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The World's Leading Independent Commodity and Financial Market Research Firm

Economic Growth in a High Oil Cost Environment

November 2012



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President and Chief Economist

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Full 2010 and 2011 Energy Forecast Accuracy Rankings from Bloomberg News

ICE Brent Crude

Rank	Name	Firm	Average Margin of Error
1	Jason Schenker	Prestige Economics LLC	8.84%
2	Gordon Kwan	Mirae Asset Securities Ltd.	8.93%
3	Hannes Loacker	Raiffeisen Bank International AG	8.94%
4	Christin Tuxen	Danske Bank A/S	8.95%
5	Michael Wittner	Societe Generale SA	8.99%

NYMEX Henry Hub

Rank	Name	Firm	Average Margin of Error
1	Francisco Blanch	Bank of America Corp.	8.69%
2	Samantha Dart	Goldman Sachs Group Inc.	13.99%
3	Jason Schenker	Prestige Economics LLC	15.20%
4	Adam Sieminski	Deutsche Bank AG	15.51%
5	Michael Zenker	Barclays Plc	16.19%

Introduction

The Demand Situation

The Supply Situation

Reconciling High Demand and the High Cost of Supply

Three Key Drivers of Oil Prices

- Supply
- Demand
- Pricing Mechanism
(The Dollar)

When we look back, we are likely to realize...

- The dollar was strong.
- Commodity prices were cheap.
- Rates were very low.
- U.S. taxes were low.
- We should have fixed entitlements when we had the chance.
- Emerging market growth and wealth were low.

Additional Upside Risk to Oil Prices: Prospects of a Weaker Dollar

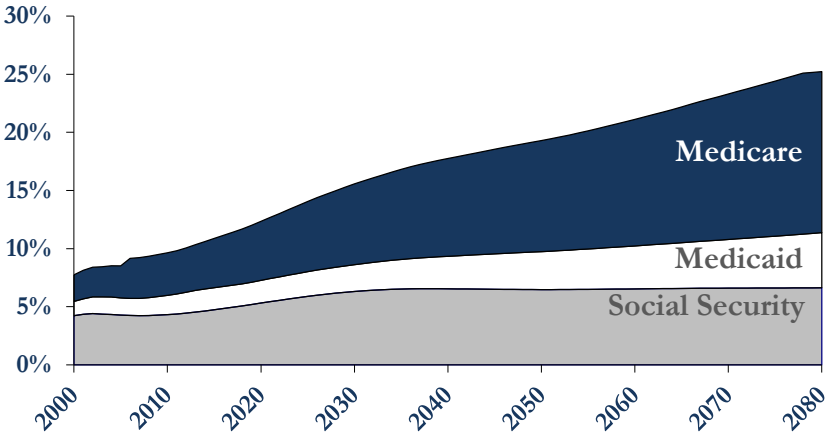
#1 Problem: Federal Debt (End of 2011)

	United States	Eurozone
Population	312 Million	330 Million
National Debt(s)	\$15.1 Trillion	\$10.7 Trillion
Nominal GDP	\$15.1 Trillion	\$13.1 Trillion
Debt to GDP	100%	82%
Debt per Capita	\$48,397	\$32,424

Important Implications

- Dollar likely to weaken in the medium and long term
- There are no other currencies that could be viable substitutes
- This poses the upside risks to crude oil prices

#2 Problem: Off-Balance Sheet Debt



Introduction

The Demand Situation

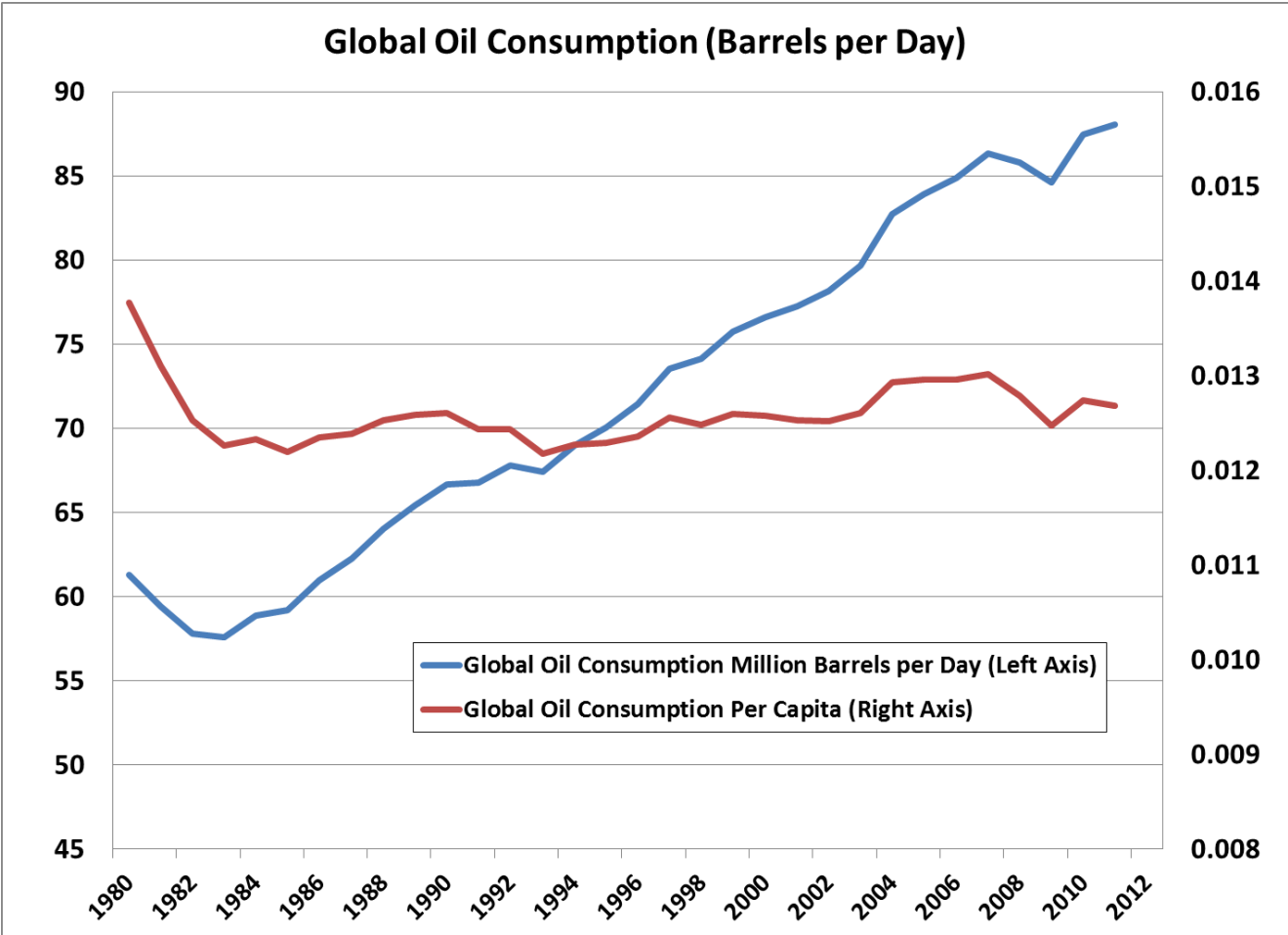
The Supply Situation

Reconciling High Demand and the High Cost of Supply

Key Driver: Making Room for Emerging Market Demand

- OECD demand is high, and is poised to fall.
- Emerging market demand is very low on a per capita basis, but poised to rise significantly.
- Transportation fuels are the most vulnerable to the demand surge.

Global Oil Consumption is Rising, But Per Capita Levels Have Remained Flatter



Global oil demand is poised to rise, but per capita demand is likely to remain relatively constant.

Long Term: Significant Upside Potential in Emerging Market Oil Demand

Per Capita Consumption

Country	Commodity	
	Oil	Power
	Barrels/Day	kWh
U.S.	0.062	12068
Germany	0.030	6660
Japan	0.035	6749
France	0.027	7042
U.K.	0.026	5556
China	0.007	3504
Brazil	0.013	2177
Mexico	0.018	1674
Russia	0.023	6043
India	0.003	507

As emerging markets grow, so will per capita consumption of oil and power.

U.S. per capita consumption of crude oil and petroleum products is poised to fall.

Efficiency needs for petroleum products are high.

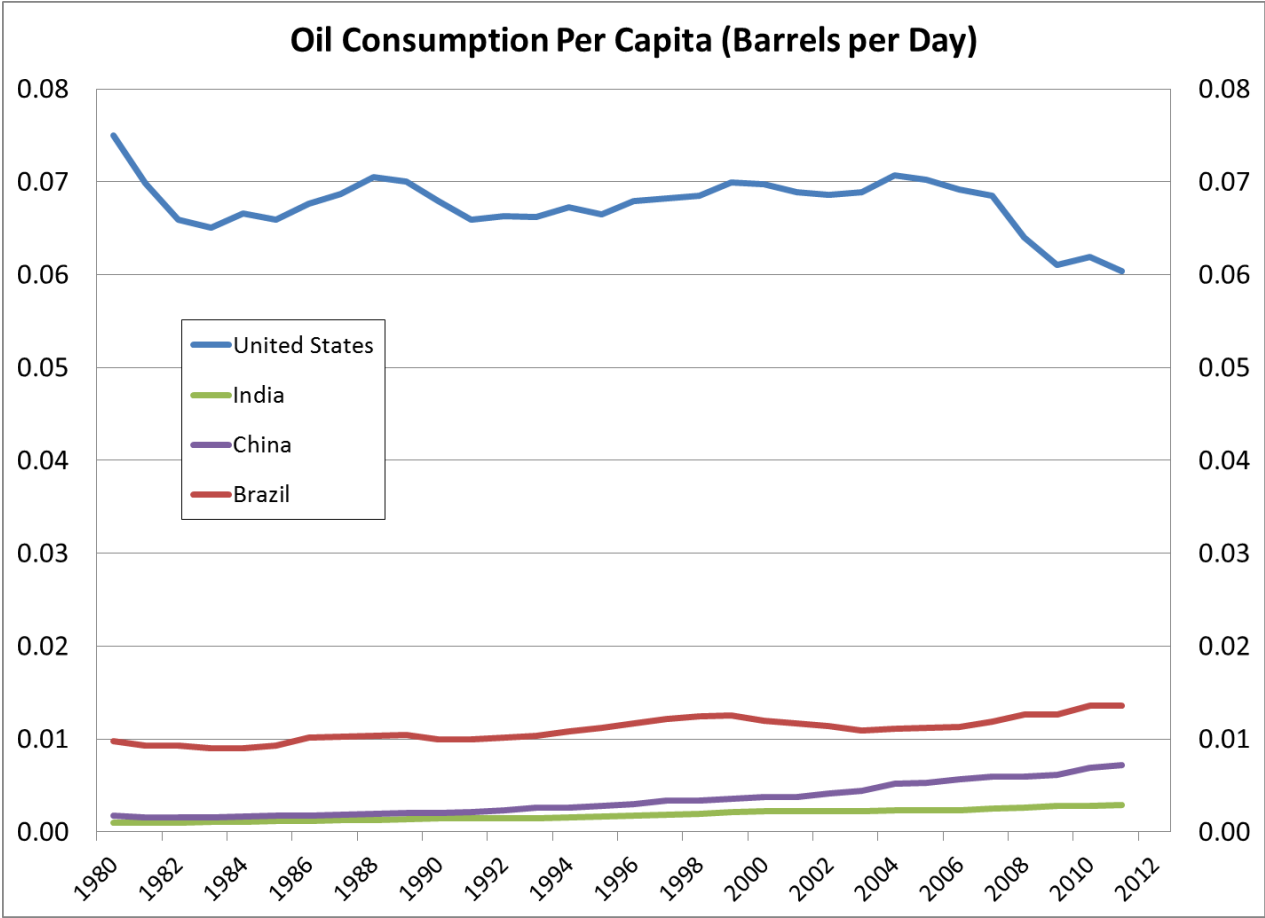
Power demand will require significant coal supplies.

IEA Global Fuels Demand Forecasts

Global Oil Demand	2010	2015	2015/2010 % Change
Millions of Barrels per day	88.02	94.24	7.1%

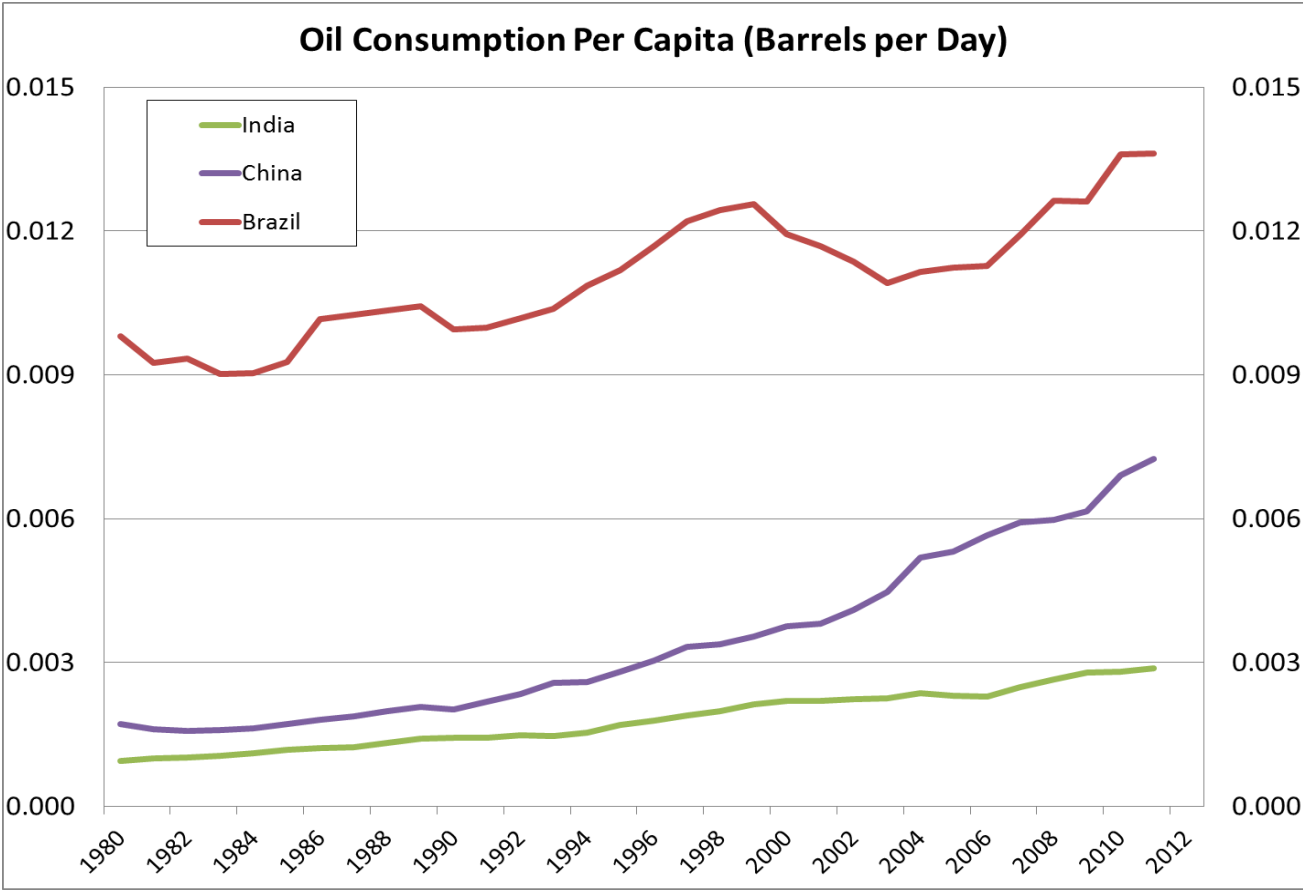
Sources: Prestige Economics, USGS, EIA, IEA, CIA, IMF

U.S. Per Capita Consumption is Significantly Greater than Emerging Market Levels



U.S. per capita consumption has fallen, and is poised to fall further.

Key Emerging Market Per Capita Demand Has Risen Significantly

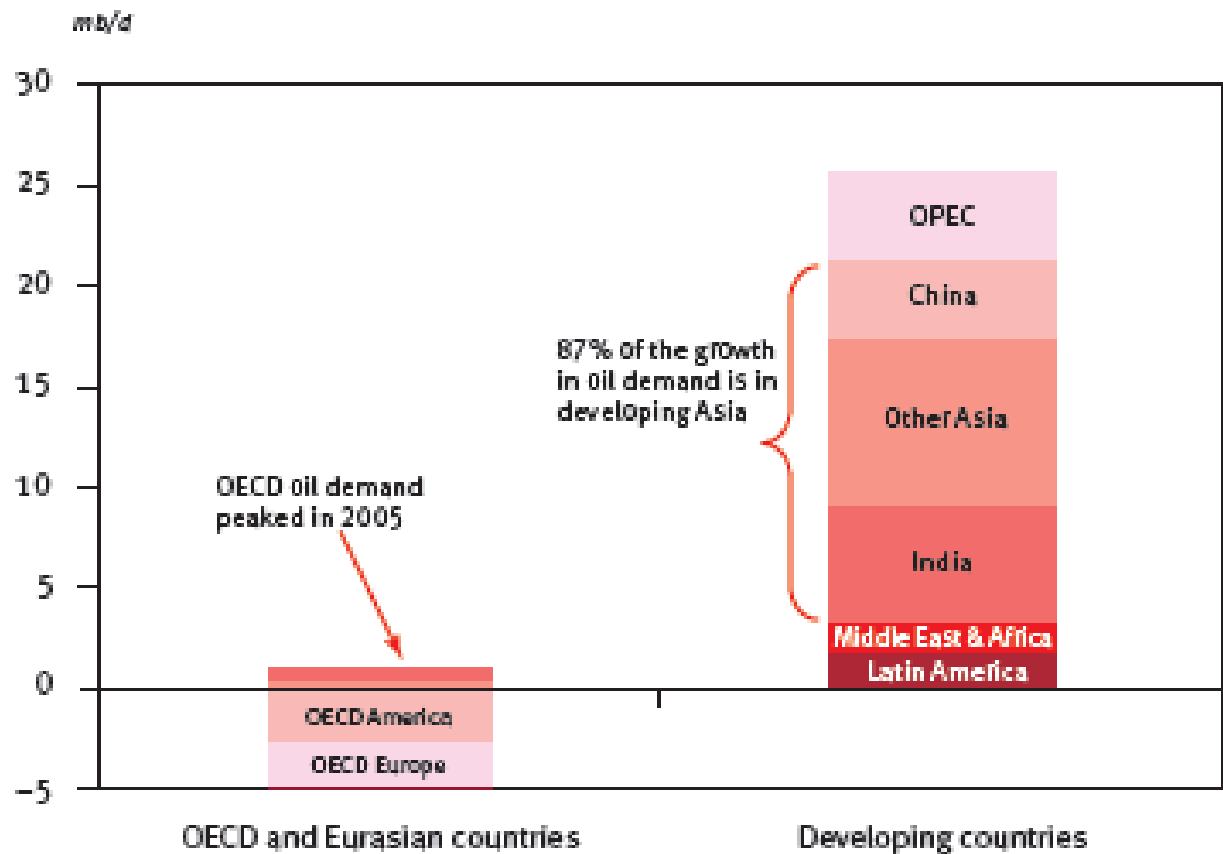


Emerging market per capita consumption is poised to rise further.

Global Oil Demand in Emerging Markets are Expected to Rise Significantly

From the 2012 Annual OPEC World Oil Outlook:

Growth in oil demand, 2010–2035

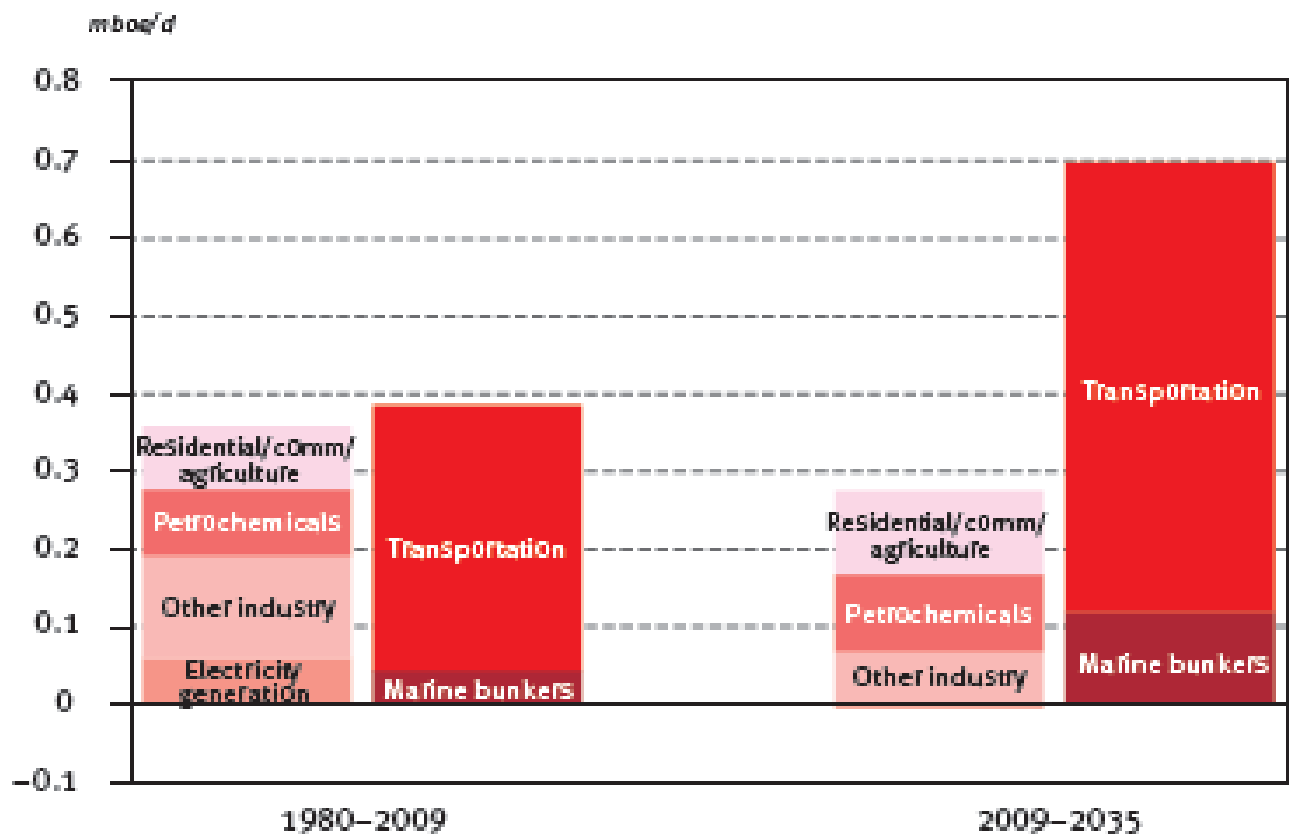


OECD oil demand is expected to decline through 2035.

Emerging Market Demand Growth is Heavily Weighted Toward Transportation Fuels

From the 2012 Annual OPEC World Oil Outlook:

Average annual global growth in oil demand in Developing countries



Transportation fuel demand growth is expected to surge in coming years.

Introduction

The Demand Situation

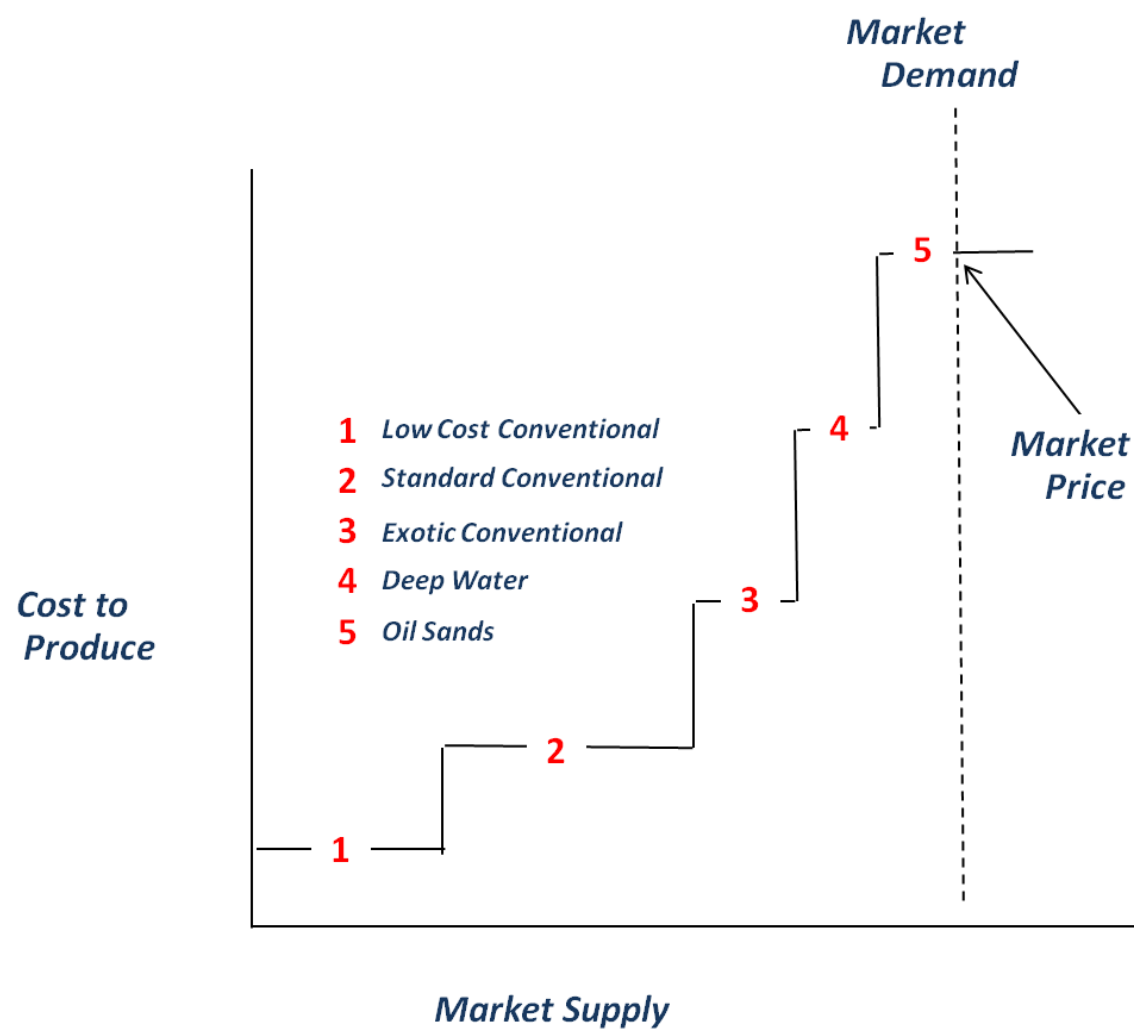
The Supply Situation

Reconciling High Demand and the High Cost of Supply

Key Dynamic: Costs and Supply on the Rise

- Higher costs to produce and operate.
- Increased production.
- Increased reserves.

Conceptual Cost Curve: As Market Demand Rises, Oil Extraction Costs Increase

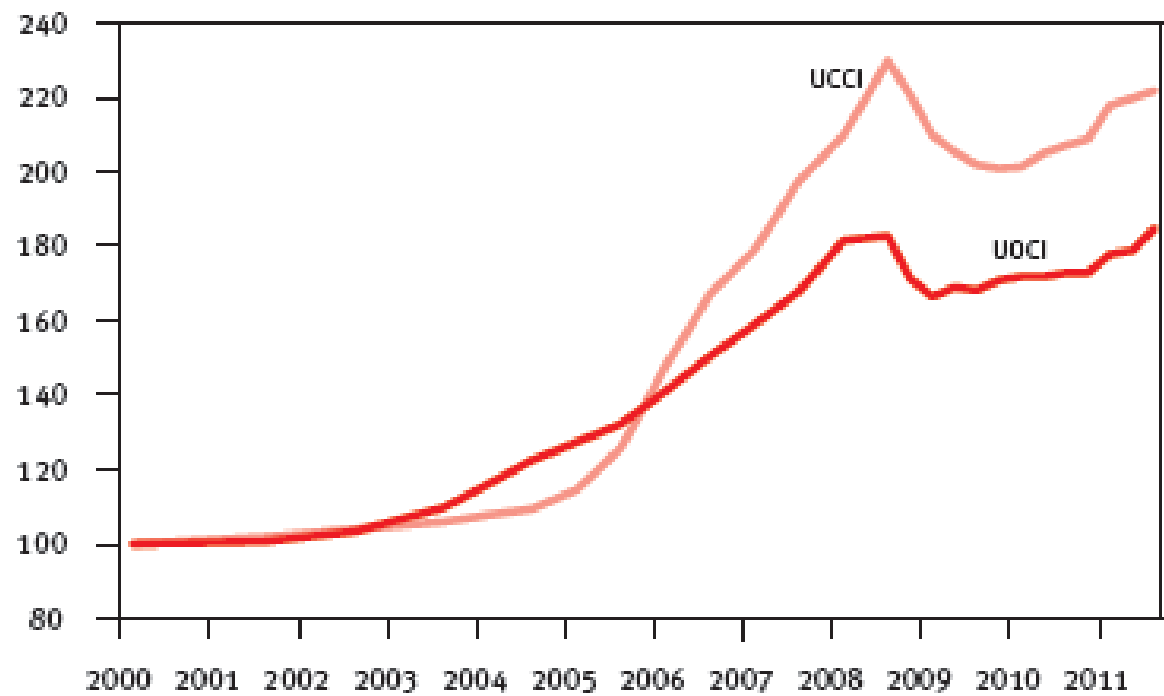


There is more oil, but not necessarily more cheap oil.

Upstream Capital and Operating Costs Have Risen Sharply

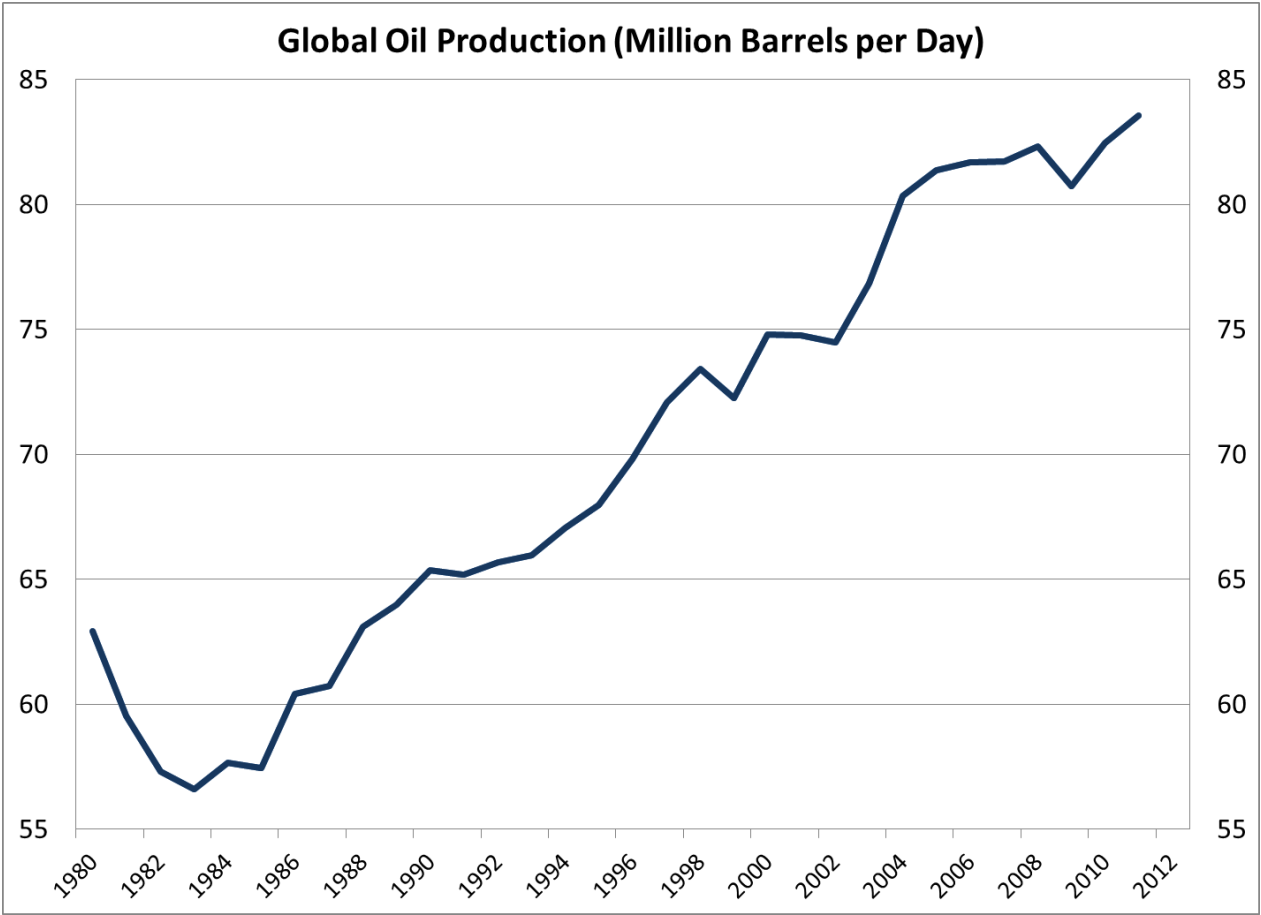
From the 2012 Annual OPEC World Oil Outlook:

IHS CERA upstream capital and operating cost indices (UCCI and UOCI), 2000=100



Upstream capital costs have more than doubled since 2000, while operating costs are up 80 percent.

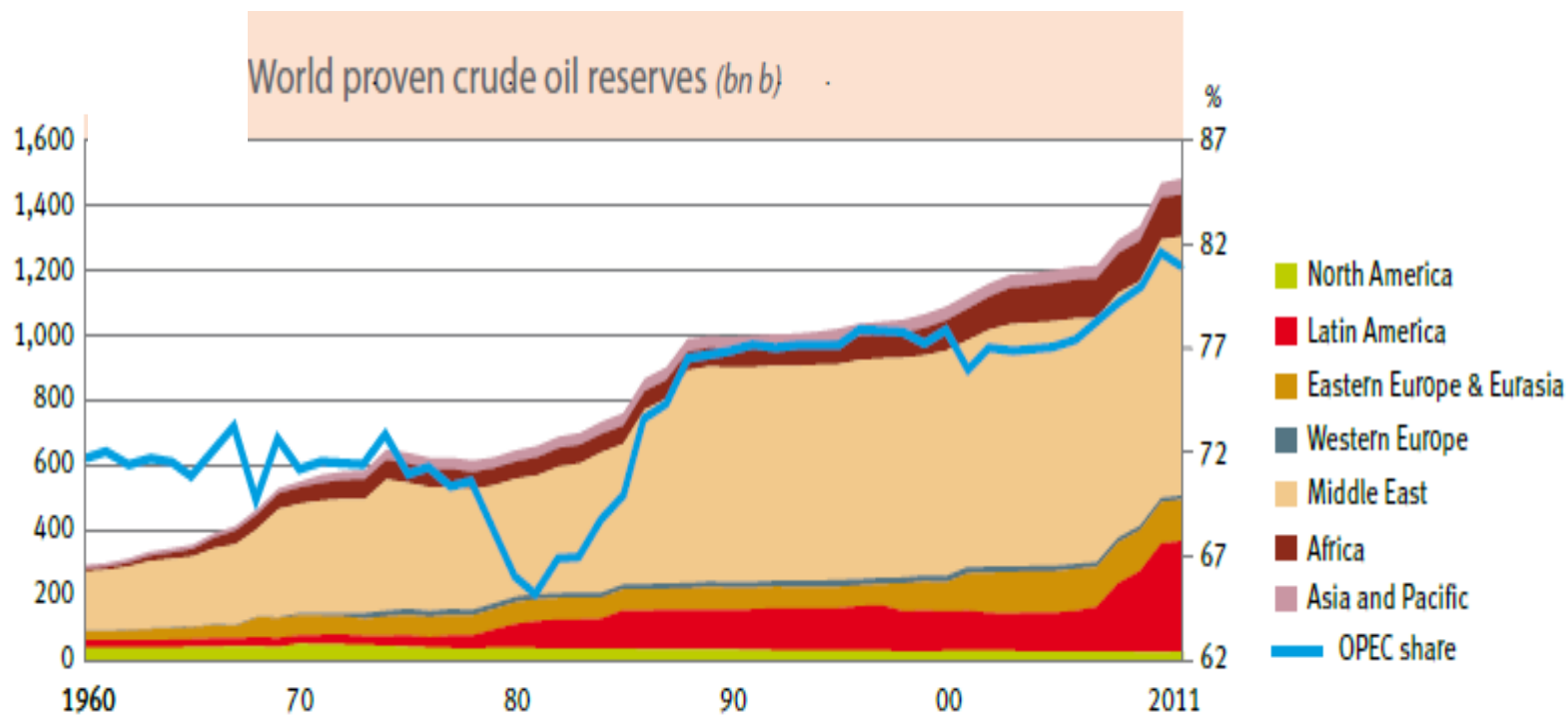
Nevertheless, Production Has Risen Sharply as Well



Global oil production is poised to rise further to meet demand.

At the Same Time, Proven Crude Oil Reserves Continue to Rise Year After Year

From the 2012 Annual OPEC World Oil Outlook:



Reserves and Supply from the United States are also set to rise.

Introduction

The Demand Situation

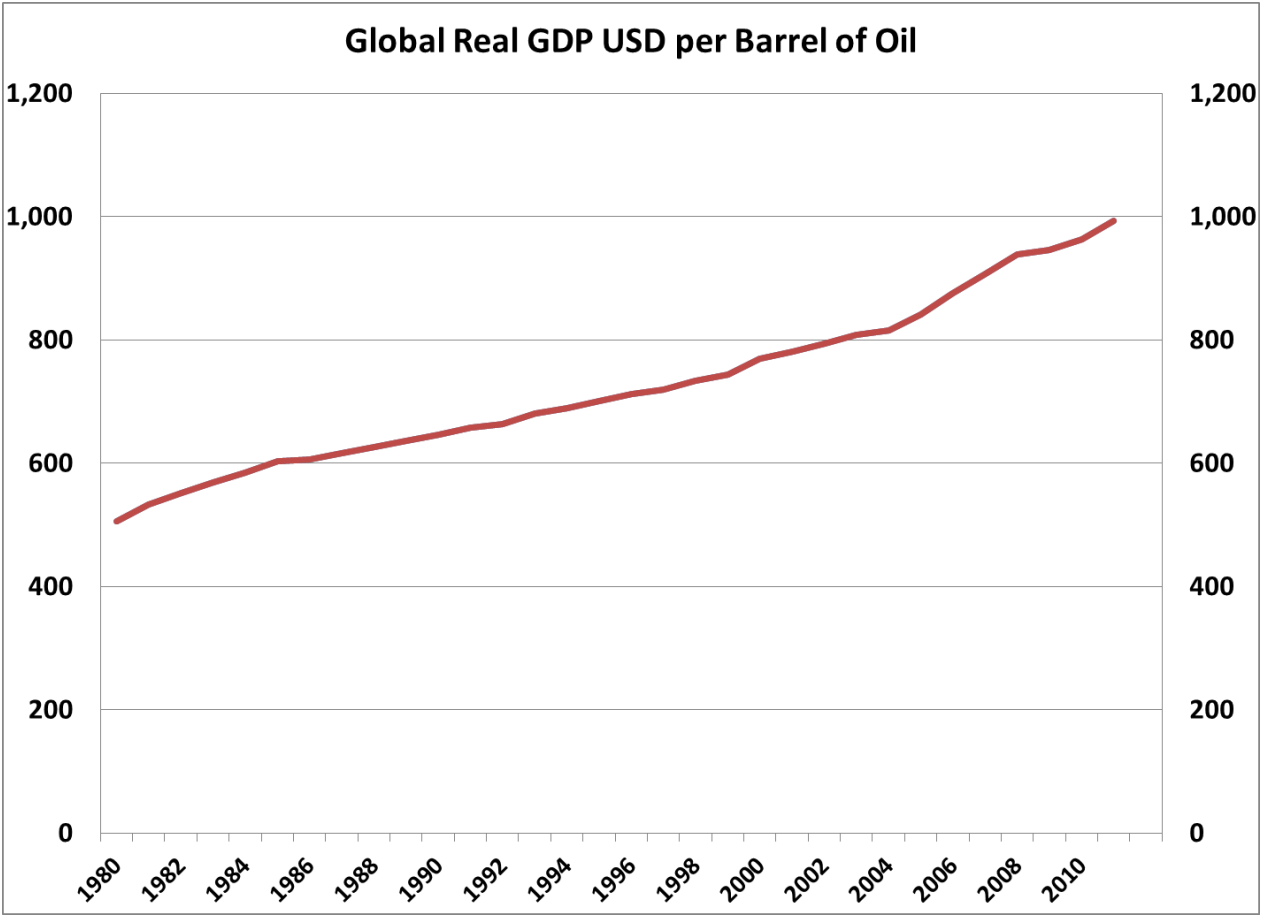
The Supply Situation

Reconciling High Demand and the High Cost of Supply

Key Opportunities: Efficiency and Substitution

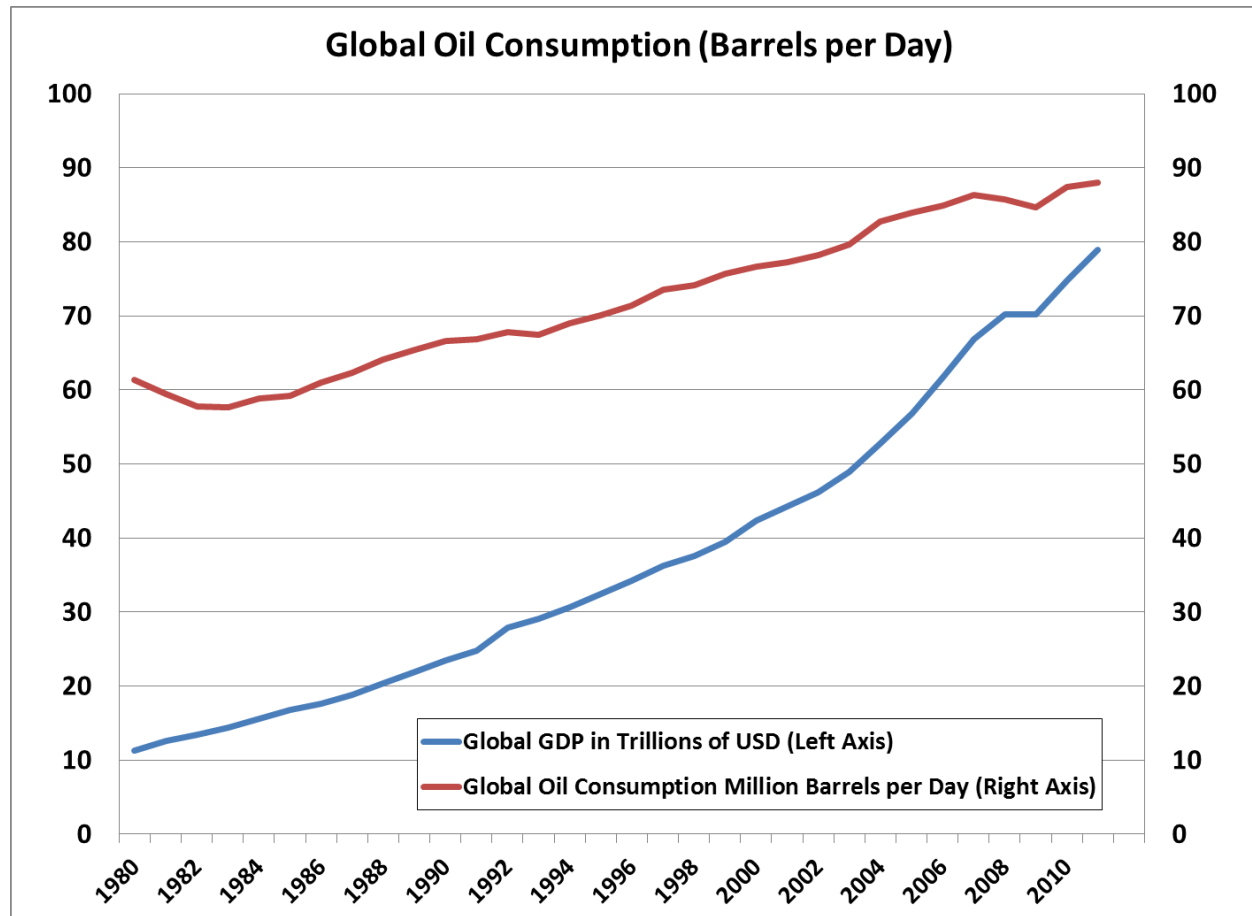
- Real economic impact of crude oil has risen significantly.
- Per capita demand for crude oil has remained relatively flat.
- The energy mix is poised to change, with the demand for other energy forms rising.
- Consumption habits are poised to change from other secular factors.
- Oil is still cheap for the value.

Global Real GDP Generated per Barrel of Oil Has Increased



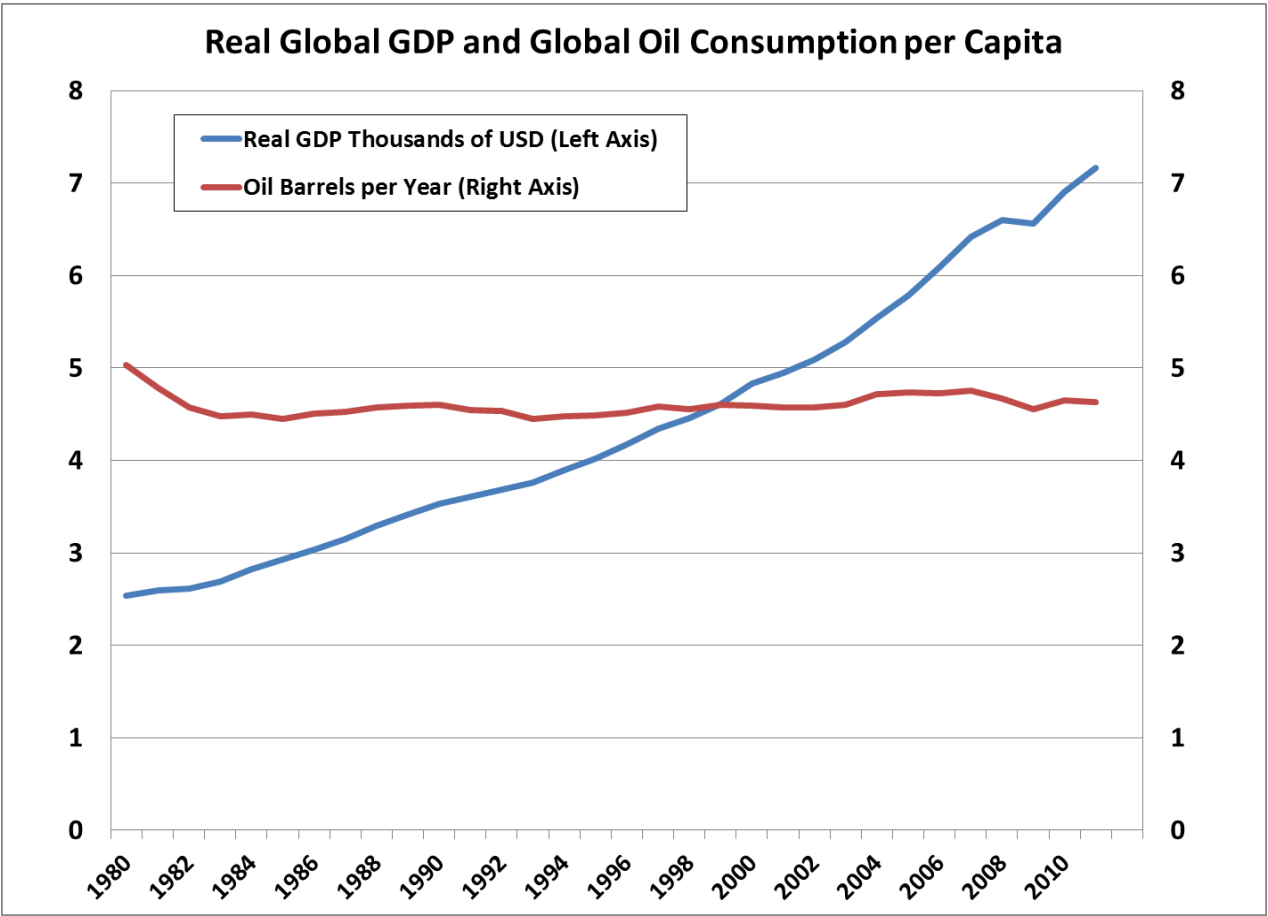
Since 1980, the amount of real GDP growth per barrel of oil has doubled.

The Rate of Real GDP Growth Has Greatly Outpaced Global Oil Consumption



Since 1980, Real Global GDP is up almost 200 percent, while oil consumption is up less than 50 percent.

Global Per Capita Real GDP Has Risen Sharply, While Oil Demand Has Been Flat

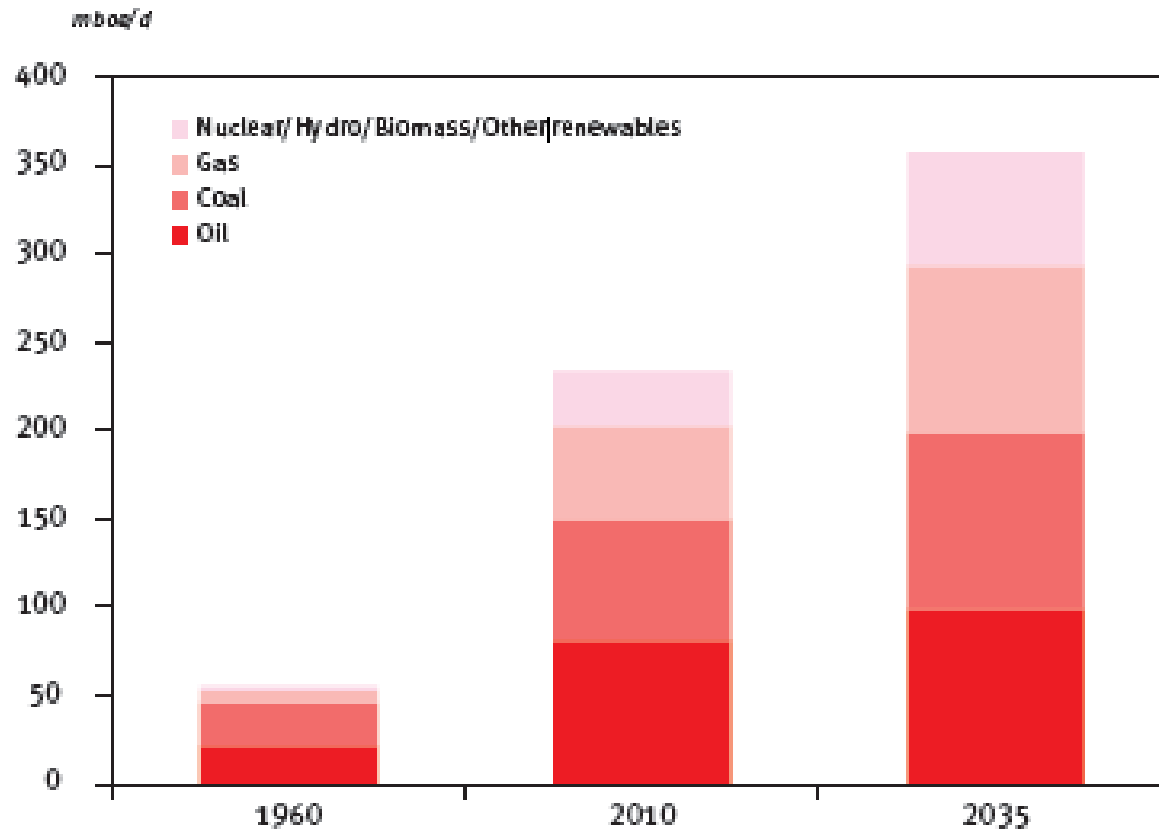


Since 1980, per capita GDP is up almost 200 percent, while per capita oil demand has been relatively unchanged.

The Energy Mix is Going to Change Drastically Over the Next 20 Years

From the 2012 Annual OPEC World Oil Outlook:

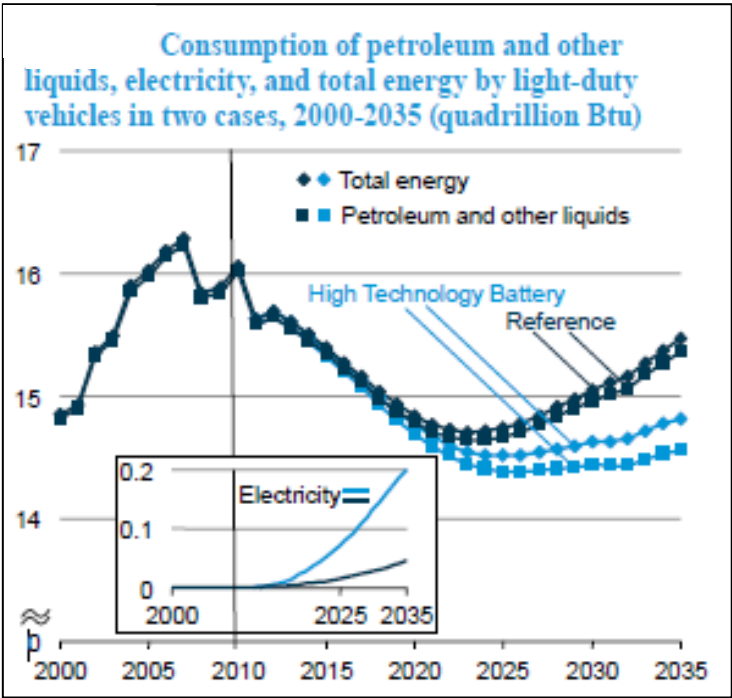
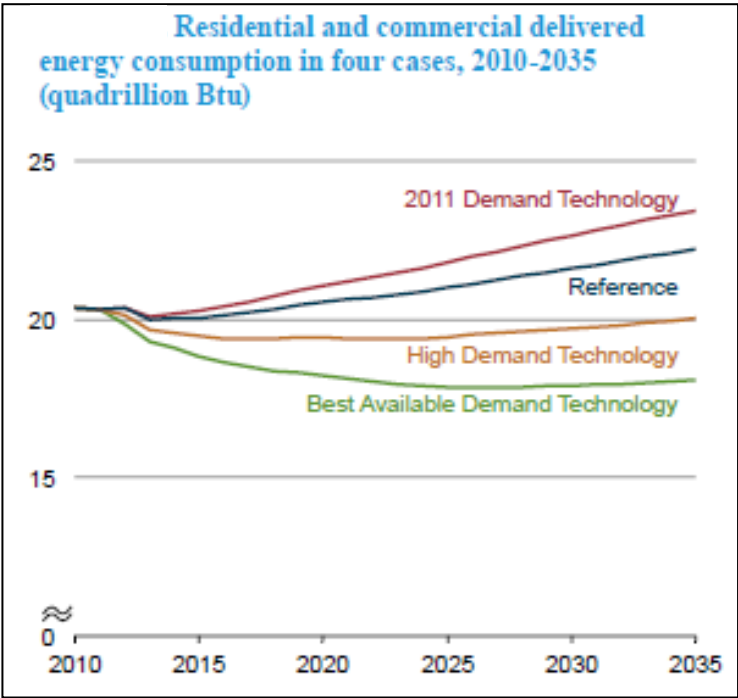
World supply of primary energy by fuel type



The amount of additional oil used, however, will increase more modestly than other energy types.

New Technologies Would Improve Energy Efficiency

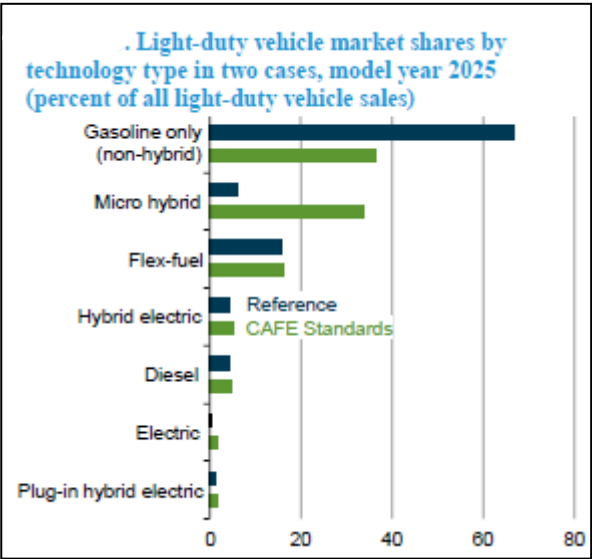
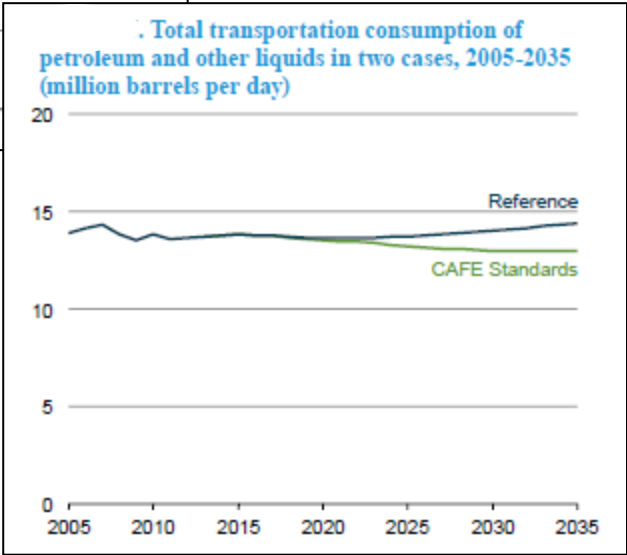
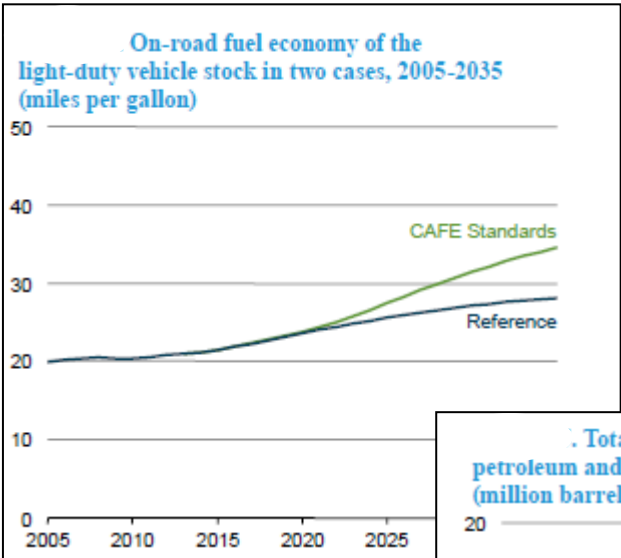
From the 2012 Annual EIA Outlook:



High Technology is assumed to have the most significant impact for transportation fuels beginning in about 10 years.

Higher CAFE Standards Would Engender a Demand Response

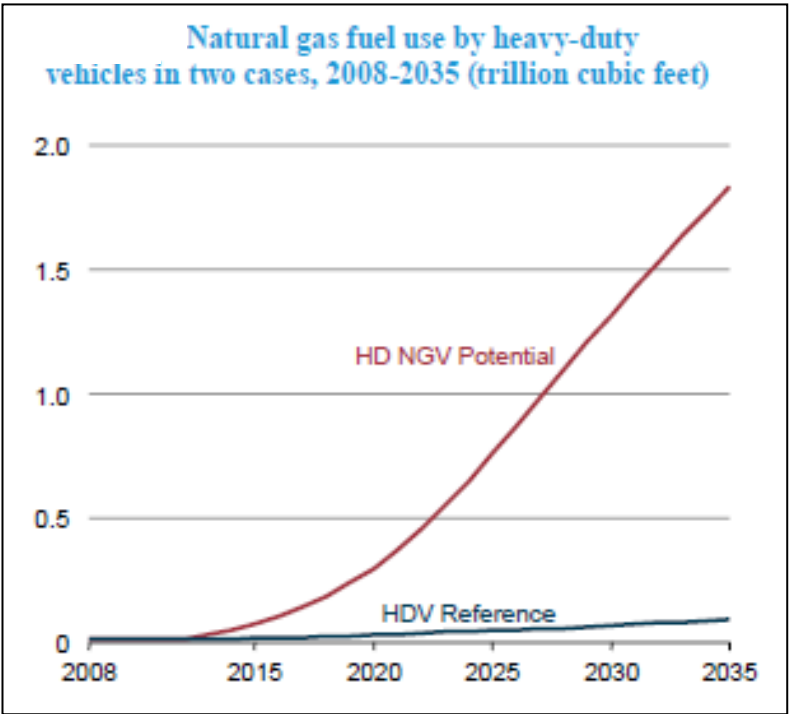
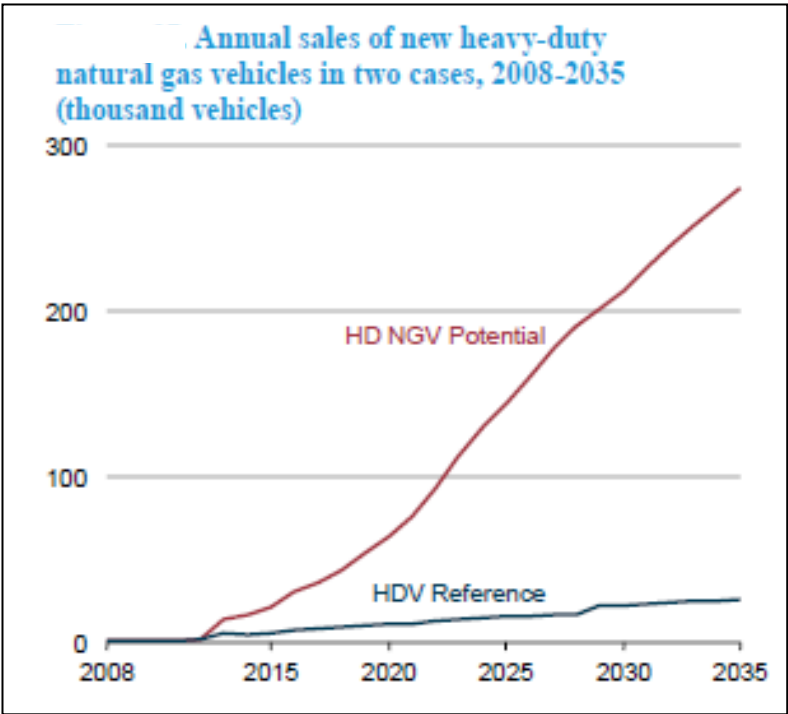
From the 2012 Annual EIA Outlook:



Higher CAFE standards would require raise miles per gallon, thus lowering consumption of fuels and increasing demand for unconventional transport.

Natural Gas Heavy Duty Vehicle Potential is High, But Expectations are Low

From the 2012 Annual EIA Outlook:



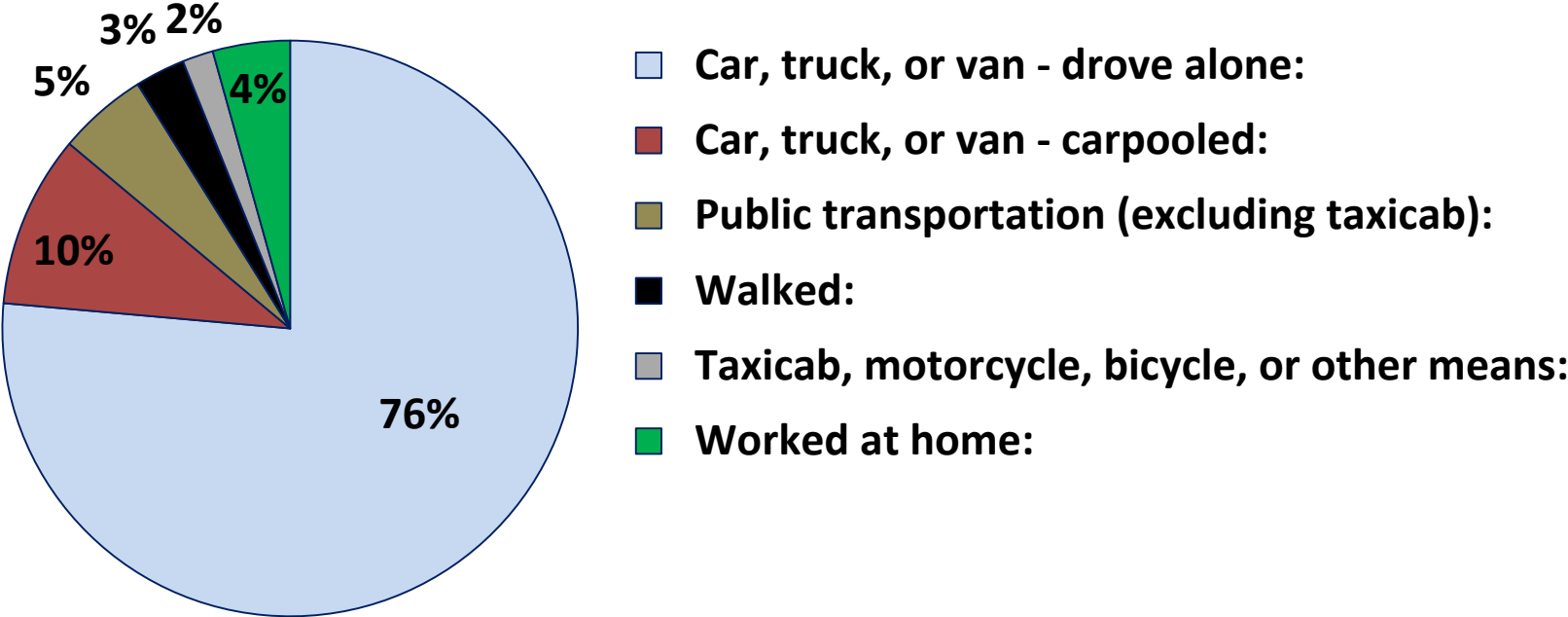
Although current expectations are low, high diesel prices could incentivize some change over time.

Source: Prestige Economics, LLC , EIA

Major Change: The Future Energy Usage of Americans Going to Work

The Size of the Market

*50 million Americans that want to telecommute have compatible jobs.
In 2011, about 5 million telecommuted.*



*More than one-third of U.S. workers could be telecommuters.
Online advanced education and teleschooling are also going to increase significantly.*

Source: BLS, American Community Survey, Telework Research Network, Prestige Economics, LLC

Telecommuting: The Future of Energy Savings

From a Report by the Telework Network:

The Energy Opportunity

“The energy saved annually from telecommuting could exceed the output of all renewable energy sources combined.”

The Barrier: Easier to Overcome than Energy Technology

“Biggest barrier to telecommuting: management fear and mistrust.”

Source: Telework Research Network, Prestige Economics, LLC

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