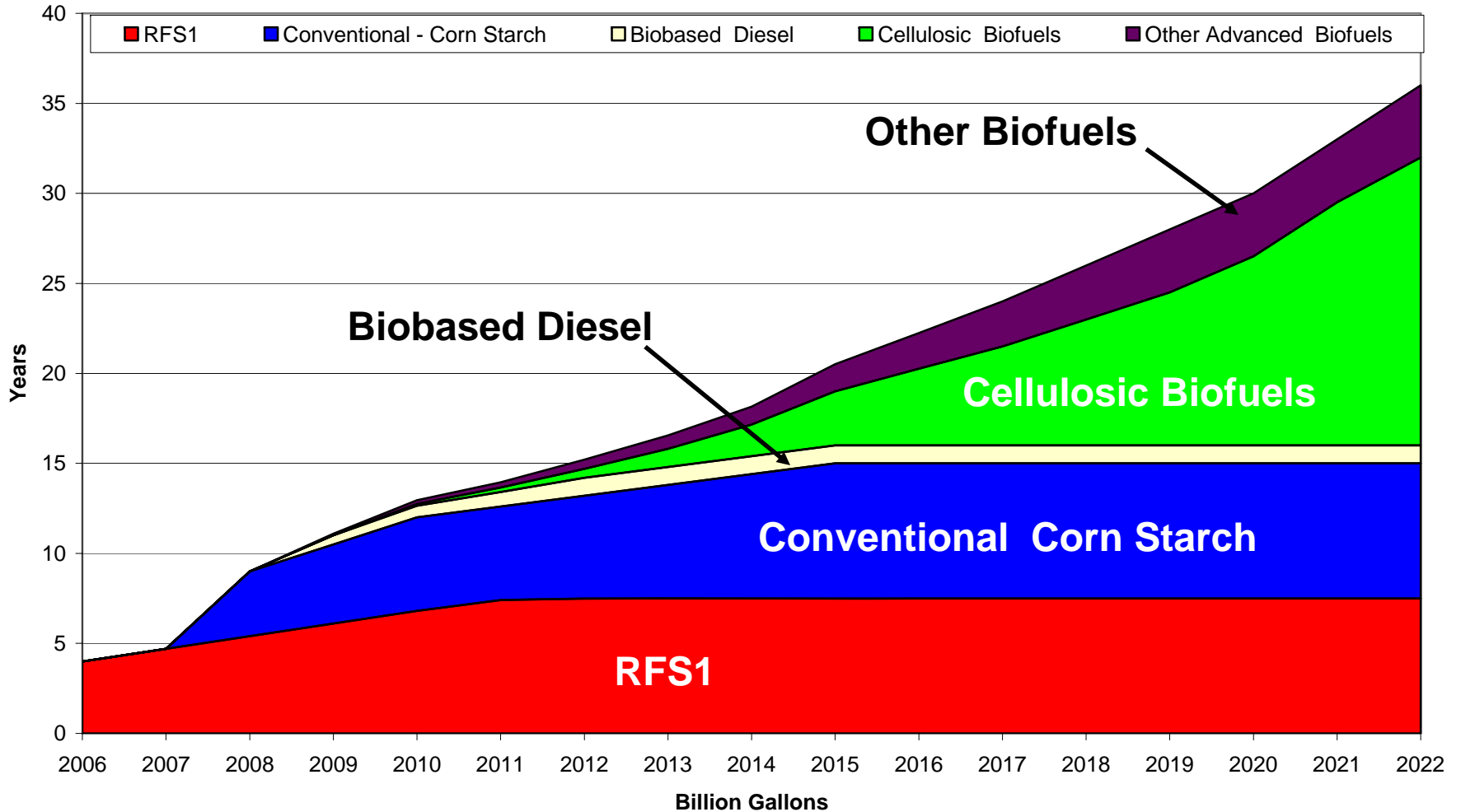
U.S. Primary Energy Consumption by Fuel, 1960-2030 (quadrillion Btu)



Source: Energy Information Administration, Annual 2008 Energy Outlook, reference case



EISA – EPACT Renewable Fuels Standard





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What We Know

- **Bioeconomy is broader than “renewable energy” and “transportation fuels”**
- **Water Not Included in “Models”**



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What We Know

- **Issues and Concerns**
 - Climate Change
 - Sustainability
 - Environment
 - Land Use
- **Policy Objectives & Policies**
 - Energy security
 - EISA
 - FCE



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What We Need To Know

- **Overcoming Infrastructure Constraints**
 - **Blend Wall**
 - Vehicles
 - E-85 availability
 - **Transport of “ethanol”**
 - **Production, harvest, transport, & storage biomass**
 - Improve energy density of biomass



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What We Need To Know

- **Overcoming Infrastructure Constraints**
 - **Getting Connected to the Grid**
 - Wind farms and solar technology
 - Biomass



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What We Need To Know

- **Biomass Production**
 - **Alternative Feedstocks**
 - Switchgrass, miscanthus, algae, ...
 - **Supply, Use & Price**
 - **Feed Stocks for energy (not exclusively transportation fuels)**
 - **Land Use**
 - Direct & Indirect effects



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What We Need To Know

- **Will a sustained increase in commodity prices – provide incentives for investment in agriculture?**
 - **Domestic & Foreign Investment**
 - **Increase adoption of new and existing technology in developing (and developed) countries/regions**



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What We Need To Know

- **Technology Development**
 - **Crop productivity – across potential feedstocks**
 - **Implications for other input use (fertilizer, water, chemicals,...)**
 - **Conversion**



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**THANK
YOU!**

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