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Regulatory Policy: Clean Coal

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Regulation

- "…an economic, legislative and legal concept. The legislature decides which industries should be regulated. Such decisions may be based upon the economic characteristics of certain industries, prevailing social philosophies or political considerations. The policies adopted, must conform to existing legal concepts and procedures. Compromise is thus the basic ingredient of economic policy."

- The Regulation of Public Utilities , Dr. Charles Phillips, Jr.

A early view of the corporation

- "It is not because a corporation has a large capital or transacts a large and profitable business that it is an injury to community or a menace to prosperity. On the contrary, the development and growth of modern business have made large aggregations of capital absolutely necessary, and such capital is fairly entitled to a reasonable and legitimate profit. The wrong is done and the injury inflicted when such combination of capital are enabled, by means adopted for the purpose, to control prices, stifle competition and create a monopoly."

- <u>The Writings of Robert La Follette</u> edited by Robert S. Maxwell

Energy Security and Clean Coal

- The fact that coal resources are situated in many developed countries, relatively close to population centers or within rail car serving distances and in great abundance, adds an extra security dimension to the continuing use of coal as a fuel for electricity production. If energy security, in one definition, includes the aspect of vulnerability of supply disruption, then domestic coal certainly adds to energy security for those nations favored with such resources.

Clean Coal: Leading Questions

- Market factors and business risks have shifted since 2000 to favor consideration of clean coal (e.g., sharp spikes and volatility in natural gas prices).
- Yet, few IGCC plants being ordered.
- Is it primarily a matter of elevated capital costs? Other business risks?
- Which risks most deter construction of commercial clean coal plants?
- Which policies could encourage commercial adoption of “clean coal gasification” (e.g., environmental regulations, state & federal financial support, PUC agreements)?
- How can risk-targeted, credit-based incentives improve prospects for clean coal gasification plants?

One View of Uncertainties

- "Four key uncertainties impacting near-term decisions on new generation:
  - Future cost of CO_2
  - Future price of natural gas
  - Spent nuclear fuel storage
  - CO_2 capture and storage"
- Source: EPRI

U.S. State Regulators 2005 and 2007 Survey of Opinions

- Major Issues 2005
  - Cost of Energy 30%
  - Alt. Sources 25%
  - New generation 23%
  - Adequate supply 19%
  - Rates 18%
  - Transmission 14%
  - Environment 12%
- Major Issues 2007
  - Environment 34%
  - Cost of energy 27%
  - New Generation 27%
  - Rates 18%
  - Adequate supply 17%
  - Alt. sources 14%
  - Transmission 12%

Source: RKS Research and Standard & Poors

U.S. Regulators 2007 Opinions On Carbon

33% Regulators have carbon constraint policy in place

+21% Expect to have carbon constraint policy in place in next year

= 54 % have or will have carbon constraint policy within year

Source: RKS Research and Standard & Poors

U.S. Regulators 2007 Opinions on Climate Change

62% Regulators call global warming and climate change as major concern

75% Regulators respond affirmatively that their legislature or commission is actively encouraging investment in environmental/green initiatives

Source: RKS Research and Standard & Poors

U.S. Bond Investor Opinions November 19, 2007 Survey

- ***Observations from Survey Ratings – "The Bond Market Speaks":***
- *There was wide agreement that EE / RE will not offer enough to meet U.S. electricity demand growth. This question also had the least variance in ratings.*
- *New nuclear units (a few reactors at current sites), are seen as a possibility – not just built, but online – by 2020. This appears to be a direct result of incentives in Energy Policy Act of 2005.*
- *GHG legislation is seen as likely by 2012, which also happens to coincide with efforts by the EU to get a Kyoto succession agreement in place; however, EPA is likely to take longer to put regulations in place by 2015 with some litigation to address.*

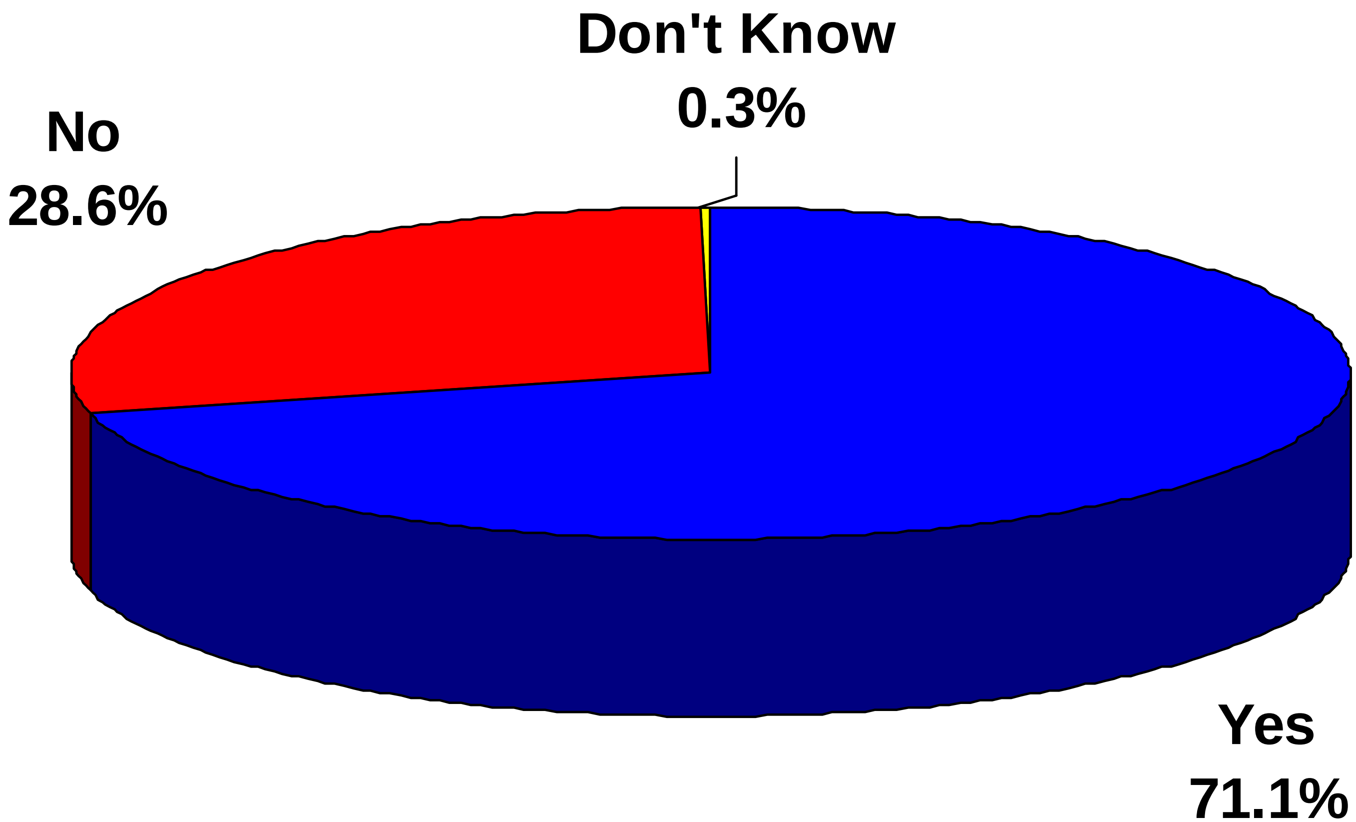
Source: Andrew Paterson ECONERGY November 19, 2007 "Risk Framework Roundtable with the Bond Market"

U.S. Bond Investor Opinions November 19, 2007 Survey

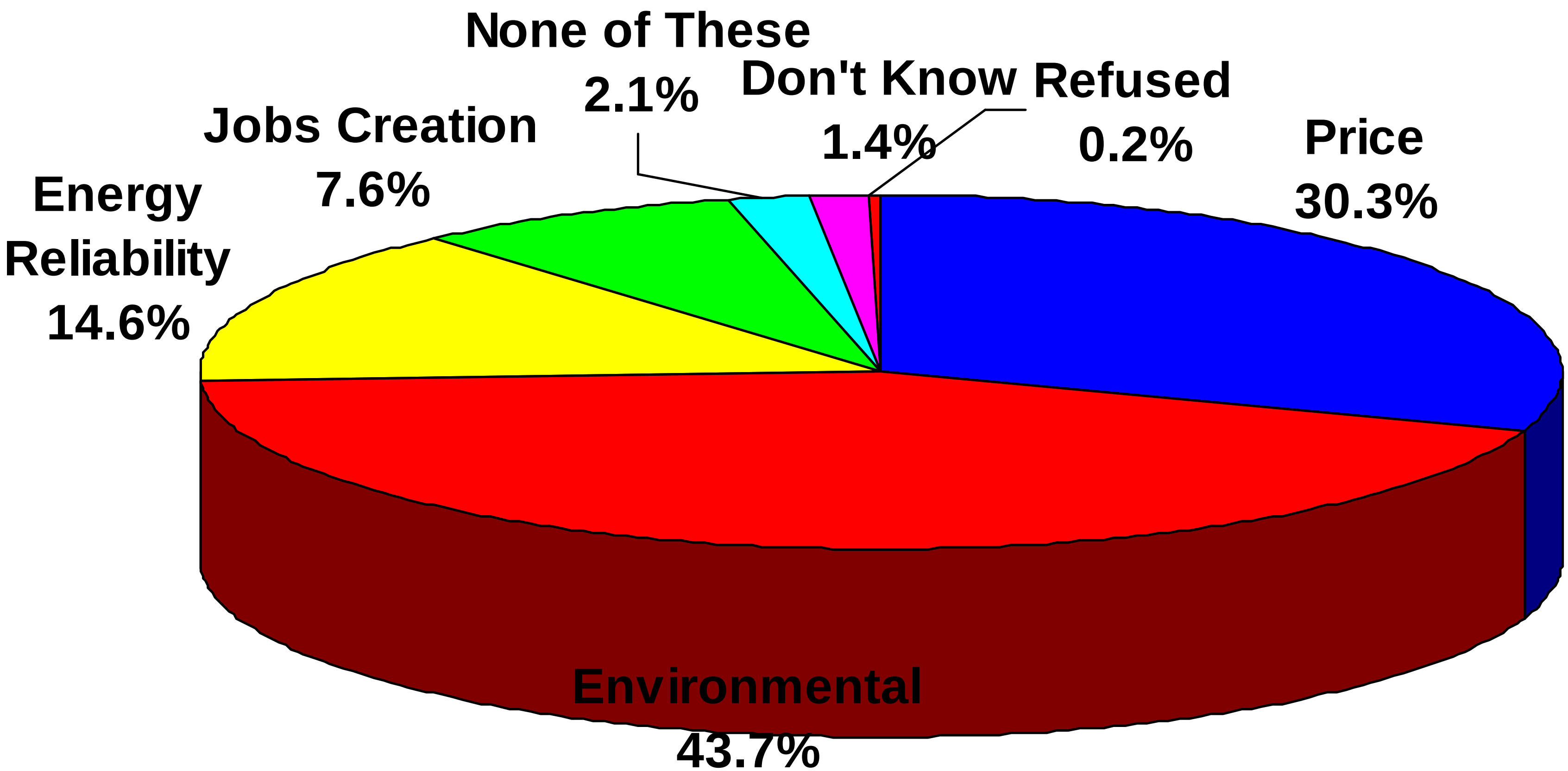
- ***Observations from Survey Ratings – "The Bond Market Speaks":***
- *There is not a consensus that cap-and-trade is better than a carbon tax with capital incentives for CCS or for avoiding GHG emissions. Confusion about the direction of federal policy remains. Many NARUC attendees and commissioners expressed frustration with the lack of clear policy direction from Congress and the Administration.*
- *Just building more gas turbines through 2015 will likely fail to fully meet demand.*
- *Rate and regulatory policies for recovery of costs of CCS with coal plants and CCS liability, also remain unsettled. There was wide variation in opinion about whether CCS would be needed upfront to avoid stranded costs later. Uncertainty reigns.*
- *For the most part bond holders see the current matrix of state RPS rules (renewable portfolio standards) as better than a proposed federal RPS, recognizing sharp regional differences in access to renewables, in urbanization and land use, and in electricity use.*

Source: Andrew Paterson ECONERGY November 19, 2007 "Risk Framework Roundtable with the Bond Market"

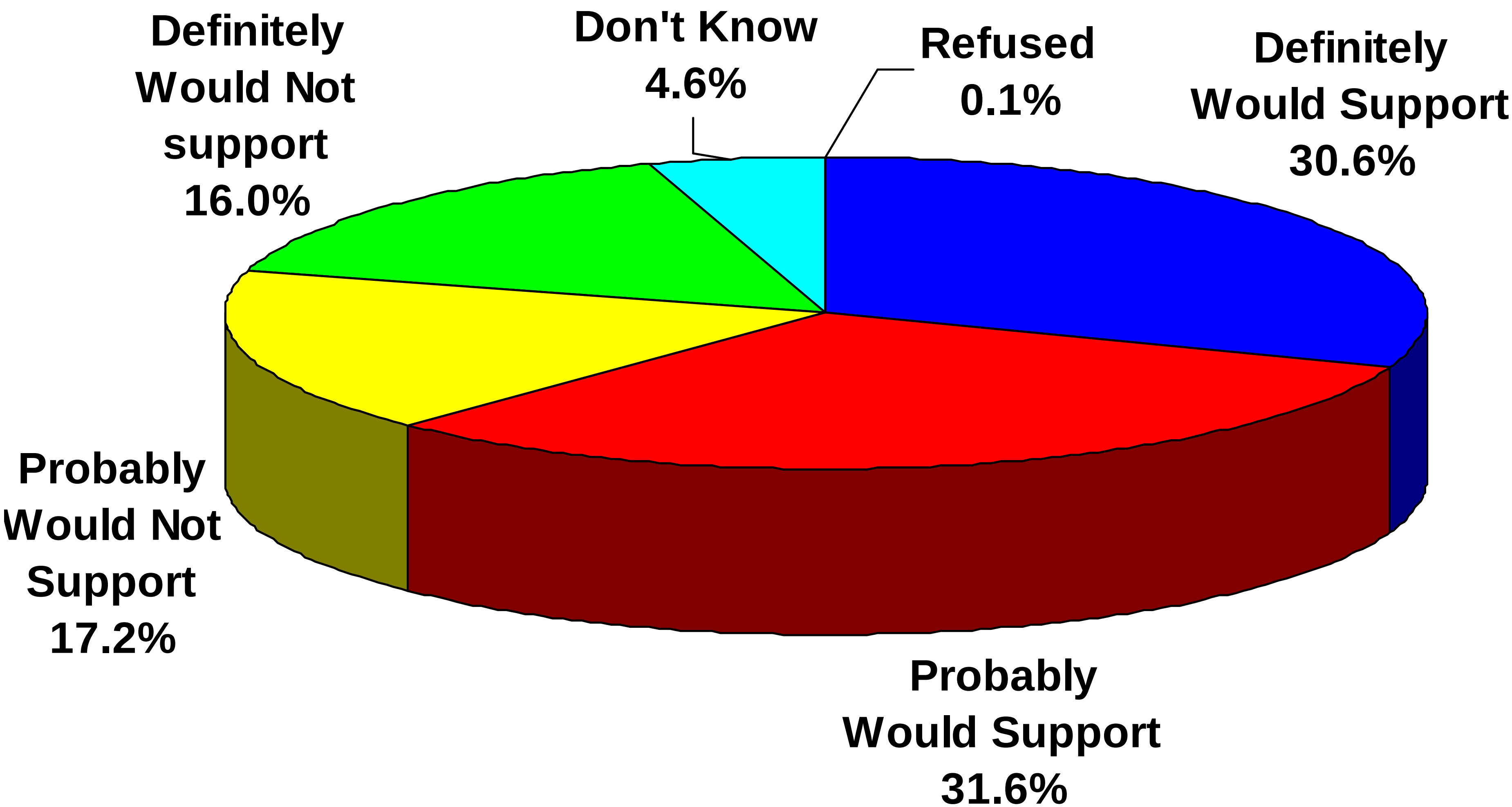
Deloitte 2007 US PUBLIC Survey: Are you familiar with the term “alternative energy” or “renewable energy”?



Deloitte 2007 US Consumer Survey: What would be your primary motivator for purchasing alternative energy sources?



Deloitte 2007 Consumer Survey: Would you support, or not the purchase of power from a zero emissions “clean coal” power plant, even if it meant a five percent increase in the price of your electricity?



Implication

- A “5%” increase in consumer rates, assuming that generation costs are 50% of final tariff, means a 10% increase in generation cost!

Conclusions

- Clean coal implementation would enhance energy security
- Surveyed US regulators rate concerns about the environment (GHG) higher than energy costs or price issues and a majority have carbon policies in place or will within the year.
- US bond investors need legislative and regulatory certainty with respect to GHG policies.
- The US Consumer is willing to pay for Clean Coal
- The time to act is now.

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