

# **Energy and Competitiveness\***

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# Energy and Competitiveness

Quality  
Flexibility  
Relationship  
Innovation

*Information = Advantage*

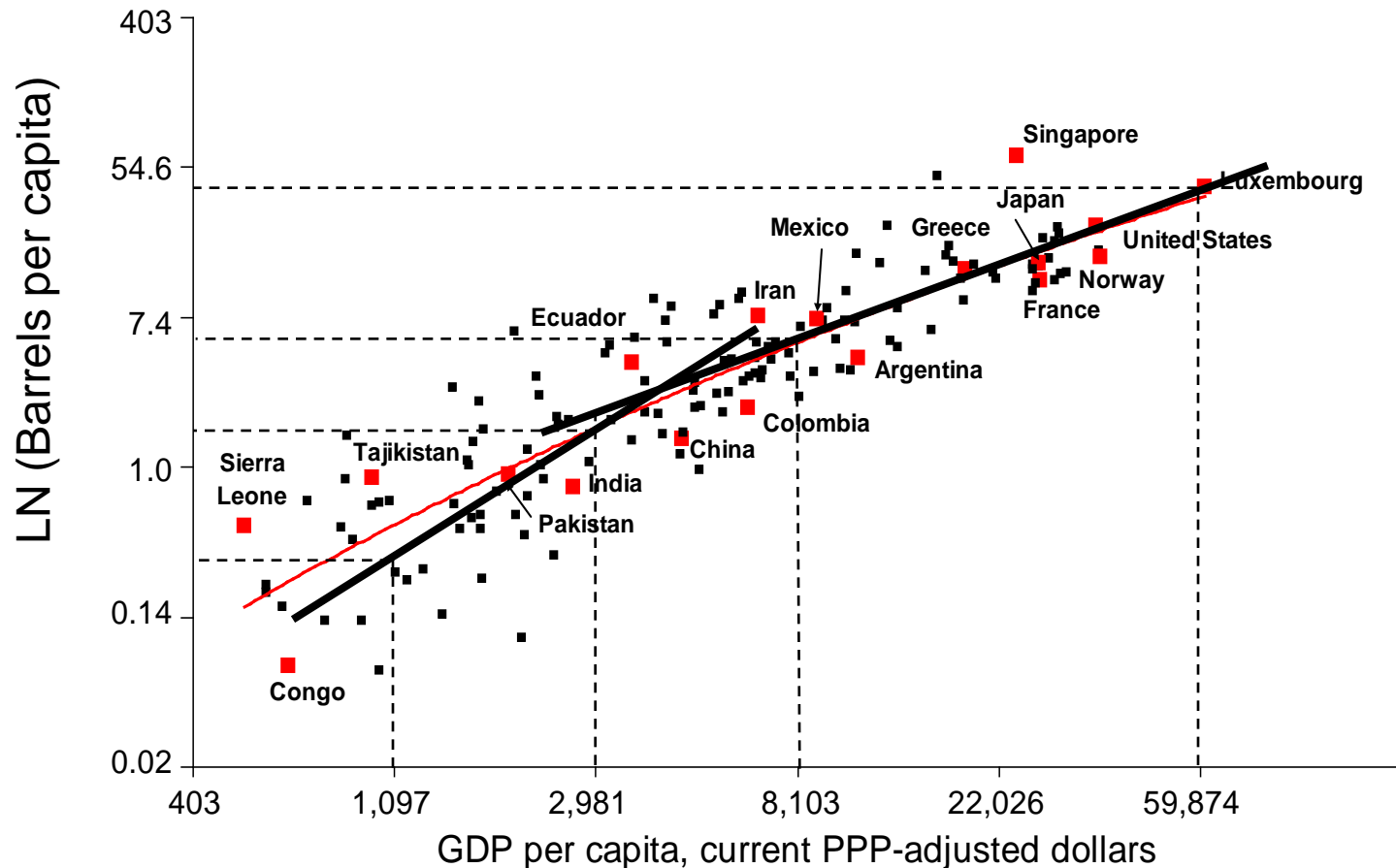
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# Energy and GDP

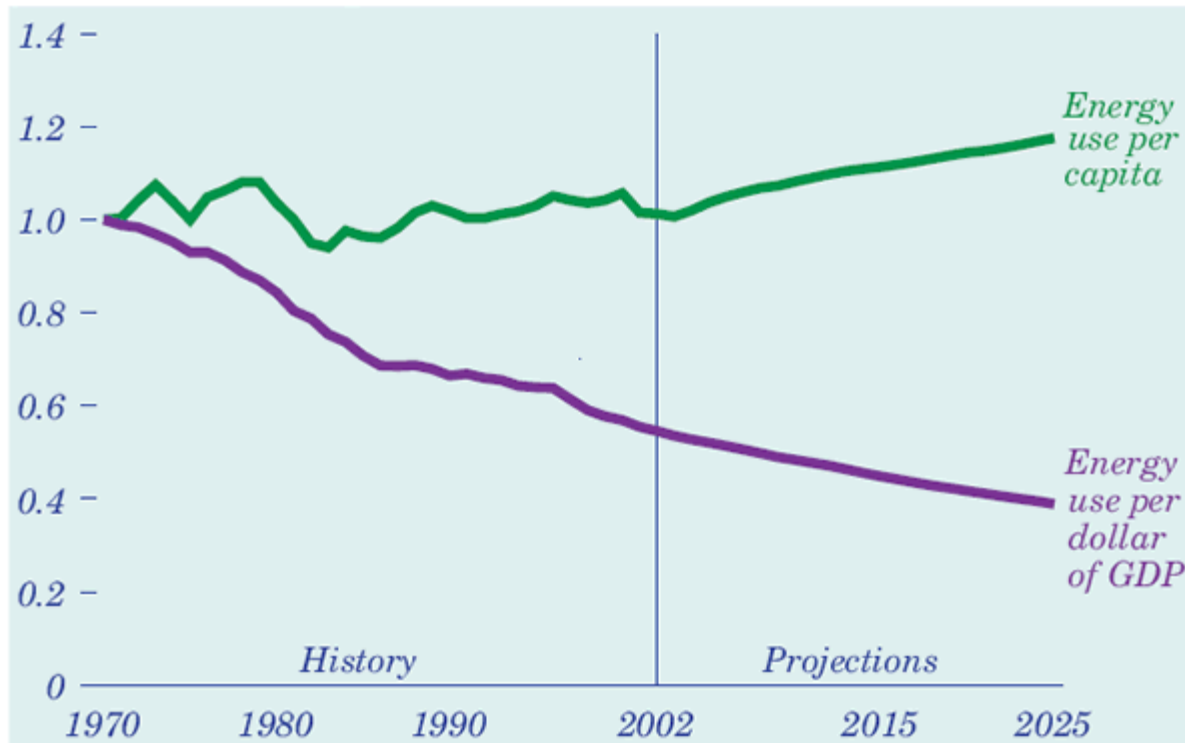
Developing countries rely on large amounts of energy to fuel their growth. As development matures, energy use per unit of GDP declines.



Source: Stephen Brown, Chief Energy Economist, Dallas Federal Reserve

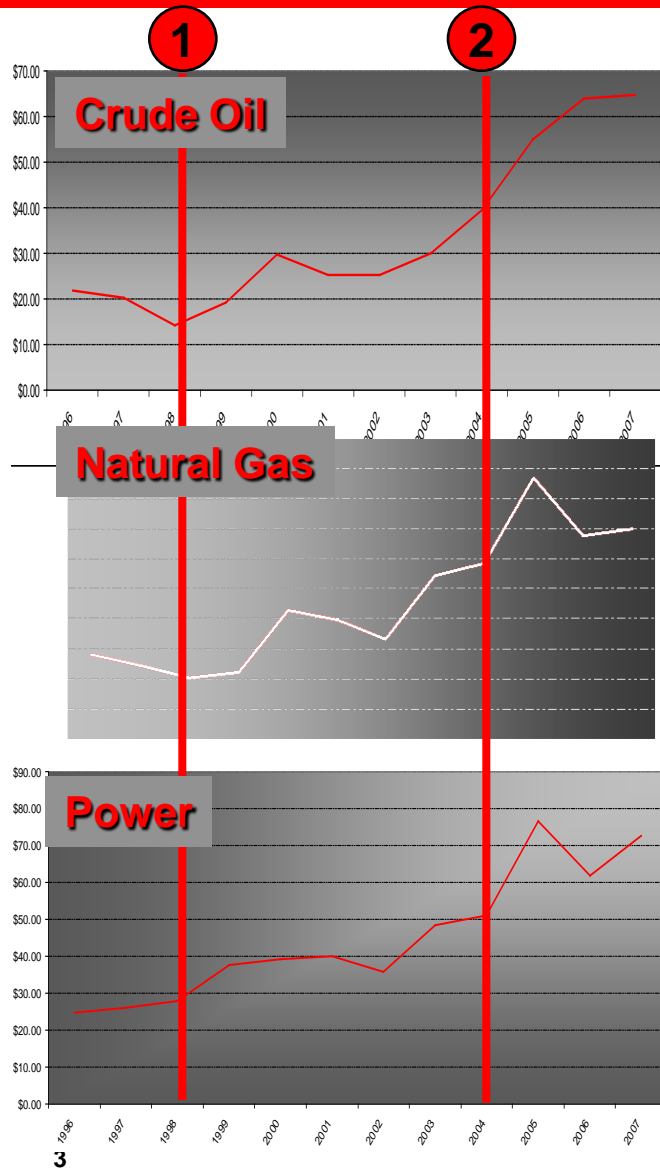
# Energy and GDP

Developed countries reduce their GDP dependence on energy by implementing conservation efforts and refocusing their GDP away from energy intensive industries.

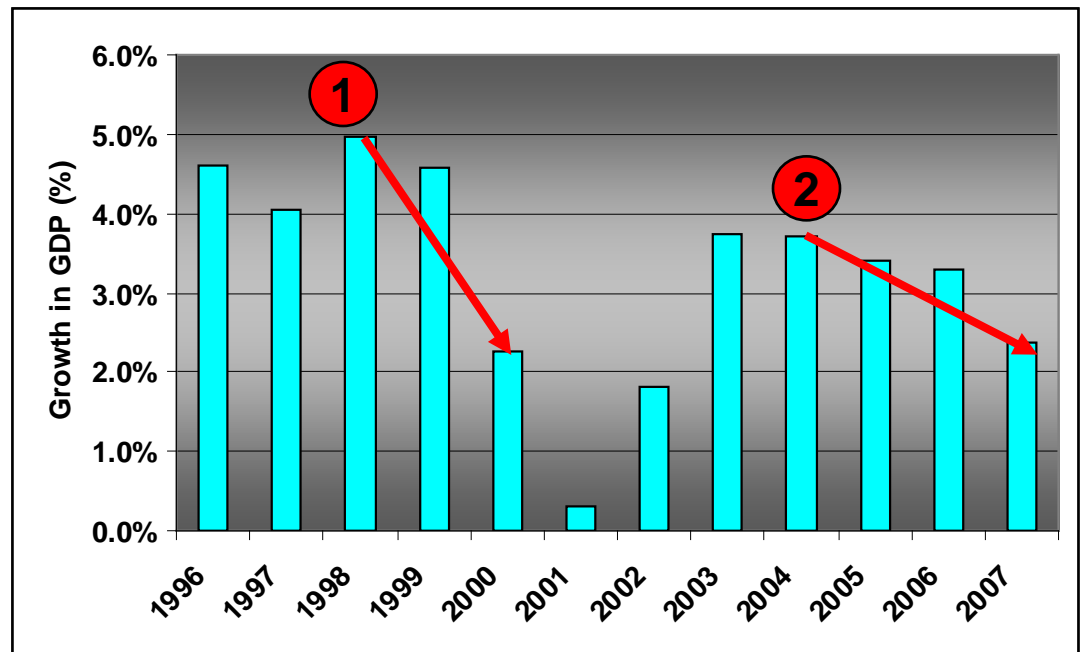


Source: EIA Annual Energy Outlook

# GDP Growth and Energy Prices



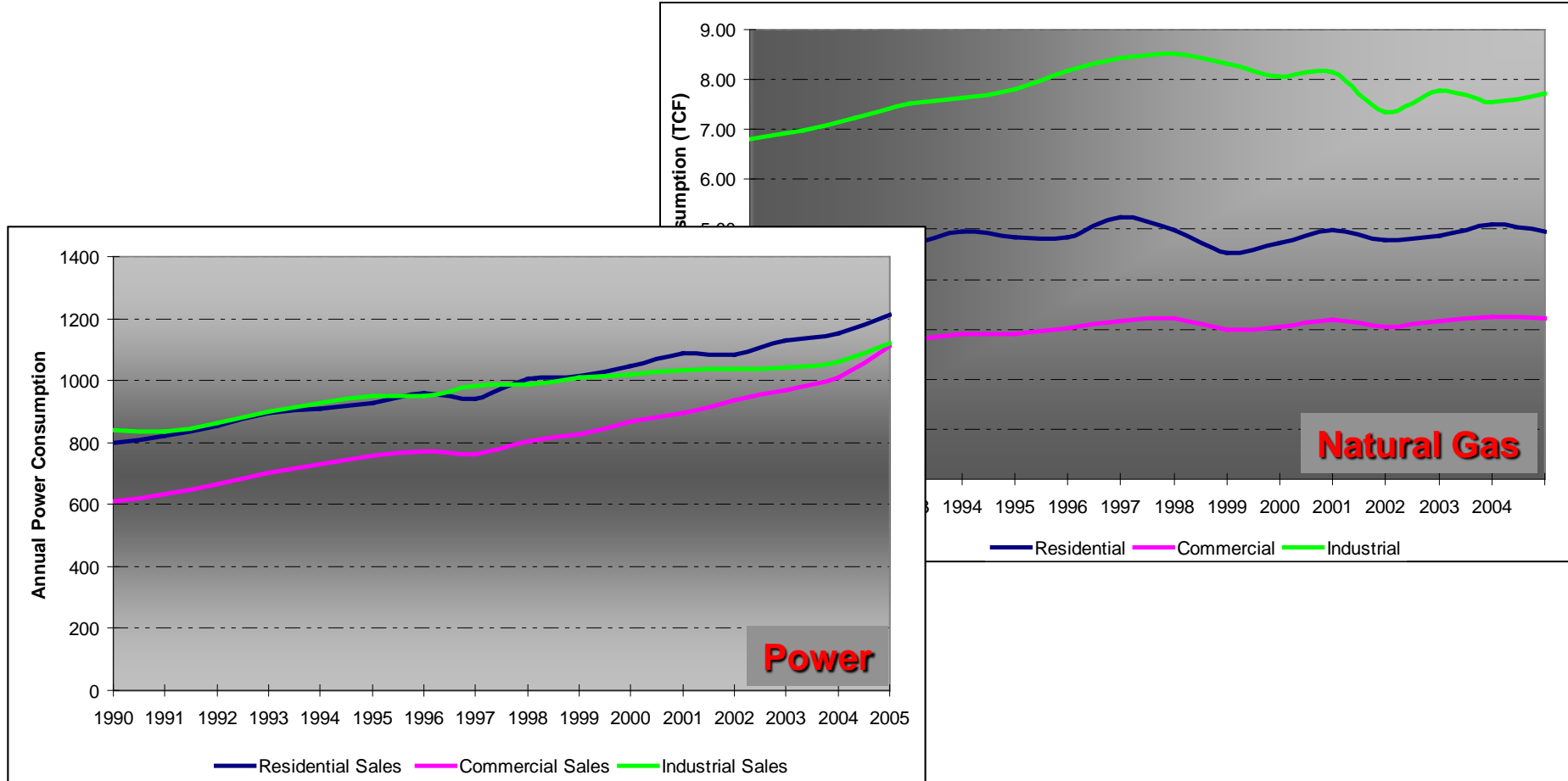
Growth rate in countries with energy-intensive GDPs should be negatively correlated with energy price



Source: Platts *Energy Advantage*™

# Energy Usage Patterns

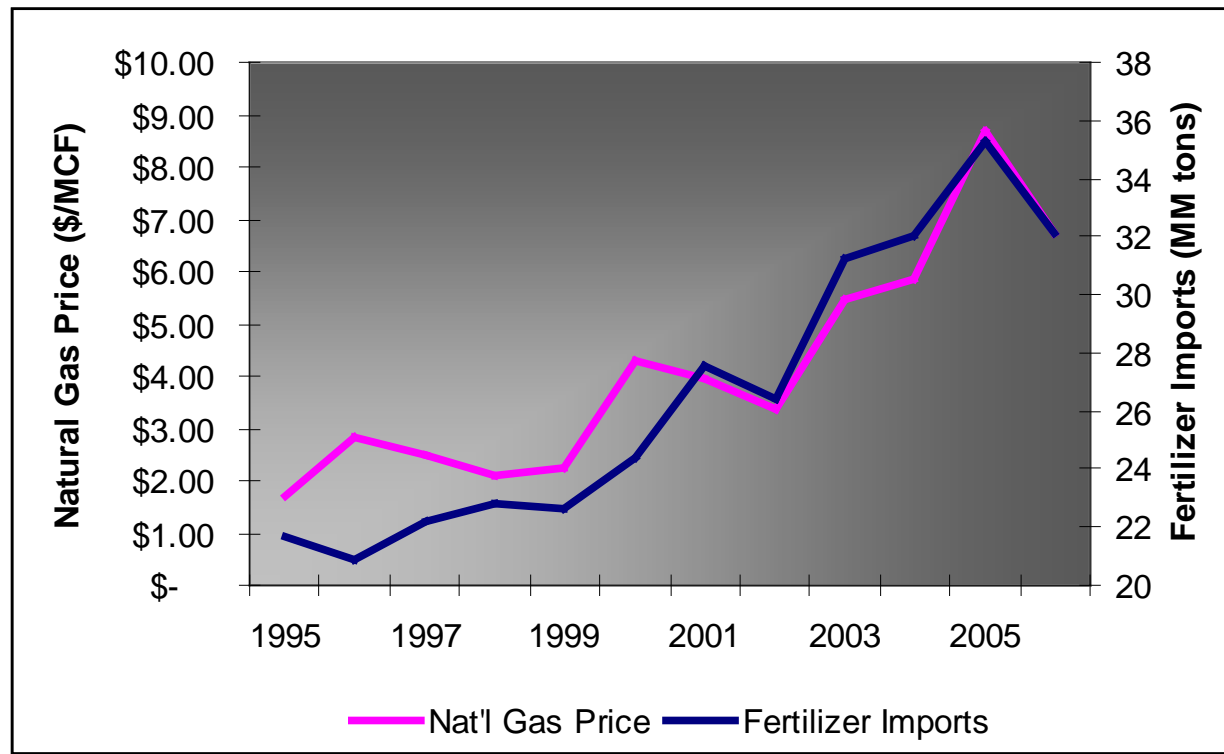
Power usage is growing in all Sectors, but in Industrial sector more slowly  
Natural Gas usage is declining within the Industrial Sector, flat in others



Sources: Platts *Power Outlook Research Service*  
and *Gas Outlook Research Service*

# Energy Efficiency or Relocation ?

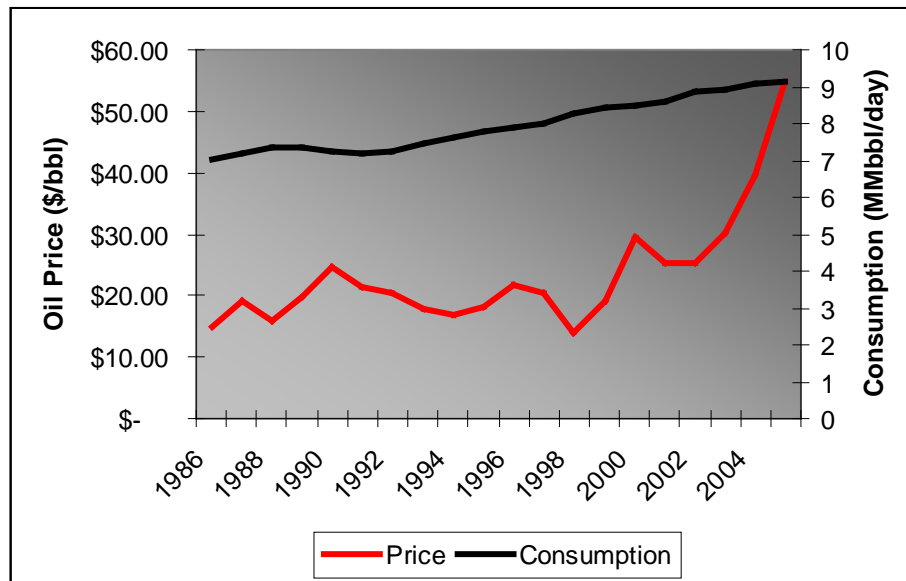
Fall in Industrial Sector usage is a combination of both, but ratio of imports to consumption of basic industrial commodities suggests relocation is a significant contributor to lower energy usage



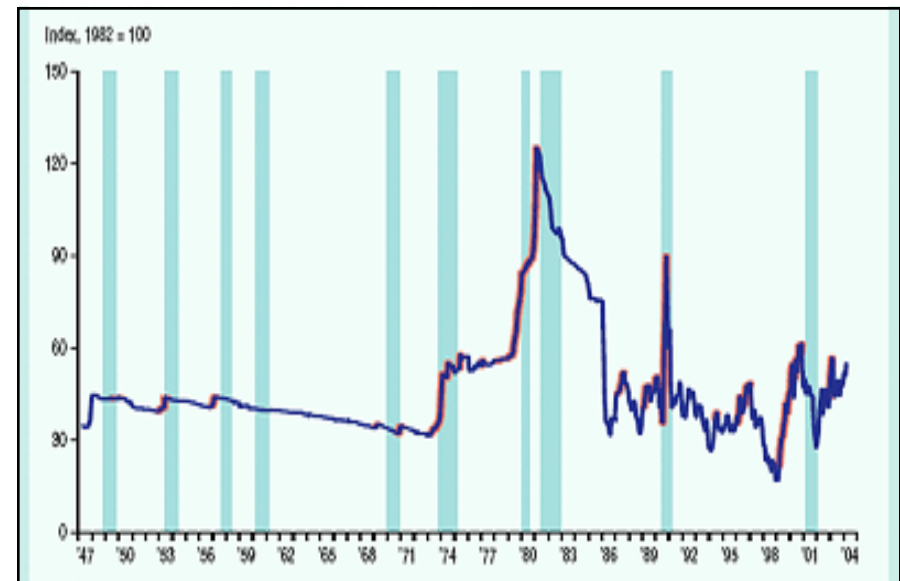
Source: Platts *Energy Advantage*™ and USDA

# What about Crude Oil?

In 2006, the U.S. imported 60 percent of its transportation fuel and 20 percent of its gasoline. The economy highly dependent on ability to move people and goods. Is there a permanent price elasticity or are adjustments temporary?



Source: Platts *Energy Advantage*™ and EIA



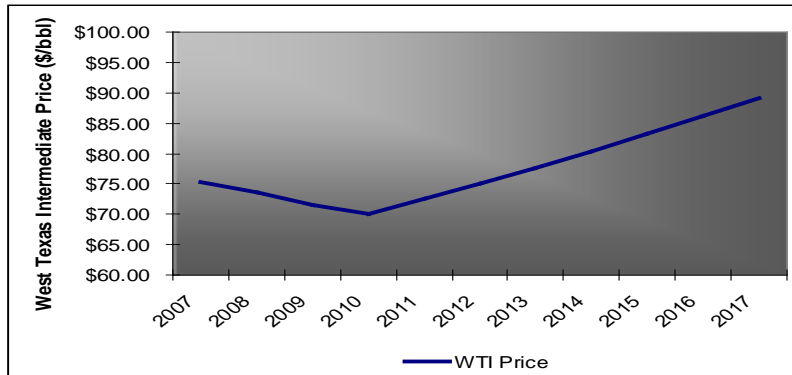
Source: EIA and Federal Reserve



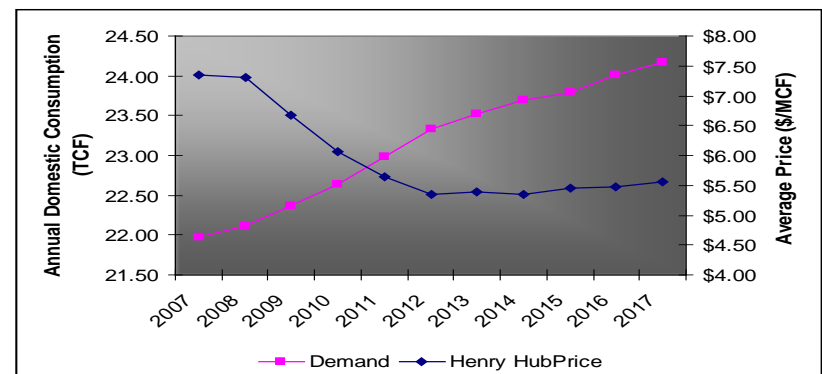
# What is our energy future ?

There are many futures we can propose, but in a world of “business as usual” with no geopolitical problems here are Platts’ perspectives through 2017

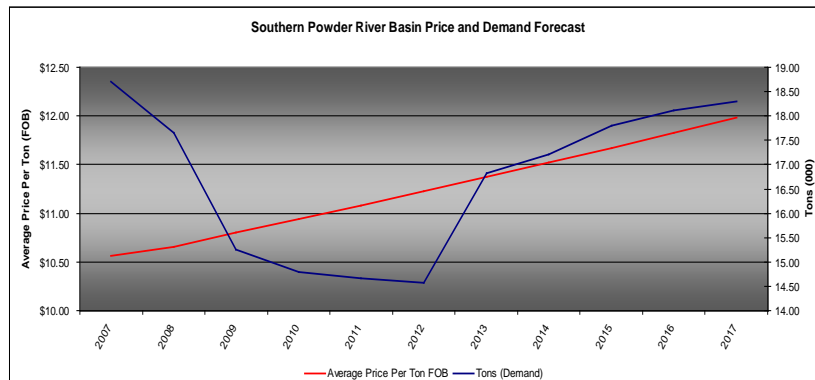
## Crude Oil (WTI)



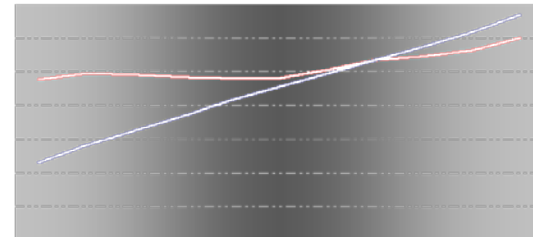
## Nat'l Gas (Henry Hub)



## Coal (SPRB)

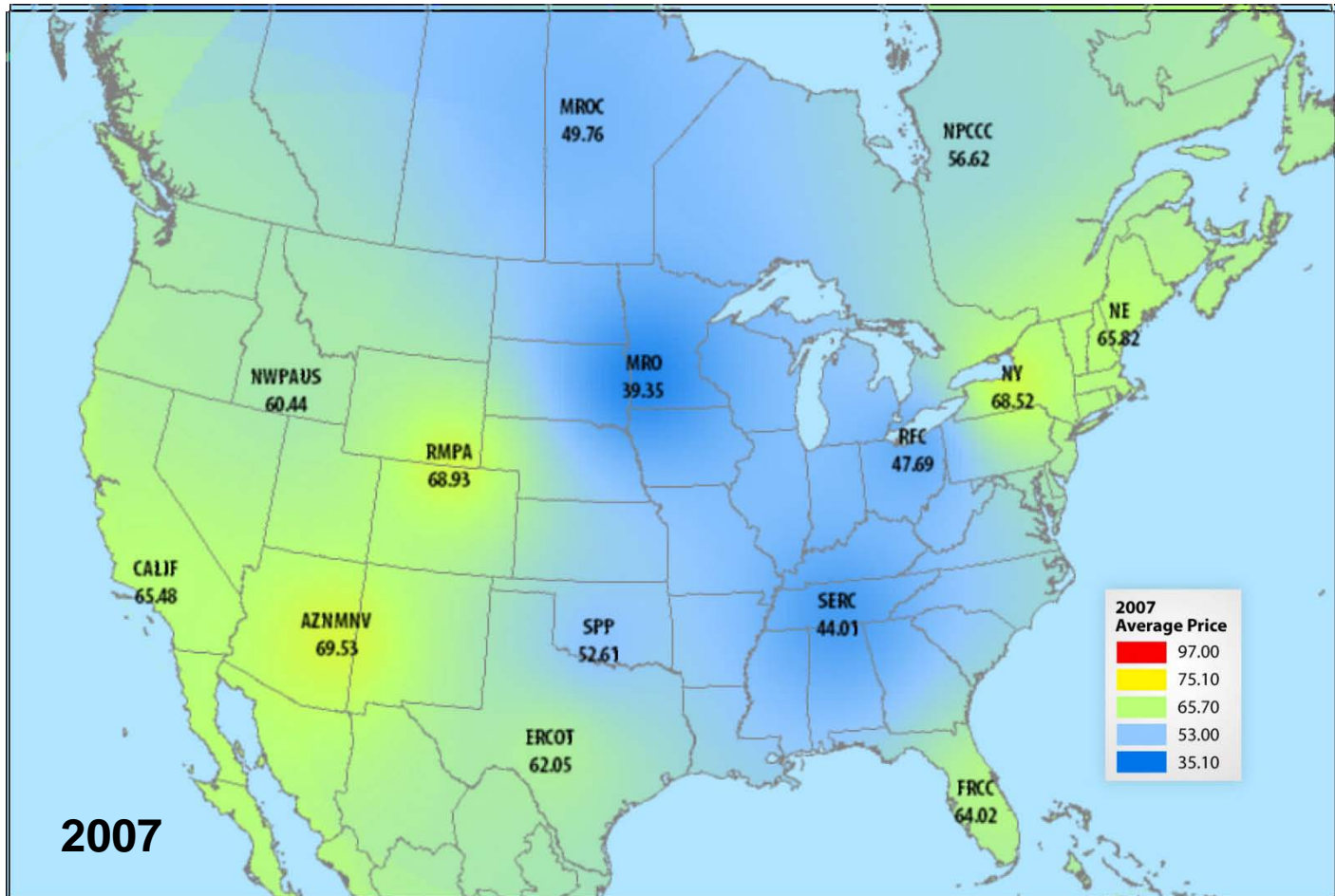


## Power (RFC)



# A Detailed Look at Power

Power is particularly regional. Prices will depend on generation mix and transmission infrastructure.



Sources: Platts Power Outlook Research Service

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# Alternative Energy Futures

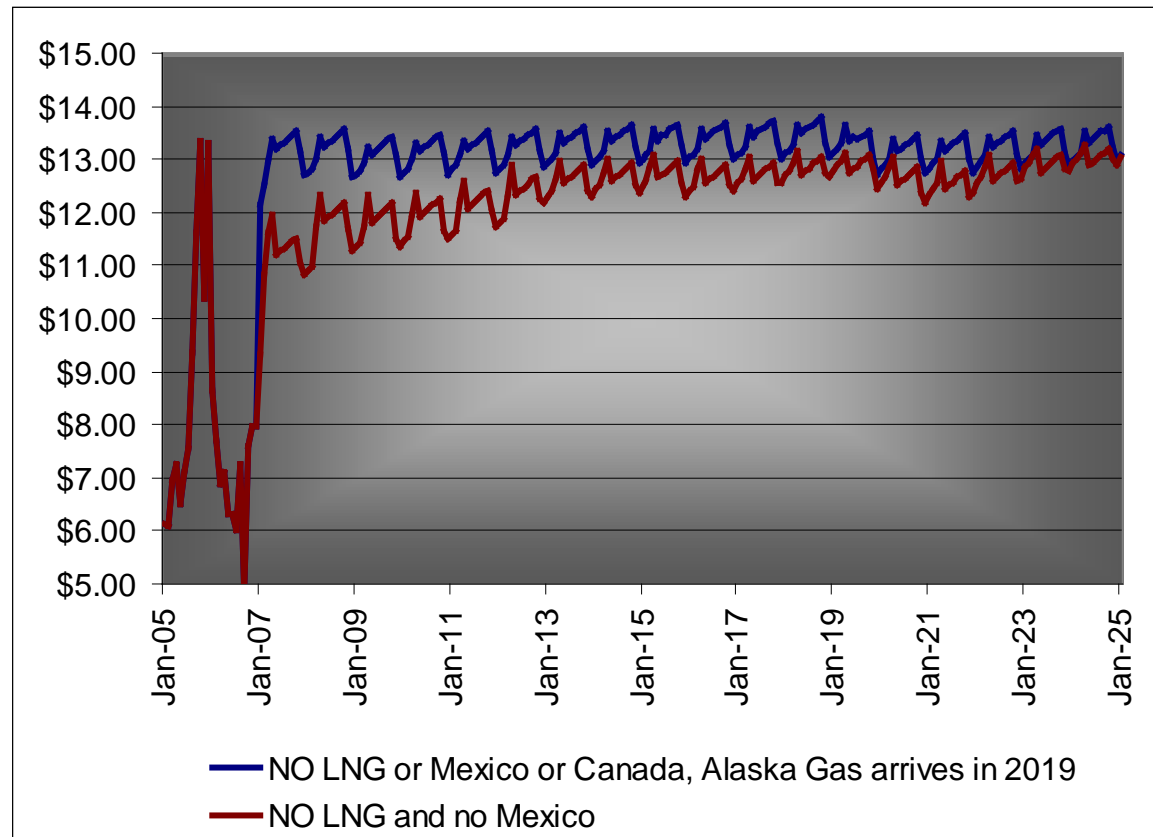
The U.S. is becoming increasingly dependent upon foreign sources of natural gas and crude oil. The most rapidly growing economies in the world ( EU, China and India) also face these dependencies. A global competition for energy security is underway.

How will that precipitate? Lets take an entirely plausible scenario and run it out into the future.

Russia regains economic control of the FSU and restricts new gas pipelines into Europe. They periodically curtail flow and demand dramatically higher prices from EU. This, in turn, drives up LNG prices in the Atlantic Basin and restricting the U.S. ability to import LNG to make up for declining domestic production. Mexico has no export capacity due to growth in its power infrastructure and re-injection requirements to maintain oil production. Canada is uncertain with regard to increasing gas exports to U.S. because they are using > 1 BCF/day to upgrade tar sands into transportation fuel.

# The Russian Gas Scenario

We locked oil prices at \$80 / barrel and allowed natural gas, coal and power prices to re-equilibrate assuming demand follows a BAU scenario; i.e., no elasticity in demand.



Sources: Platts Gas Outlook Research Service

# Conclusions

The Russian gas scenario is one in which a consuming economy (not the U.S.) and a producing country engage in economic warfare. The implications on the U.S. economy are quite significant.

This is one of many possible scenarios that may play out in the coming decades. It represents a relatively modest perturbation to BAU.

Platts believes that fossil fuels will remain the primary energy source for at least the next three decades.

Energy and its linkage to Competitiveness is undeniable and quantifiable.