

# **Global Energy Markets**

## ***Is There Any Relief in Sight?***

**Southwest Chemical Association**

January 17, 2008

**Bill Sanderson**  
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**PURVIN  
& GERTZ  
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# Global Energy Market Outlook

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- Ø U.S. Energy Act Overview
- Ø Petroleum Market Outlook
- Ø North American Natural Gas



# Purvin & Gertz - Background

- Ø **Founded in 1947 – in business for 60 years**
- Ø **Independent firm owned by active consultants**
- Ø **Global Presence with offices in:**
  - Houston, Los Angeles, Calgary, London,  
Singapore, Buenos Aires, Moscow and Dubai
- Ø **Consulting staff of Chemical Engineers/MBAs**
  - § **Technical, commercial and financial experience**
  - § **An average of 22 years of industry experience**
- Ø **Strategic Alliance with CMAI since 1992**

# Industries Served

- Ø Crude Oil – Market Analysis and Pricing
- Ø Petroleum Products – Refining and Marketing
- Ø NGL – Gas Processing and Marketing
- Ø Natural Gas – Markets and Infrastructure
- Ø Petrochemicals – Feedstock Markets

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# 2007 U.S. Energy Act Highlights

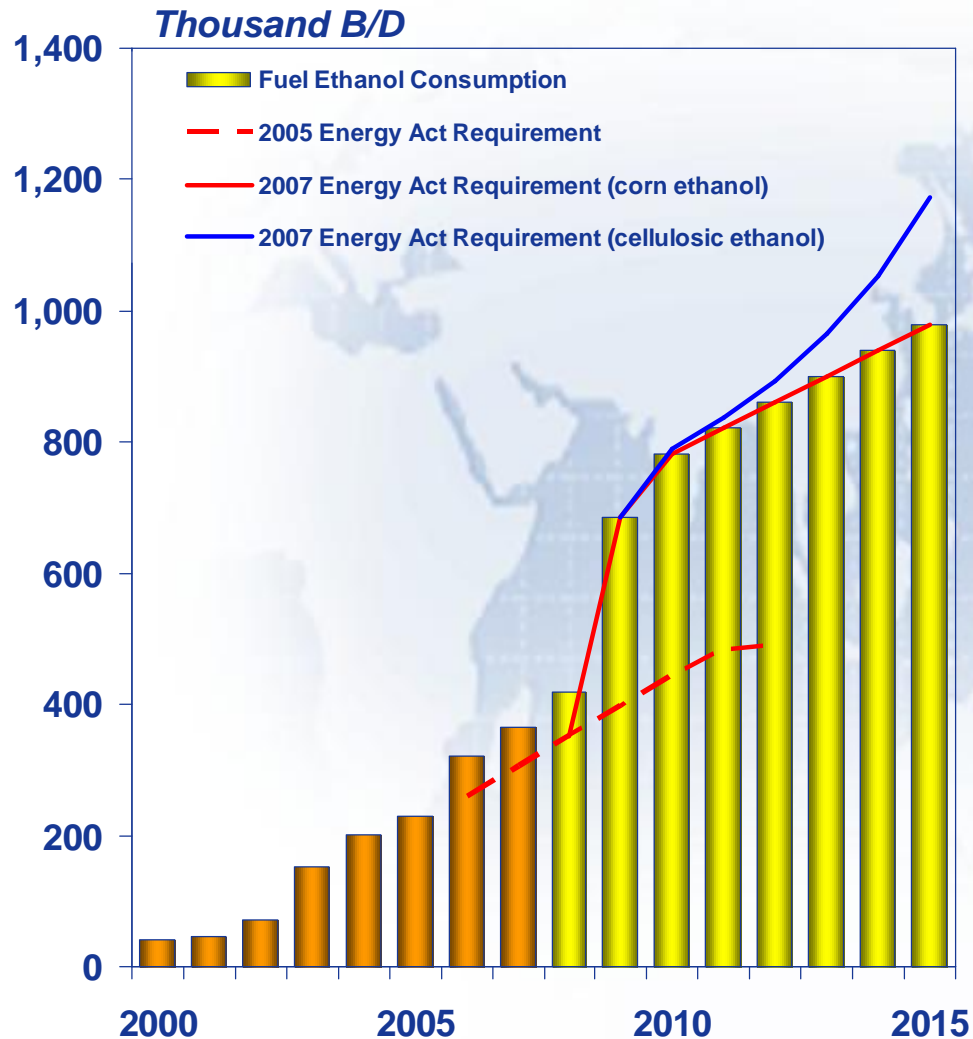
## ∅ Increased new vehicle efficiency standards

- § Current U.S. new vehicle fleet mileage is about 27.5 mpg for new cars and 22.5 mpg for new light trucks
- § New vehicle CAFE standards take effect in 2011
- § Gradual increase to 35 mpg by the year 2020

## ∅ Substantial increase in the use of biofuels

- § Corn ethanol requirement rises to 15 BGY by 2015
- § A target of 36 BGY of all renewable fuels by 2022
- § EPA Administrator has authority to lower overall requirement if cellulosic ethanol does not develop commercially

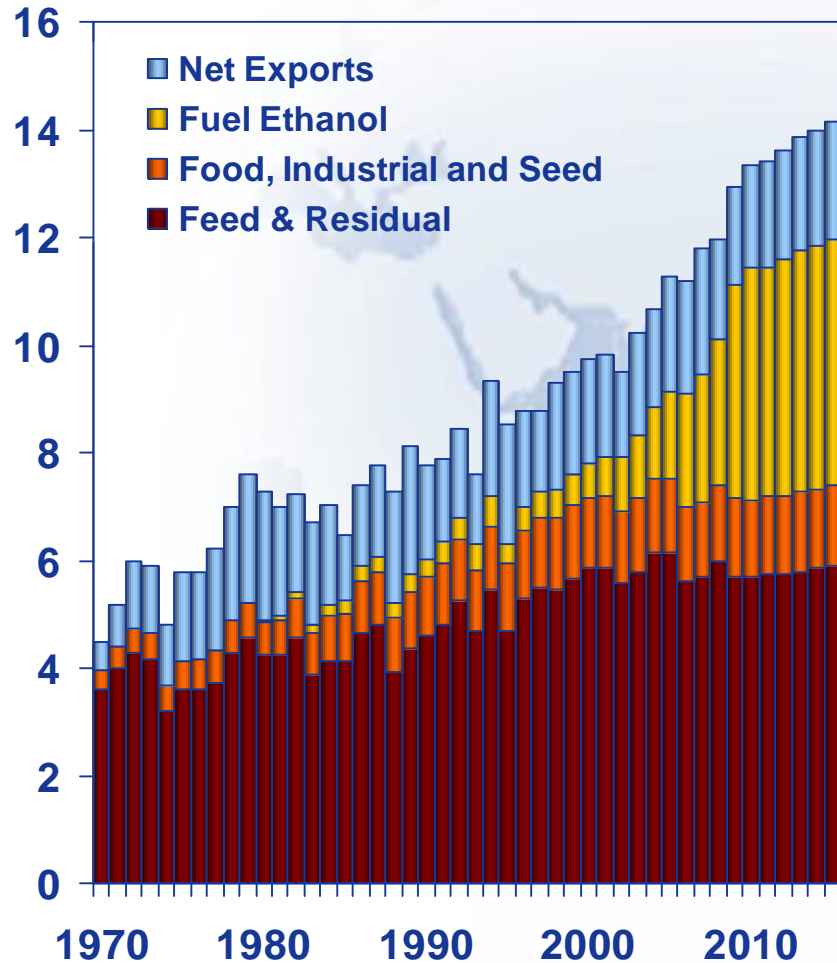
# Fuel ethanol consumption is poised for large increase after the passage of the 2007 Energy Act ...



- ∅ 2007 Energy Act has increased the use of renewable fuels
- ∅ Increased corn ethanol mandate:
  - § 2008 requirement to remain unchanged at 5.4 BGY
  - § U.S. likely to exceed the 2008 mandate in 2007
  - § Big jump in the 2009 requirement of 10.5 BGY, but another 5-6 BGY of capacity expected by 2009
  - § The standard increases to 15 BGY by 2015
- ∅ Target of 36 BGY of all renewable fuels by 2022
  - § EPA Administrator has authority to lower overall requirement based on the viability of cellulosic ethanol

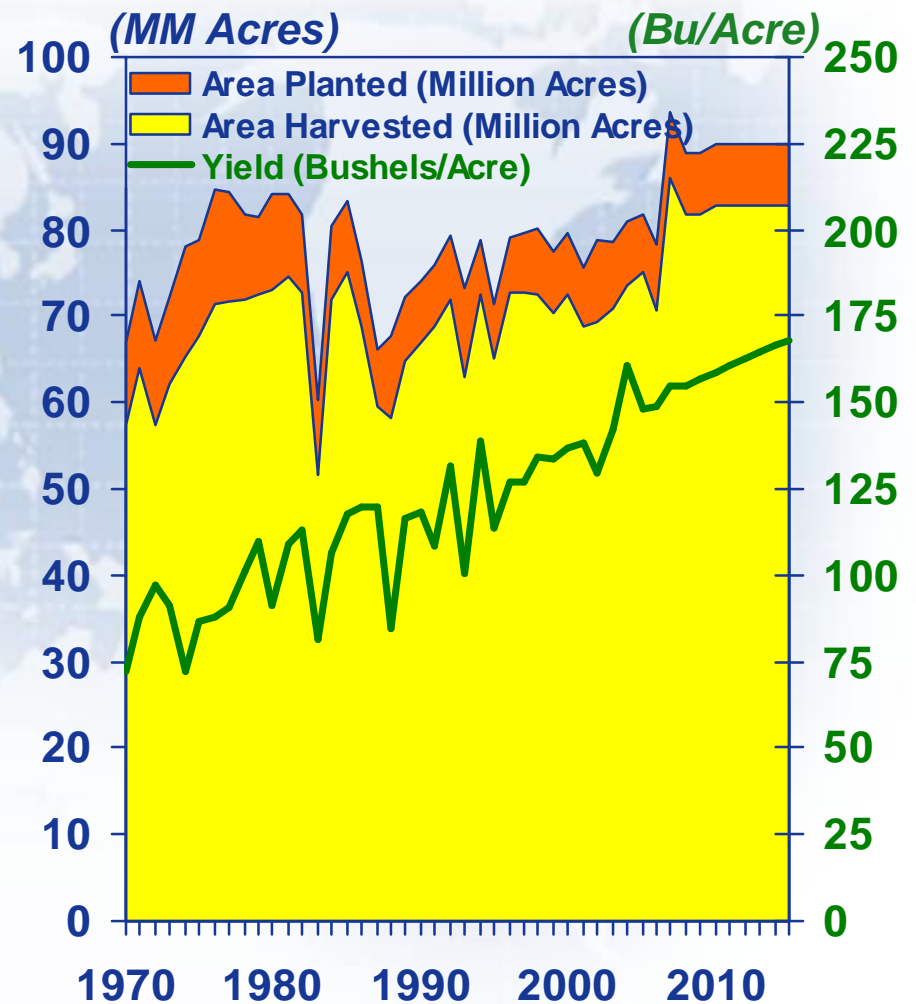
# Corn production must increase as expected to support new and expanding ethanol production . . .

**U.S. Corn Consumption (Billion Bu)**



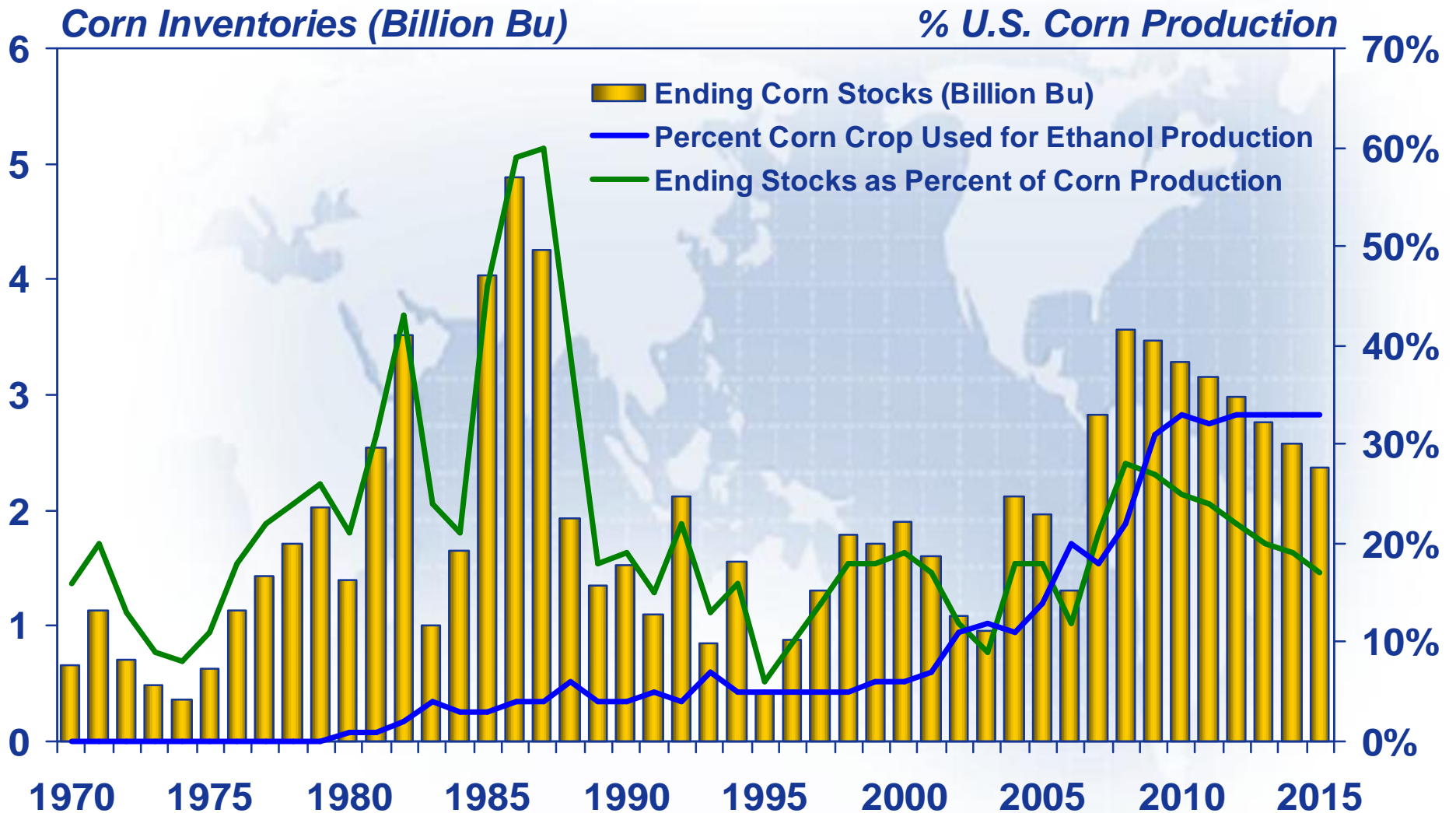
Source: USDA and Purvin & Gertz  
U.S. Energy Act Overview

**US Corn Plantings and Yields**

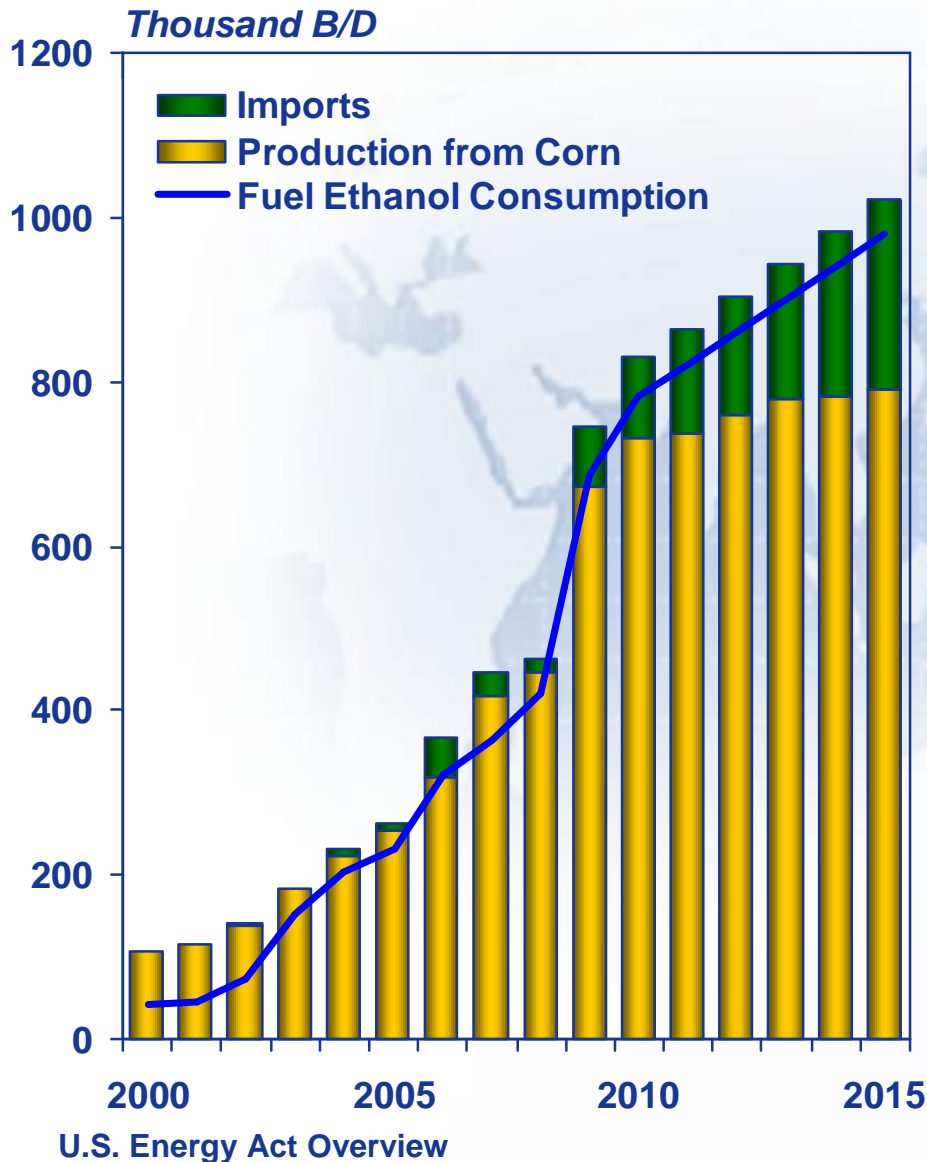


Source: USDA

# Ethanol production is expected to consume up to 30–35% of the projected corn crop by 2010 . . .

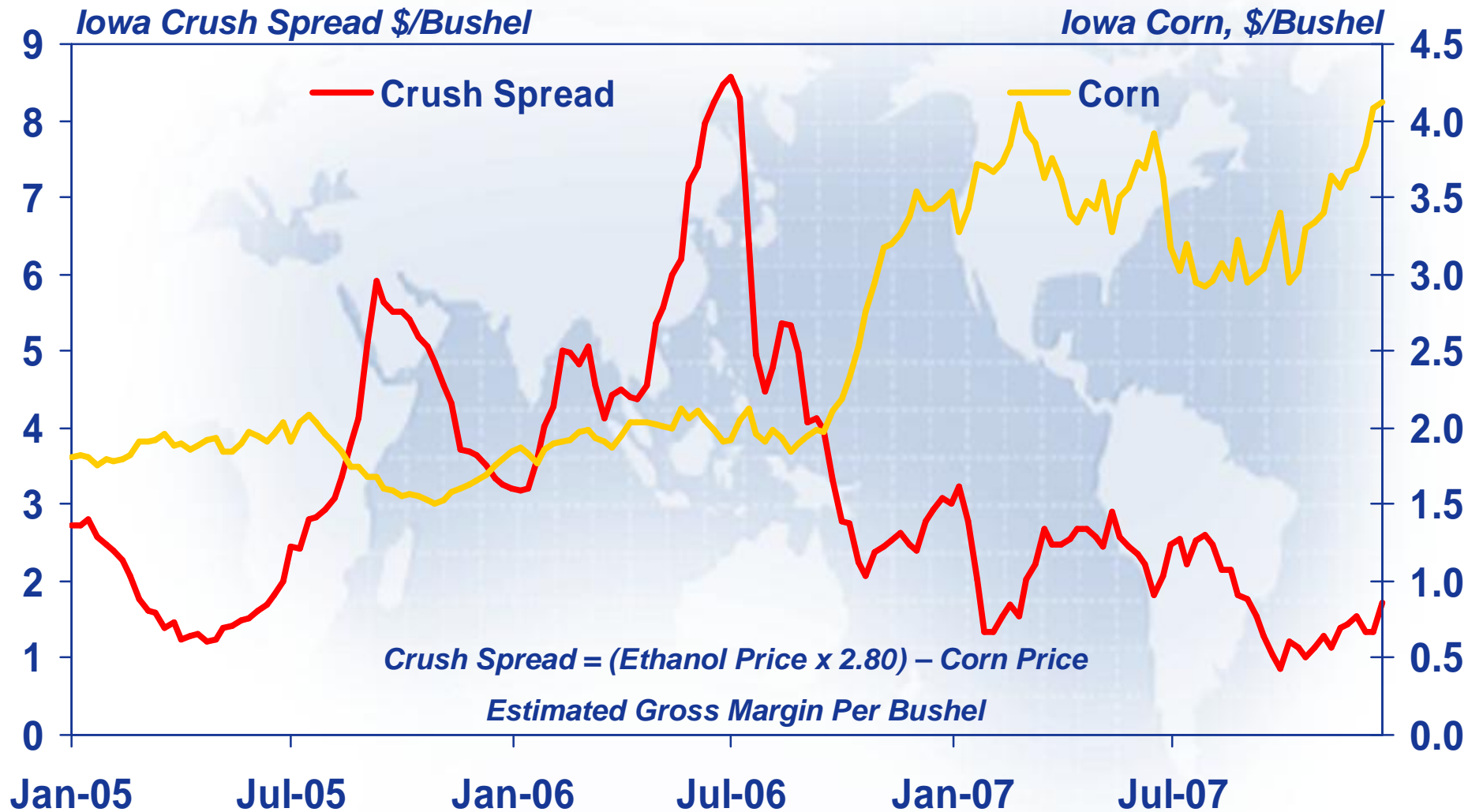


# Ethanol imports also are expected to increase to help meet the increased blending requirements . . .



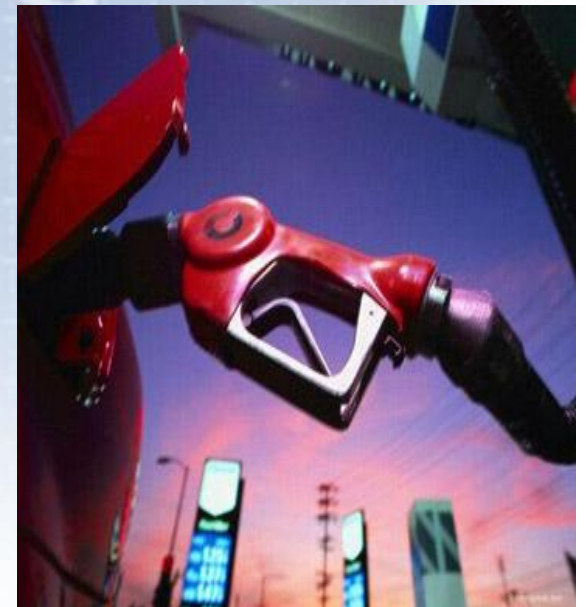
- ∅ Long-term ethanol production from corn will be limited . . .
  - § Corn prices will rise
  - § Food prices will rise
  - § Occasional drought conditions will cause ethanol plants to compete for corn inventories
- ∅ Increasing ethanol imports are needed to meet the 2007 Energy Act requirements
  - § Brazil is expected to be the primary import source
  - § Atlantic imports can readily access large U.S. coastal gasoline markets (PADD I)

# Rising corn prices reduced ethanol production margins from 2005 – 2006 highs in 2007 . . .

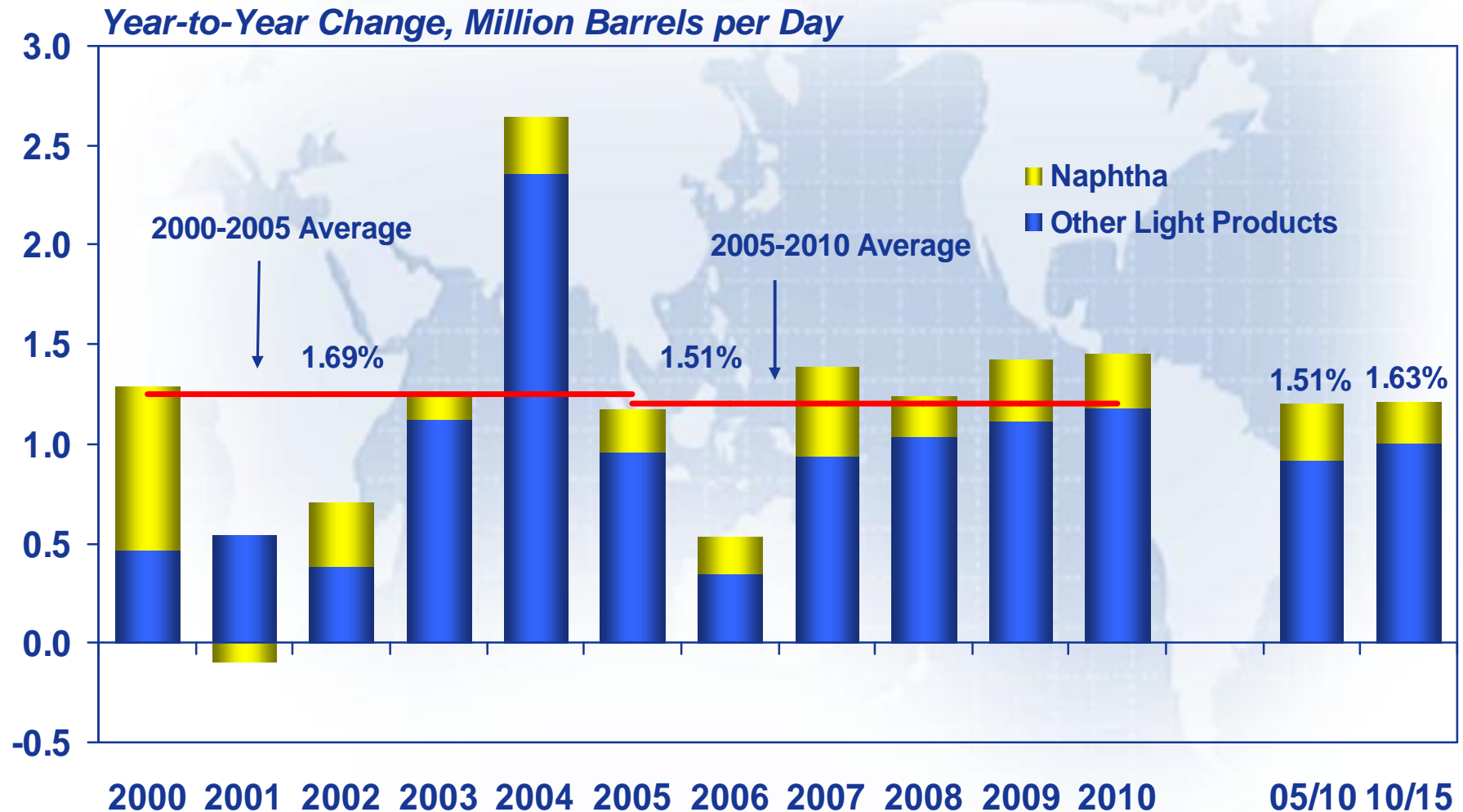


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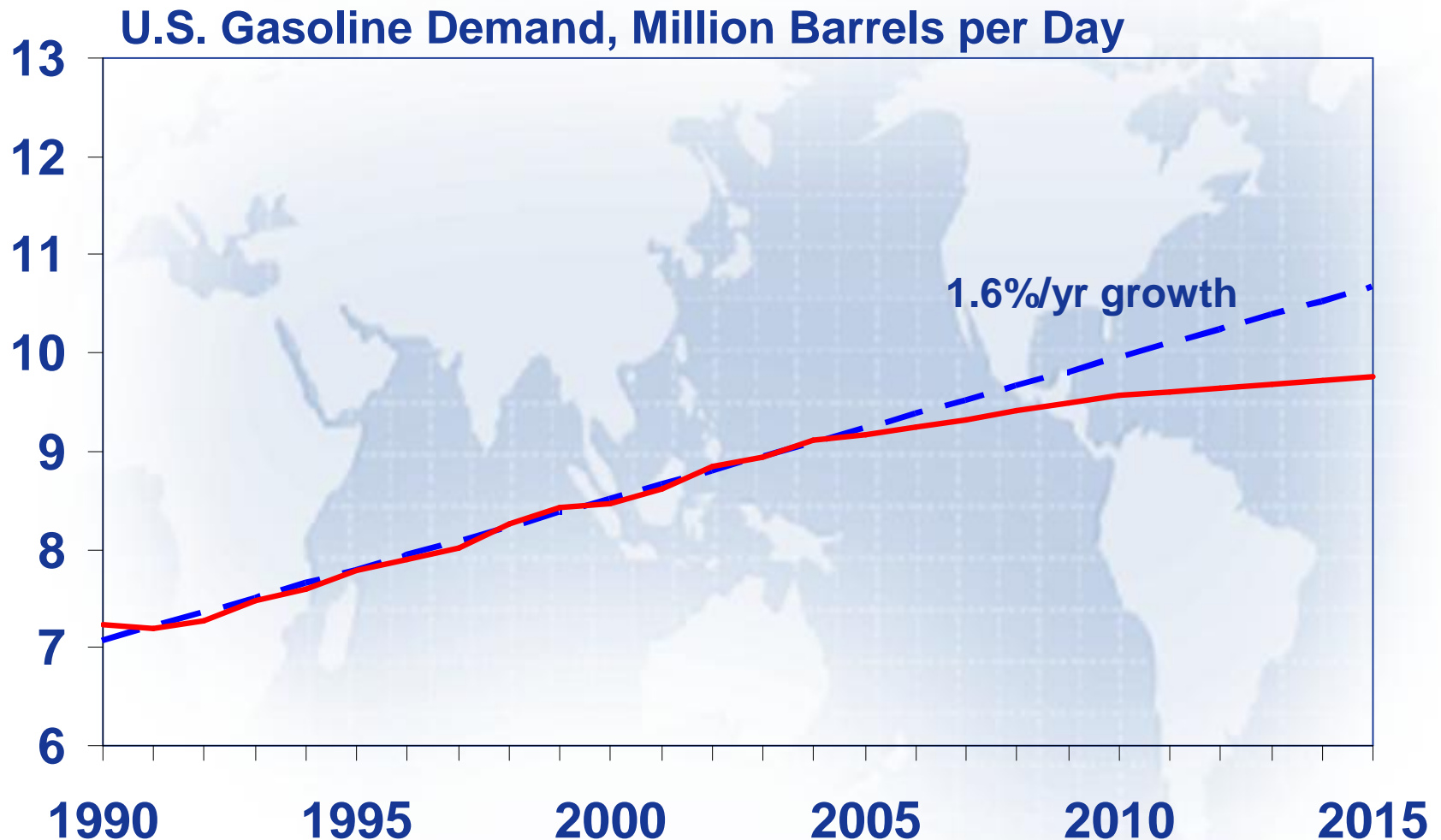
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# World Refined Product Demand Growth Outlook

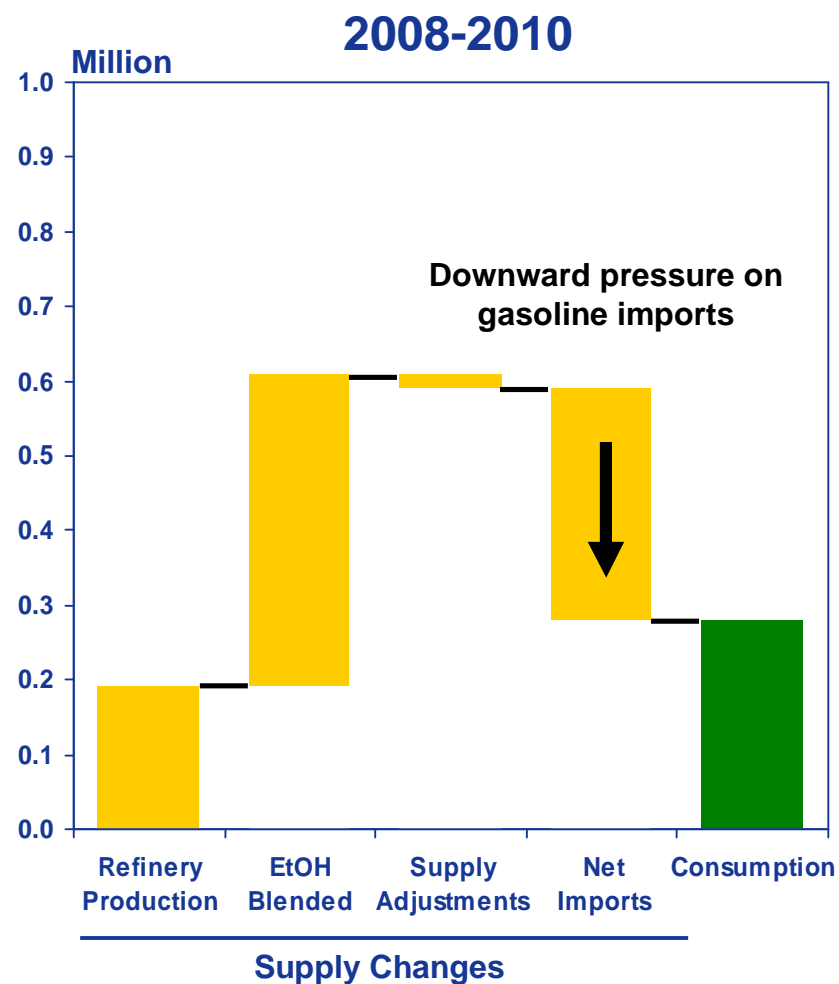
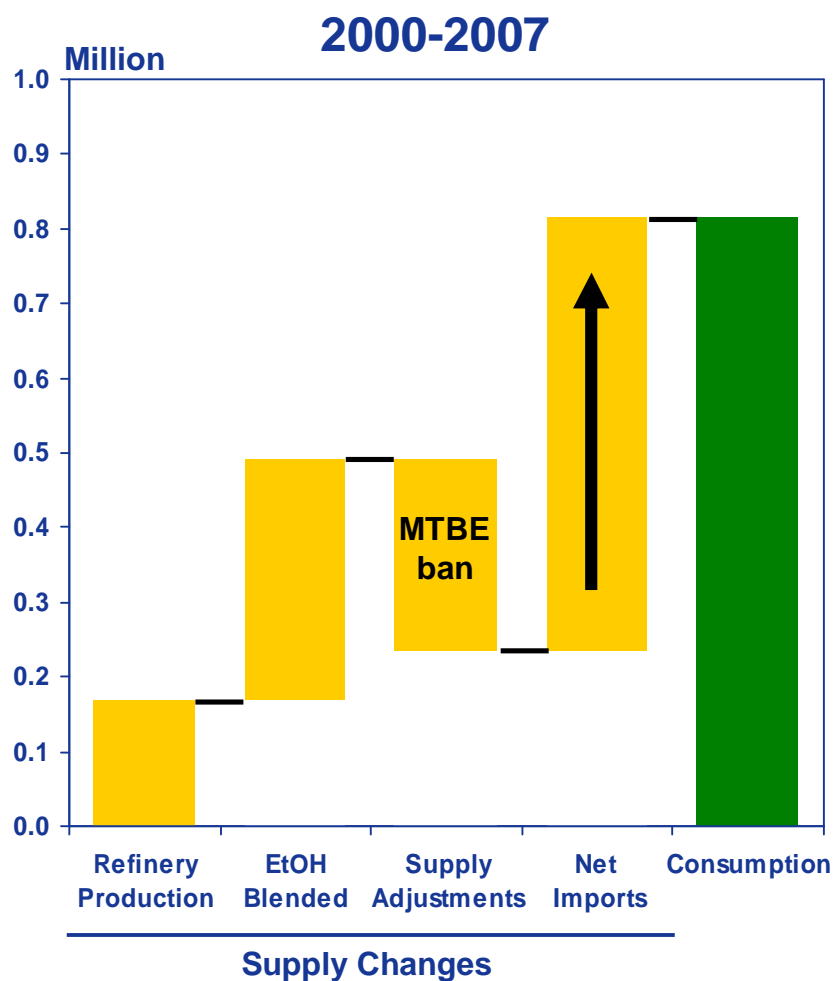


# U.S. gasoline demand growth began to slow noticeably in response to fuel price pressures . . .

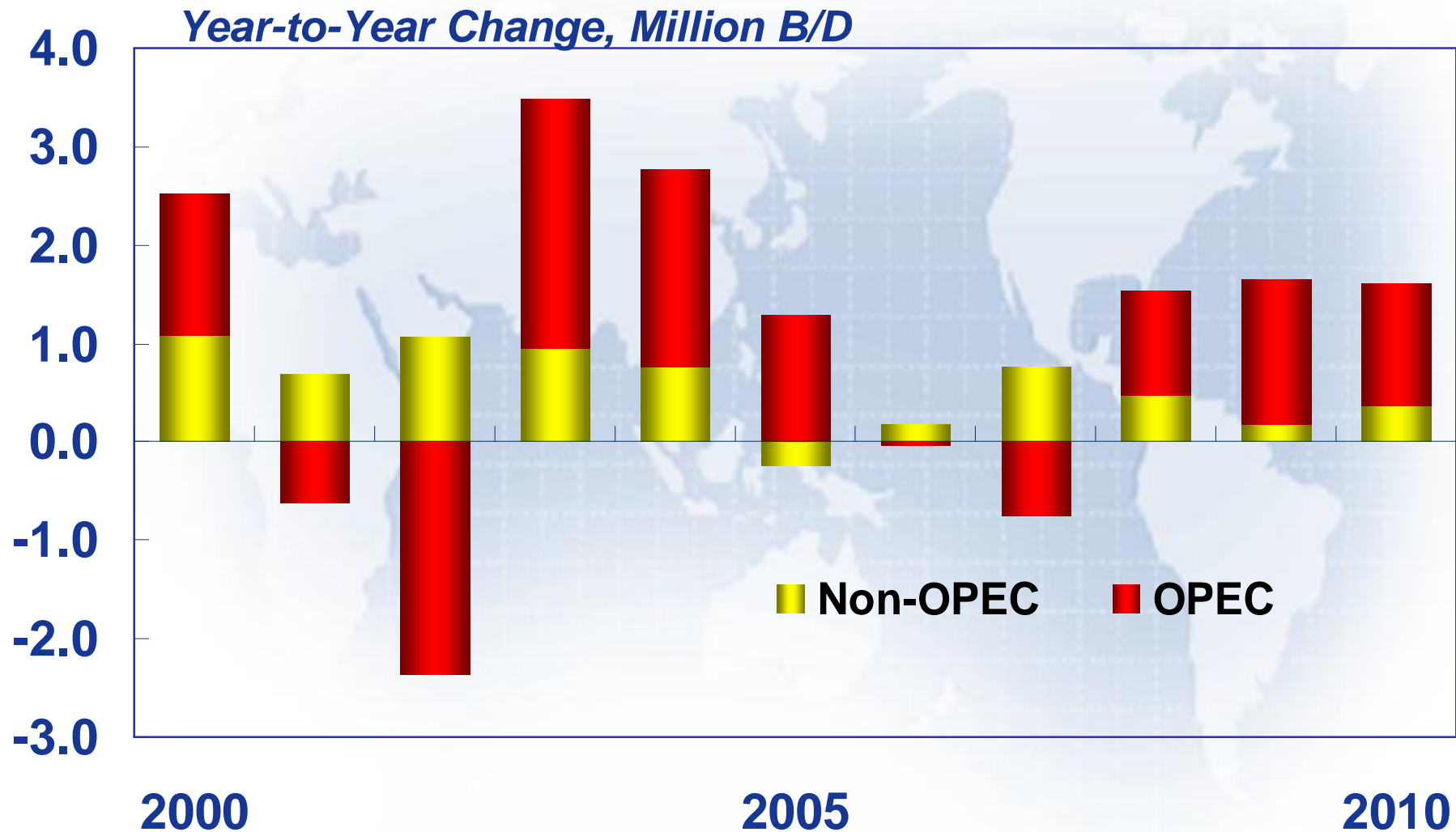


# Ethanol will be a significant contributor to future U.S. gasoline supply growth by 2010 . . .

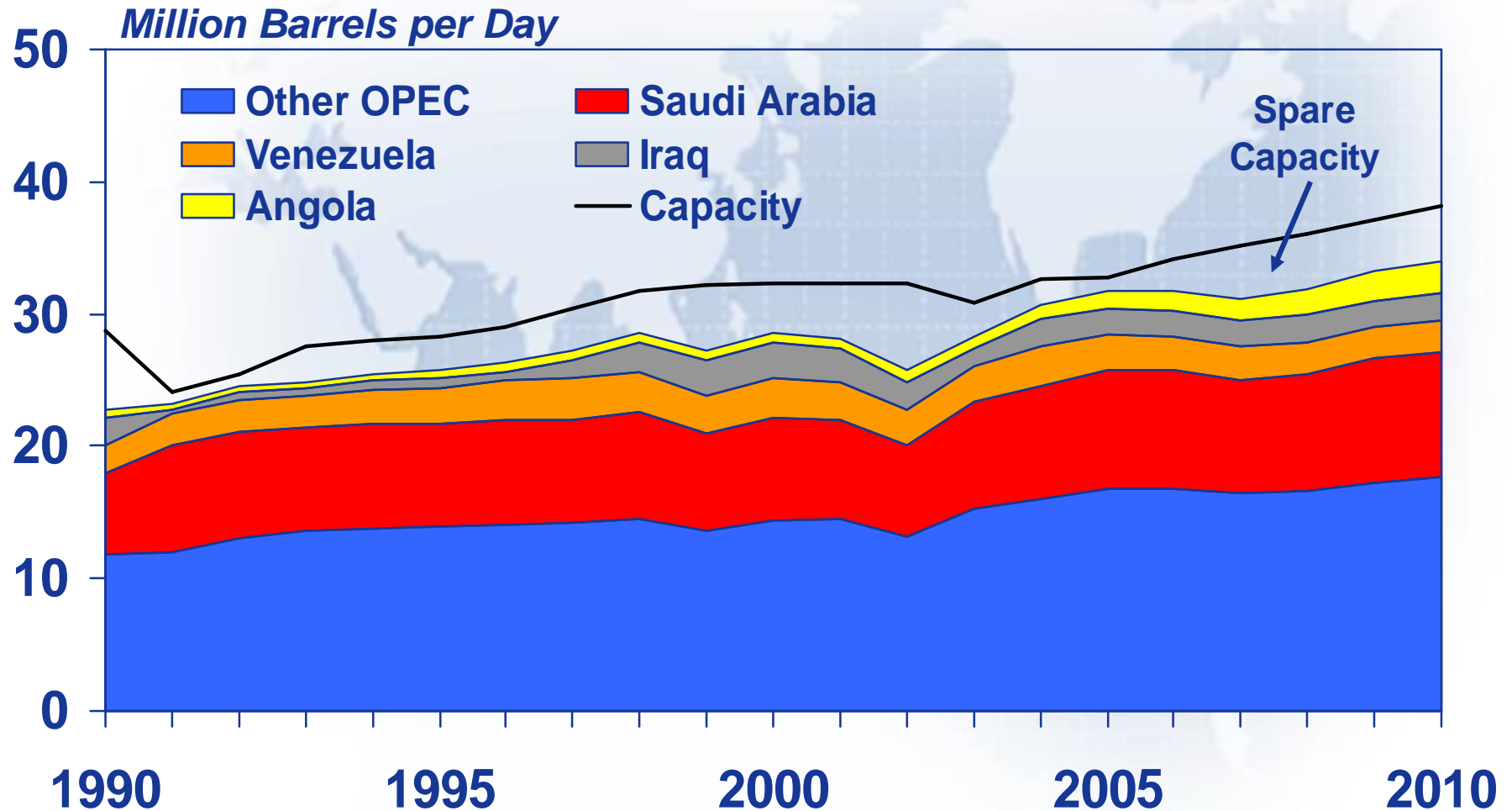
## U.S. Gasoline Supply and Demand Changes



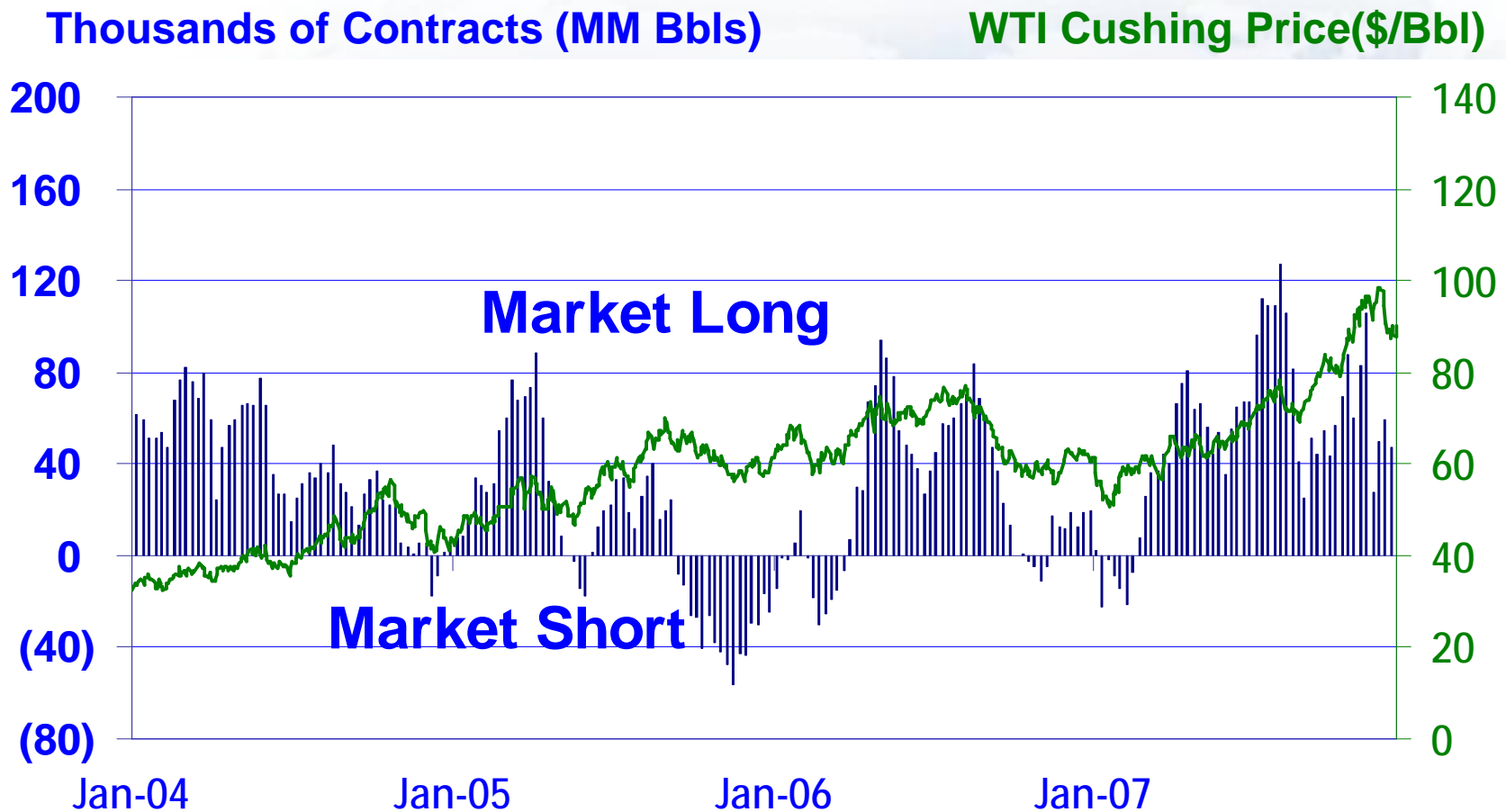
# Call on OPEC was very strong in 2003 – 2005 and will continue at higher levels near-term . . .



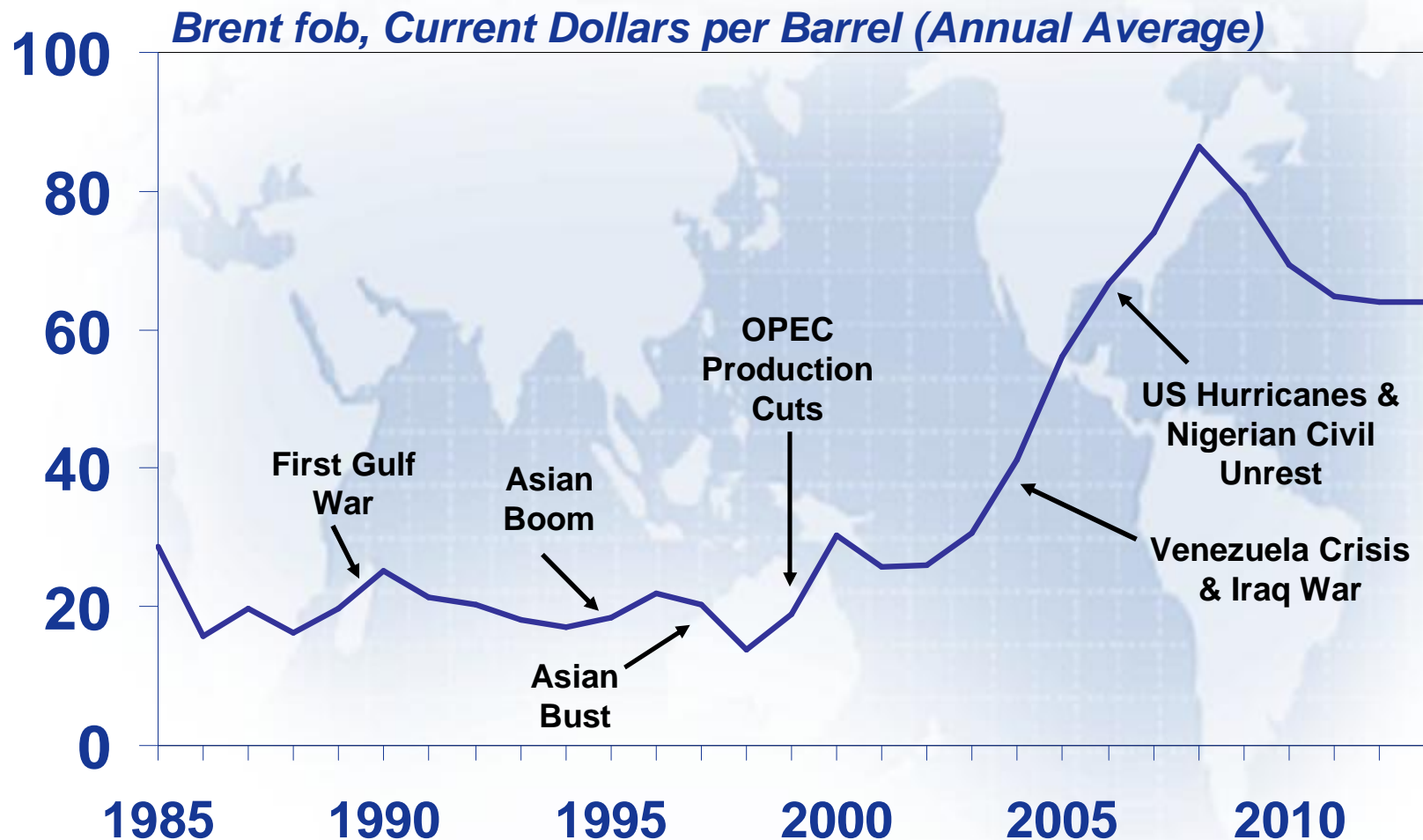
# OPEC spare capacity is increasing, but production and refining capacity remain tight ...



# A primary crude price driver is the level of investment by financial players in the market . . .

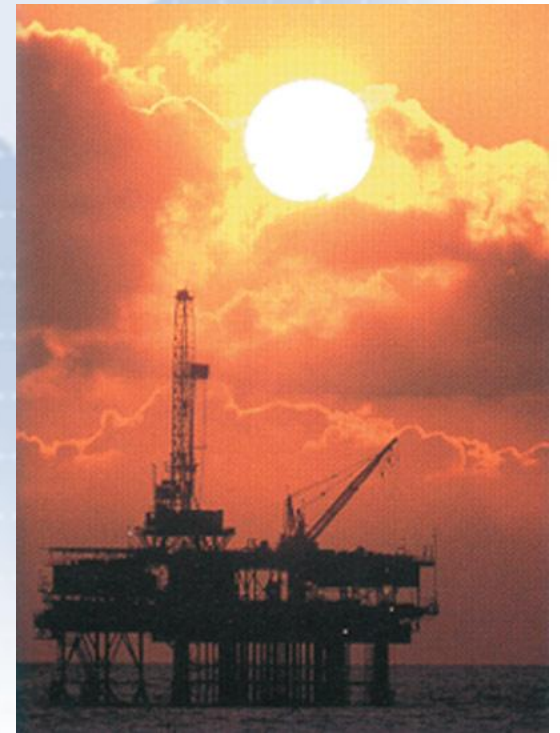


# Our outlook is for Brent prices to remain strong near-term with modest easing after 2009 . . .

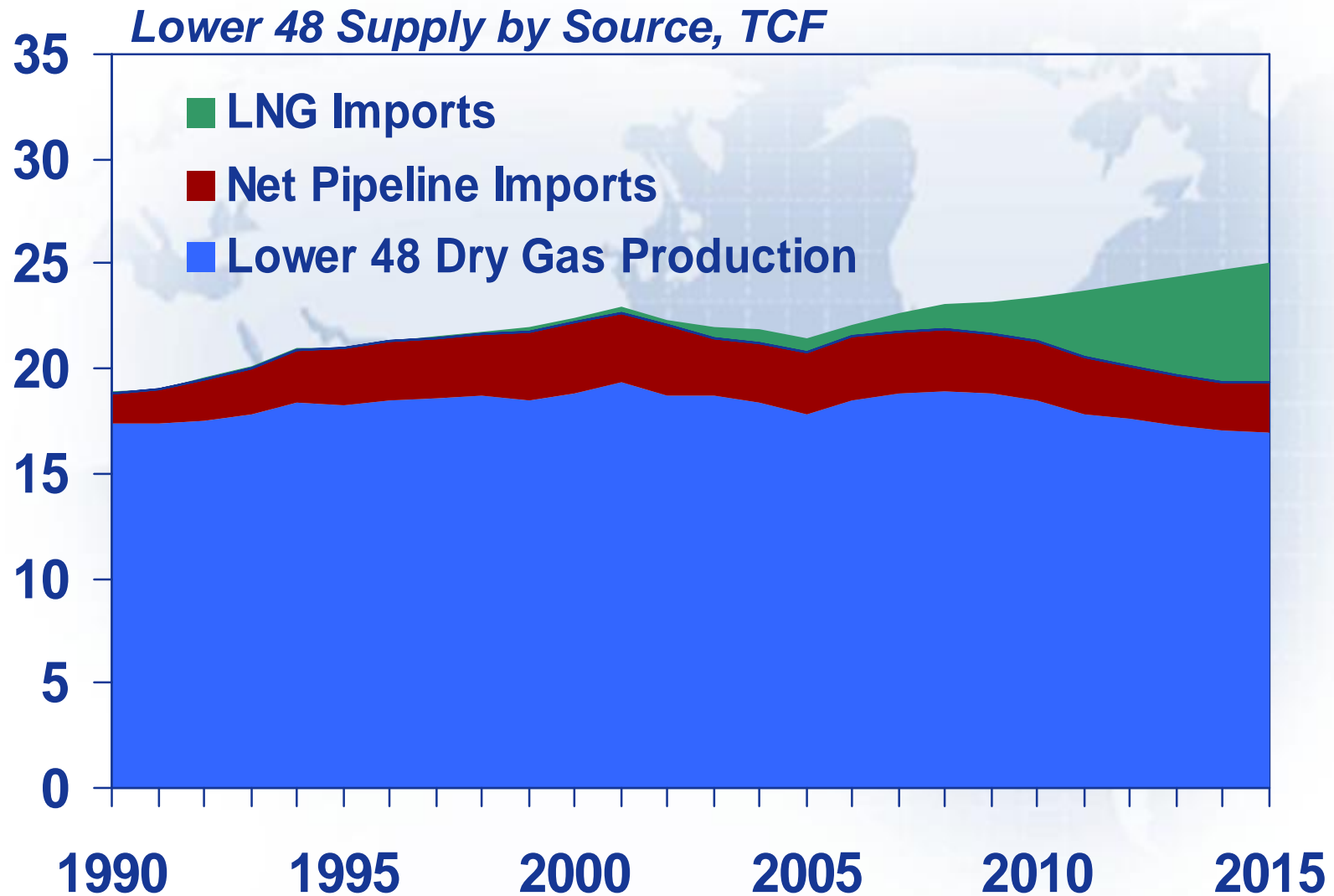


# Global Energy Market Outlook

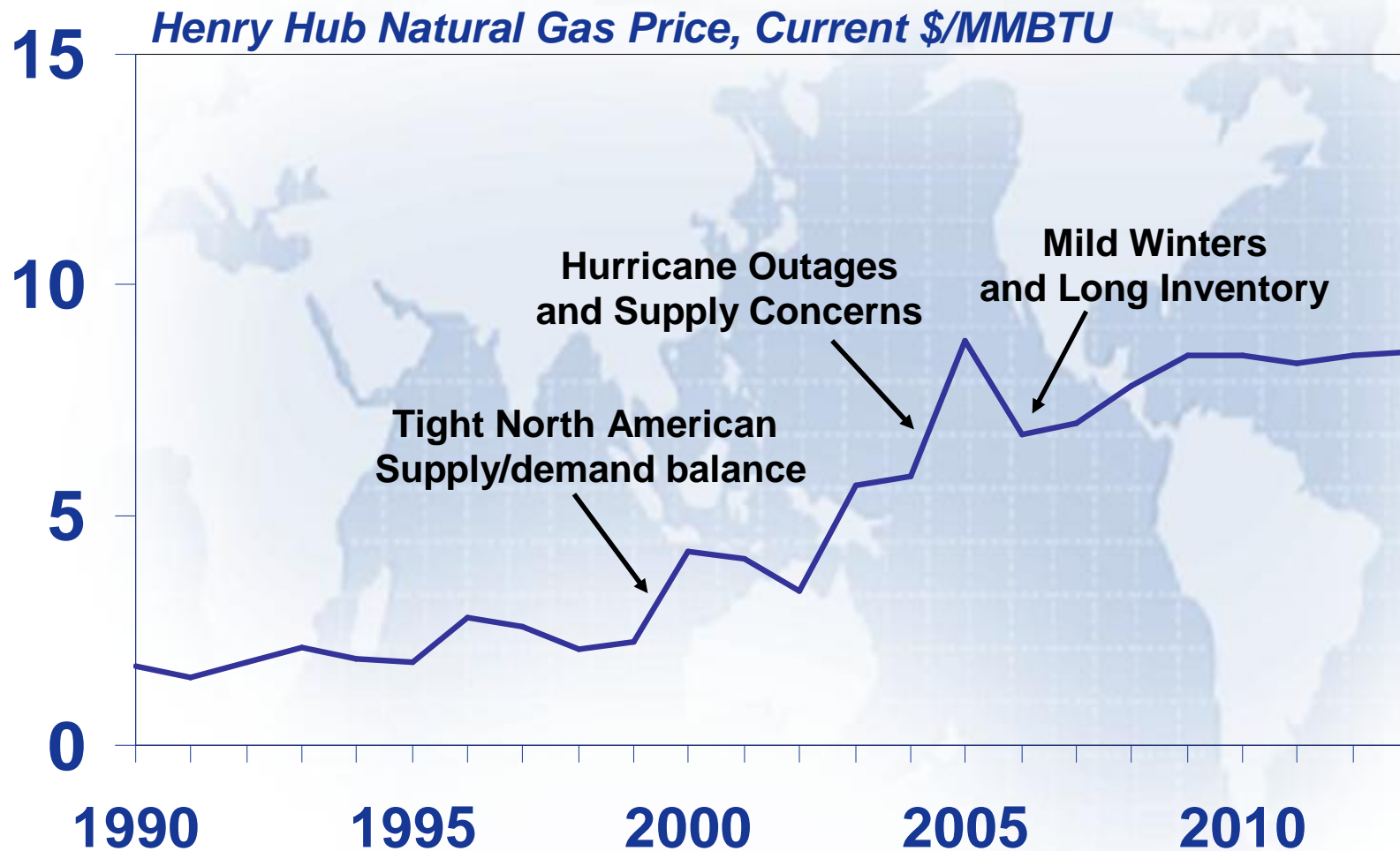
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# U.S. supply/demand balance continues to require a significant increase in LNG imports . . .



# Lower overall energy prices will be reflected in the outlook for natural gas prices . . .



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