

The Evolution of Biofuels

First and next generation biofuel markets

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Novozymes and biofuels

- 20-25% growth over next 3-4 years
- Largest supplier of enzymes to the fuel ethanol industry
- Mainly a US business but Europe & Asia nicely growing
- Collaborations with several industry leaders in many regions:
 - POET in the US
 - COFCO in China
 - Abengoa in Europe and US
 - CTC in Brazil
- Cellulosic ethanol still 3-4 years down the road



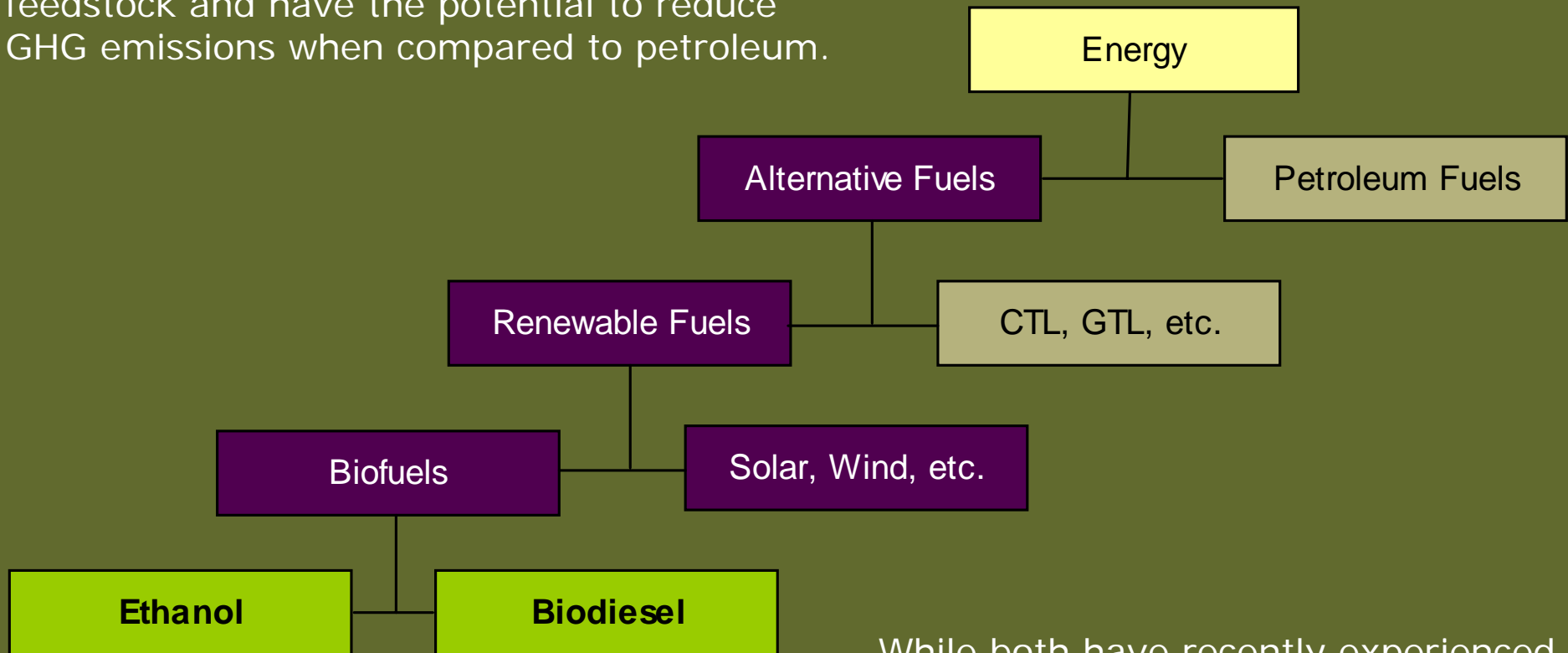
Biofuels are not new ...



- Ethanol from corn was an early component of gasoline in the late 1800's
- Production increased up until World War II
- Low oil prices eliminated need for ethanol until oil crisis in 1973-4
- First biodiesel production in 1989 on industrial scale

Ethanol and biodiesel are energy alternatives to our traditional petroleum fuels

Both are produced from renewable biological feedstock and have the potential to reduce GHG emissions when compared to petroleum.



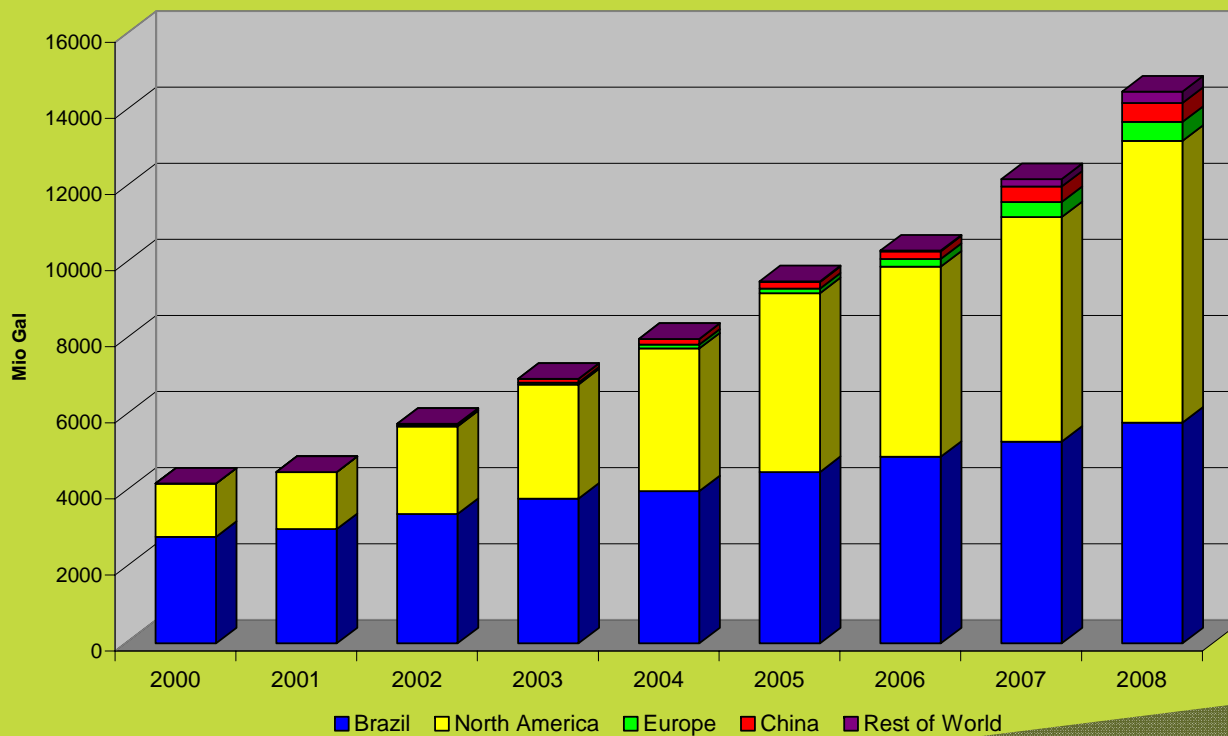
While both have recently experienced a renaissance, the ethanol industry is more developed...

Driving the development of a biofuel industry



Global production of fuel ethanol

Global Fuel Ethanol Production (1.generation)



The U.S. and Brazil are the largest global producers

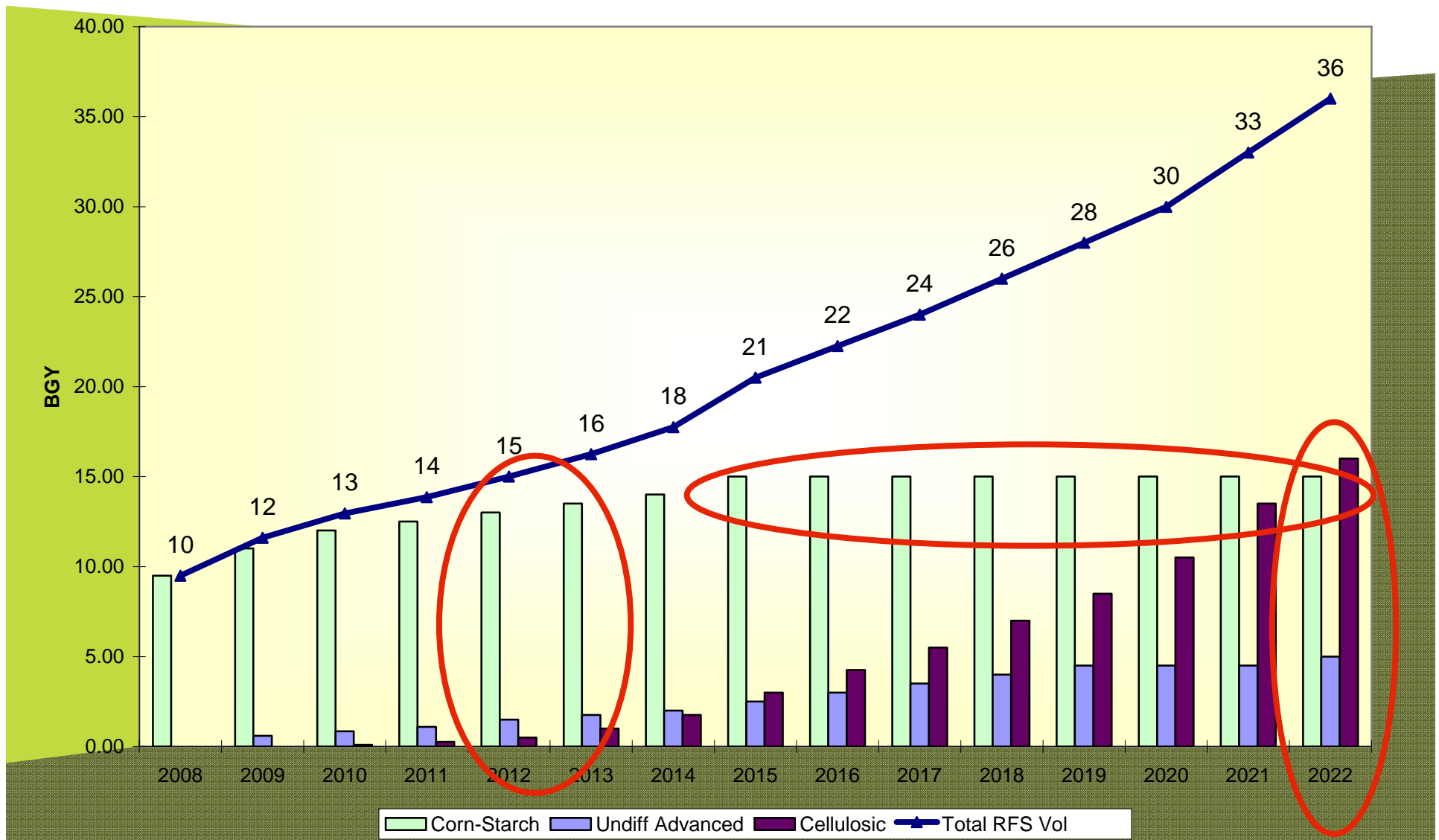
The U.S. has the highest growth rate



What has been working

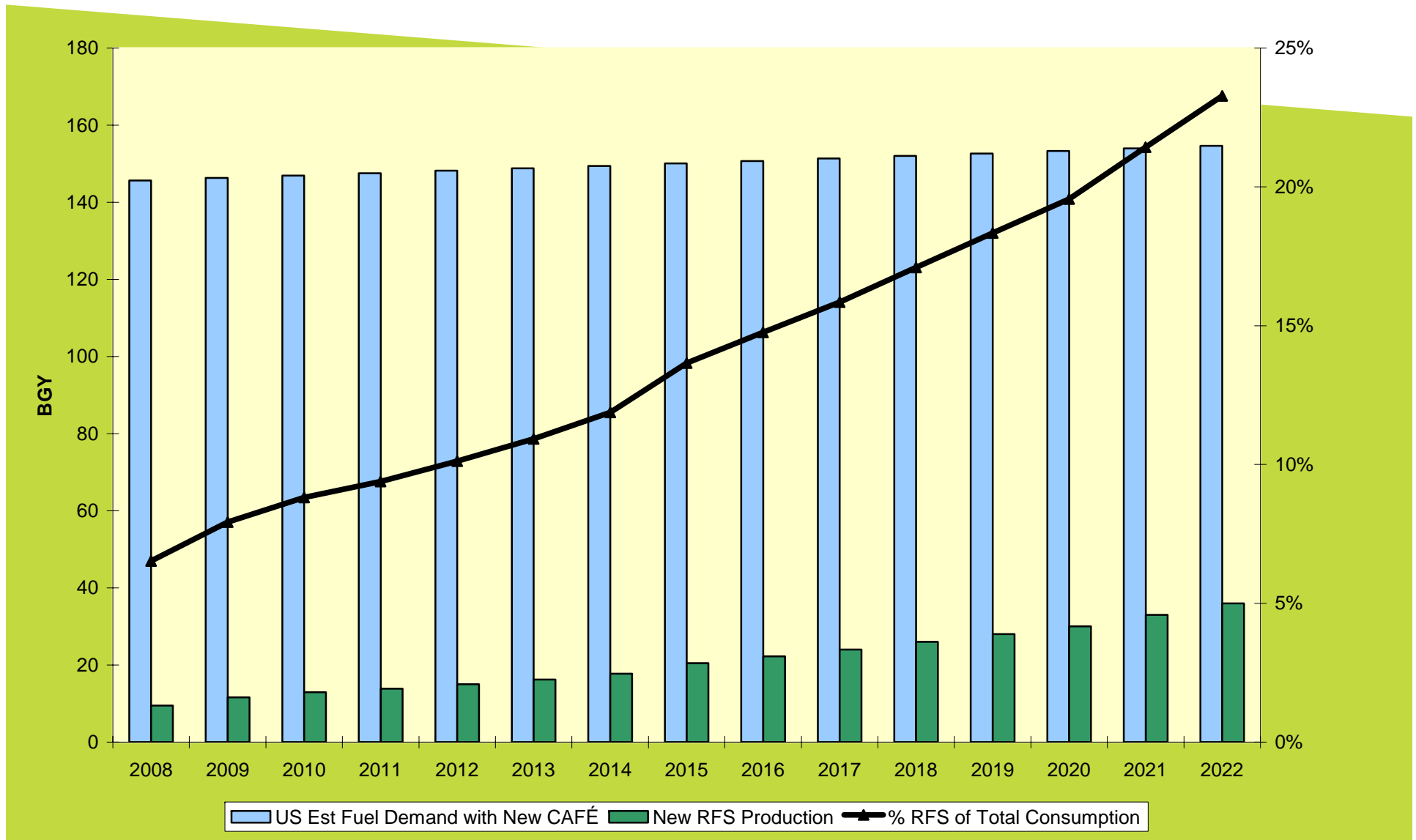
- Government support
 - Blend mandates
 - Volume targets
- Technological advancement
 - Improving process efficiencies
 - Development of high value co-products
- Market environment
 - Feedstock flexibility
 - Ability to achieve economies of scale

A look at the US renewable fuels standard (RFS)



This is only the beginning...

Impact of New Energy Bill on US Petroleum Fuel Consumption



Shaping the future

Market impediments

- Investment speculation
- Feedstock prices
- Production inefficiencies

Market drivers

- Infrastructure investment
- Cellulosic commercialization
- Climbing oil prices

Areas to watch

- Consolidation & takeover
- Government incentives
- Trade policy
- E-blend tolerance

Any one could dramatically change the biofuel market landscape



This is not
your father's
ethanol...

The image features a white background with several abstract gold-colored lines. At the top, two horizontal lines span across the width. A large, thick, curved gold line starts from the top right and sweeps down towards the bottom left. Another thick gold line crosses it diagonally from the top left towards the bottom right. A thin, light gold line curves from the top right towards the bottom right. A blue circle is positioned on the left side, partially overlapping the thick curved gold line. The text "Thank you" is centered in a blue, sans-serif font.

Thank you