



Of Unicorns and Dragons: Energy Independence & Other Myths of an Interdependent World

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An Interdependent World

- The US exists in a world of interdependence
 - Significant trade between states
 - Global supply chains
 - Global resources harnessed for local use
 - Economic growth depends on access to global market
- Major nations depend on each other for economic growth and success
- The system is complex and ties run deep
- Breaking the system is extremely costly

US Economy Requires Global Supplies

- US requires global economic exchange to support all industries
 - Energy - imports of fossil fuels
 - Production - key raw materials
 - Coltan (DRC)
 - Bauxite (Central Asia, West Africa)
- US requires markets for manufactured goods and high-end services

Natural Resources Dependence

- Energy is the hot topic
- Energy is only one part of the resource system
- Sourcing a wide range of resources from abroad makes the US dependent on foreign sources for a wide range of goods
- Energy is just one piece of the resource puzzle
- Parts of the puzzle are interdependent
 - Energy solutions depend on access to other resources

The Myth of Resource Security

- American living standards are not possible using only domestic materials
 - Energy independence is possible, but at a very high cost
 - Resource independence is impossible
- Contemporary industrial society requires global integration
- Resource security is impossible in a globalized context

Resource Competition

A faint, light blue world map is visible in the background of the slide, centered behind the text.

- Industrial economies require resources
- Resources are scarce
- Demand grows as countries develop economically
 - Brazil
 - Russia
 - India
 - China

The Development Paradox

- As developing states industrialize they can buy more American goods
 - Economic development makes us richer by creating more markets for us
- As developing states industrialize they compete for scarce resources with us
 - Economic development requires increased inputs to fuel rising standards of living
 - Prices of all inputs rise

The 21st Century Challenge

- Current resource usage rates make development for all impossible
 - China at the US standard of living would consume all of the world's resources at current usage rates
 - Major changes in resource utilization are required across the board to permit economic development
 - As states develop, their consumption of resources increases, putting upward pressure on prices

Who Cares if Other Countries Develop?

- We do
- Economic stagnation (and collapse) is the main cause of political volatility in the world
 - Political instability
 - Political violence
 - State stress and failure
- Lack of development will make the world much more dangerous

Violence and Resources



- 5 States most severely impacted by violence
 - Iraq
 - Sudan*
 - Nepal*
 - India*
 - DRC*

* Conflicts significantly affected by issues of resources or development (Uppsala Conflict Data Program 2007)

Implications of the Resource Problem

- The US will be greatly impacted by global resource conflict regardless of which policies we choose
- US policy must be made with the global nature of the resource debate in mind
- Focus on energy creates a potential for counterproductive policy in other areas
- Natural resource policy must take into account the full range of resources in a comprehensive program

Implications of the Resource Problem

- National security must consider likely resource conflicts in key areas
- No single state can solve the problems of resource scarcity facing the world economic system
- The US must be prepared to make hard choices about policy
- Most US policy-makers (and voters) are not prepared to tackle these issues

What is to Be Done?

- US must make difficult policy decisions
 - Consideration of long-term framework is important
 - Consideration of short-term volatility is important
 - Consideration of need for cooperation with international partners is also needed
- US must accept that unilateral solutions will fail
- Broad effort will require a mix of policies

Impact of Resource Problem in Practice

- Long-term effects will be gradual, not sudden
 - Price rises will be the major signal
 - Price signals will lead to changes in behavior that will ripple out through interdependent networks
- Short-term volatility will be a consistent feature of the process
 - Prices are impacted by complex processes, and will vary due to many influences
 - Turbulence will lead to price shocks with wide swings in the short run prices of natural resources

Policy Options

- What the market will bear
 - Let the free market solve the problem
 - Government “gets out of the way”
- Command solutions
 - Government will dictate production decisions
 - Government will dictate resource allocation solutions
- Mixed solutions
 - Government modification of incentives
 - “Tweaking” of the market to produce politically desired outcomes

Policy Options

- Real policy will balance all three areas
- The real debate is about the precise nature of the mix
- In democratic states, this process (and the outcome) is likely to be driven by politics and not by science
 - The policy balance will optimize political results
 - If populations remain ill informed, they will be ignored
 - Political solutions are highly susceptible to rent-seeking by special interests

Market Will Solve All Our Problems, But...

- Price signals will lead to adaptation by the marketplace
- The market will introduce solutions to resources scarcity
- We may not like the market solutions
 - Creative destruction
 - Transition costs
 - Market failure
- Democratic governments will face severe pressure to affect the market outcomes

Government Can Solve Our Problems, But...

- Government policy is heavily influenced by rent-seekers
- Special interests dominate in democratic states
- Policy reflects political needs rather than scientific needs
- Goals may still be achieved, but may take longer, and come at higher costs

The Challenge

- We need a mix of government and the market
- The right mix will require serious oversight by citizens
- The mix will require hard choices:
 - Complex security questions
 - Complex energy policy questions
 - Complex resource access questions
 - At what cost?
 - What lifestyle changes will we accept?

US Natural Resource Security

- The 21st Century will encompass major transitions
 - US economic dominance will erode
 - US security dominance will further erode
 - Rise of BRIC countries will increase resource competition
 - Demographic changes will increase global tensions
 - Environmental changes will create further turbulence
- All these changes directly affect the US
- None can be avoided

At What Cost?

- Policy is about trade offs
 - How much are we willing to give up to get what we want
- Many alternative energy sources are available now – they just cost more than current supplies
- Alternative energy has significant ramifications
 - Example: Corn based ethanol and rising global food prices
- Policy makers must carefully measure costs and benefits

What Can We Do?

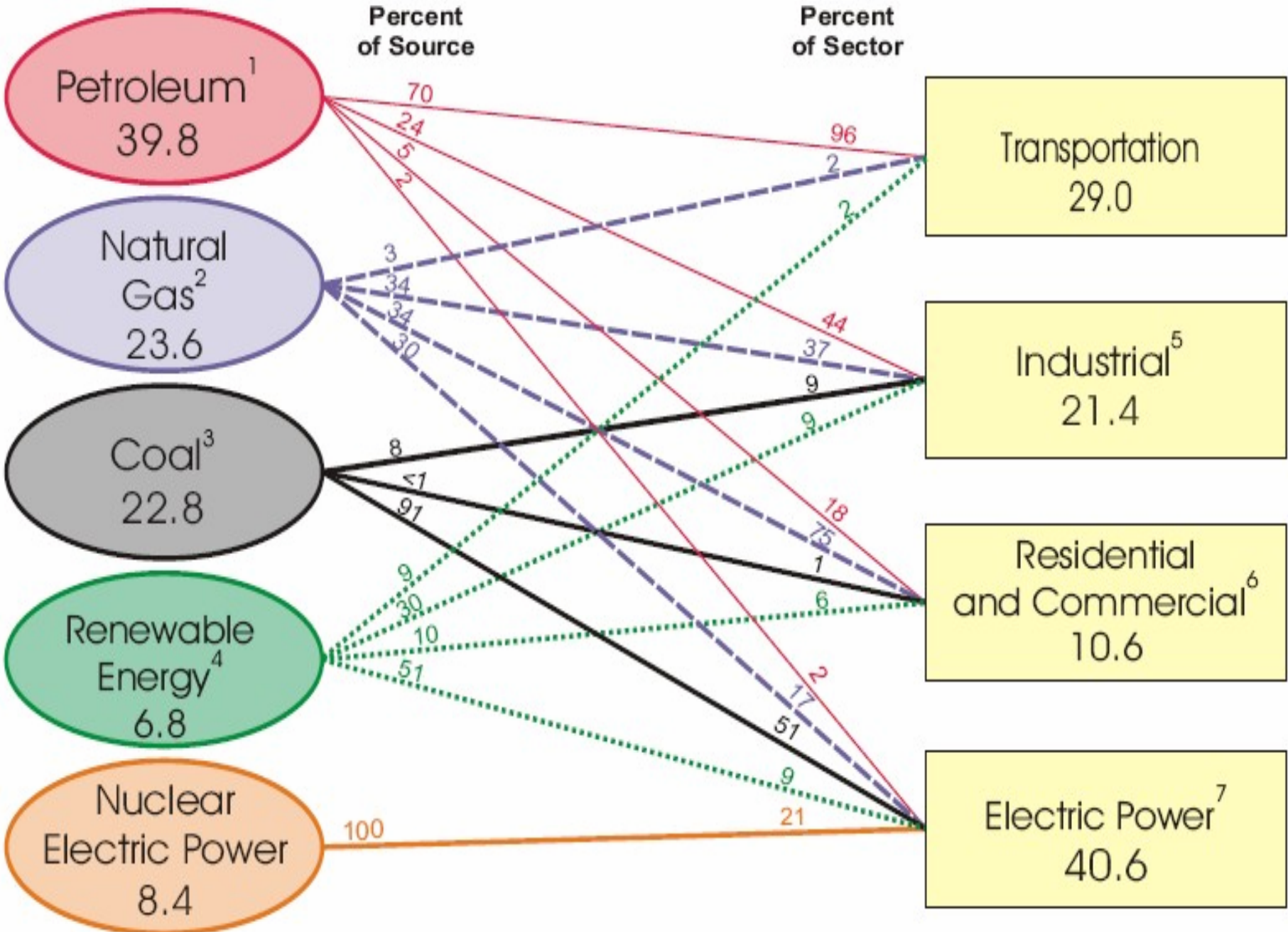
- There are serious choices
- Political leaders will be making them
- Citizen involvement is key in order to ensure decisions reflect the will of the people
 - Education efforts
 - Monitoring policy debates
 - Carefully watch for rent-seeking by politically powerful interests

A Humble Proposal

- Non-energy security can largely be dealt with by the market
 - Price rises will encourage innovation and investment in alternatives
 - Ensuring openness of global trade networks is key
 - US should focus on protecting the open flow of goods in the market from challenges from other states such as China
- Energy security requires mix of market and government policy change

A Humble Proposal in Energy Security

- The US should focus on several areas:
 - Energy efficiency technology
 - Lots of technology is on the shelf
 - Solutions are relatively easy to implement in many areas
 - Efficiency increases output per unit of energy greatly
 - We know this works:
 - US energy consumption per unit of economic output
- 1980 = 15.13
- 2006 = 8.84



Price Flexibility for Retail Electricity

- Governments must let retail electricity prices reflect supply and demand
- Governments should move to increase retail electricity costs to consumers
- This will increase the incentive to pursue energy efficiency

Increase Cost of Gasoline

- Gas prices will continue to show volatility, making long-run planning difficult
- Increasing retail gasoline prices by a specified amount every 4 - 6 months would create certainty of price trends
- This would create incentives for efficiency across the transportation spectrum
- A slow enough trend line would allow time to adapt
- This would also make alternative fuels cost-competitive

In The End

- At the end of the day, the policy debate will be tough
- Citizens face a difficult challenge in the process
- The outcome remains open to many possibilities
- Planning wisely will make the process much easier

- General US energy consumption data: <http://www.eia.doe.gov/>
- Energy consumption and GDP data used to calculate economic efficiency numbers: <http://tonto.eia.doe.gov/cfapps/ipdbproject/IEDIndex3.cfm?featureclicked=3&>
- Energy Consumption Diagram: http://www.eia.doe.gov/aer/pecss_diagram.html
- Uppsala Conflict Database: <http://www.pcr.uu.se/gpdatabase/search.php>
- Why political leaders tend to pick survival rather than what is “right”. Just read chapter 1 unless you want to get into the math of why it all works. Bueno de Mesquita, B. (2003). The logic of political survival. Cambridge, Mass. ; London, MIT Press.