

**Testimony of Kevin Book**  
**Senior Vice President, Energy Policy, Oil & Alternative Energy**  
**FBR Capital Markets Corporation**

**Before the**  
**U.S. Senate Committee on Environment & Public Works**  
**November 15, 2007**

Thank you, Madam Chairman, Ranking Member Inhofe and distinguished members of this Committee, for the opportunity to contribute to the vital work you are doing to safeguard climate security. The views I will present today are my own, and do not necessarily represent those of my employer.

**Wall Street is Watching**

As an energy research analyst for an investment bank, I serve the Wall Street institutional investors who manage the assets of individuals, private trusts, charitable organizations, pension funds and other capital sources likely to play essential roles in the implementation of national policy goals that will be established by this Committee.

This year, from my perspective, the stewards of U.S. and international financial assets appear to be taking an unprecedented interest in how you, the stewards of U.S. environmental policy, will structure a national regulatory framework to reduce anthropogenic greenhouse gas (GHG) emissions. Given the diverse set of views expressed by the Members of this Committee, I doubt any of you will be surprised that I have encountered a broad range of investor perspectives. Some investors have shared their optimism for a cleaner, more efficient energy future and, quite frankly, their curiosity about how the America's Climate Security Act of 2007 (ACSA) and similar legislation might allow them to participate in capital formation and value creation. Others have shared their concerns that efforts to internalize the cost of GHG emissions could seriously disrupt one or several economic sectors, particularly power generation, heavy industry and fossil energy production. In essence, investors at both ideological extremes are wrestling with the policy challenge that has long confronted governments hoping to attenuate the effects of global climate change: wealth, energy demand and externalities all tend to rise and fall together.

Three energy crises, two recessions and one very successful Clean Air Act during the last four decades of U.S. history suggest that, while well-considered policies may motivate stakeholders to diminish the externalities associated with their energy use and increase the energy efficiency of their domestic output, nothing cleans the air better or faster than an economic slowdown. Of course, every Congress during the decade since the Byrd-Hagel Resolution has rightly rejected economic contraction as a climate policy lever, because the short-term social costs and political consequences are obvious. While slowdowns caused by natural disasters and other external events may soon be followed by recoveries, an imprecise rebalancing of the economy-energy-environment relationship could potentially deter necessary investment and lead to longer-lasting economic

underperformance. Because it is not just Wall Street, but the entire world, that is watching U.S. steps towards climate change regulation, a misstep could bring undesirable global consequences.

Inventions born of necessity may be ingenious, but they are likely to be undercapitalized. By contrast, innovation and profligacy often live in the same zip code, if not necessarily under the same roof. New technologies to address global climate change are going to require more investment dollars, not less. Stable economies encourage wealthy enterprises to invest in research and development towards new transformational technologies, as well as evolutionary improvements to existing processes. This may explain past U.S. leadership in energy and environmental technologies: not just because laws established new pollution controls, but also because, once rules were in place, the nation's rare, if not unique, combination of efficient markets, open society and economic prowess enabled new pollution control technologies to emerge from corporate laboratories and basement inventors alike.

It is possible that plain old Yankee ingenuity might really be a lucky accident, but I believe it comes from a synergy among related and supporting industries that form what Harvard business scholar Michael Porter would call our "national advantage". This means that policies that raise the operating costs of industrial innovators enough to cause a recession could deprive the U.S. and the world of emissions control technologies made possible, ironically, by the same wealth and stability that inure energy end-users to the price signals that encourage conservation.

### **The Price-Sensitive Consumer and Price Signals**

Relying solely on scientific data reported here through U.S. and international governmental channels, and having no academic background in the natural sciences that would lead me to reach any other conclusion, I am inclined to share the consensus view that U.S. policymakers should act quickly to lead the world towards an effective strategy to minimize the long-term risks associated with global climate change.

I would submit, however, that recent economic data associated with the collapse of the sub-prime mortgage sector may reasonably raise the question whether the present moment in time calls for an *economy-wide* system of regulation, given that the consumption patterns underlying the emissions from some sectors of our economy may potentially shift during the next 6-12 months. Home loan defaults rose during the third quarter of 2007 to a decade high of approximately 0.85% of residential mortgage debt. The third quarter also represented the epicenter of "resets" (interest rate increases) for sub-prime adjustable rate mortgages, suggesting that further defaults may lie ahead in the not-too-distant future, particularly given the lagging, but significant price increases associated with record nominal high oil prices.

If there is to be a shift in driving behavior and aggregate energy use patterns, it might be easiest to see on the road. According to a study released in October 2006 by the Institute for Transportation Studies at the University of California, Davis, short-run price elasticity



It is no secret that coal-fired generation enables lower average power generation prices, but it may not be clear how closely correlated the primary generation fuel is to average income distribution. Table 1 presents the ten highest and ten lowest statewide average levels of disposable personal income (DPI), as estimated by the Bureau of Economic Advisors, as well as those states' primary power generation fuels and average power prices using July 2007 (latest) EIA data. Because coal-fired generation, on a national average basis, is approximately twice as carbon-inefficient per kilowatt-hour (kWh) generated, at any carbon price whatsoever, statewide averages imply significantly disparate consumer wealth effects. Eight out of the ten poorest states on an average DPI basis rely primarily on coal-fired power. Eight out of the ten richest states on an average DPI basis rely primarily on carbon-efficient nuclear power or natural gas. The practical effect of a significant carbon surcharge to coal-fired generation would probably provoke a fairly dramatic shift to natural gas-fired generation where it is available, as this Committee has heard many times during the year. Thus, even without a surcharge imposed directly on coal-fired power, the poorest states would be likely to face higher average residential power prices one way or another.

**Table 1: Per Capita DPI, Primary Fuel and Average Electricity Price/kWh**

State	DPI/capita	Primary Electricity Generation Fuel	Average July 2007 Residential Power \$/kWh
Mississippi	\$ 24,829	Coal	\$0.0940
West Virginia	\$ 25,387	Coal	\$0.0681
Arkansas	\$ 25,643	Coal	\$0.0908
Utah	\$ 26,285	Coal	\$0.0860
South Carolina	\$ 26,517	Nuclear	\$0.0934
Idaho	\$ 26,558	Hydroelectric	\$0.0697
Kentucky	\$ 26,571	Coal	\$0.0735
New Mexico	\$ 26,845	Coal	\$0.0932
Montana	\$ 27,615	Coal	\$0.0932
Alabama	\$ 27,764	Coal	\$0.0928
Nevada	\$ 34,178	Natural Gas	\$0.1210
Colorado	\$ 34,711	Coal	\$.0903
Alaska	\$ 35,021	Natural Gas	\$0.1570
New Hampshire	\$ 35,377	Nuclear	\$0.1500
Wyoming	\$ 35,904	Coal	\$0.0860
New York	\$ 37,039	Nuclear	\$0.1720
Maryland	\$ 37,494	Coal	\$0.1340
Massachusetts	\$ 39,317	Natural Gas	\$0.1570
New Jersey	\$ 39,857	Nuclear	\$0.1640
Connecticut	\$ 42,014	Nuclear	\$0.1830

Source: FBR Research using BEA, EIA Data

Table 2 addresses transportation fuels needs. Examining the vehicle miles traveled per disposable personal income dollar standardizes consumer wealth exposure to existing driving behaviors. Applying a standard fuel economy (mathematically, any number will do, but I used a national light-duty average of 20.5 miles per gallon for this calculation) and latest available gasoline prices creates a percentage of average disposable income allocated to driving behaviors at current gasoline prices. Last, Table 2 incorporates a *pro-rata* surcharge of \$0.34/gallon for carbon, which reflects the \$39 per metric ton carbon market premium when the European Emissions Trading Scheme peaked in April 2006, adjusted for currency effects at the time, applied to the gasoline-powered fleet on a national average basis. This presents potentially stark regional effects under an economy-wide cap-and-trade scheme.

**Table 2: State Rank by VMT per Disposable Income Dollar, with Carbon Surcharge**

Rank	State	Per-Capita Disposable Income Per Vehicle Mile Traveled	11/13/2007 Average Gasoline Price (Regular)	Percentage of Disposable Income at 20.5 MPG	Percentage of Disposable Income at 20.5 MPG and \$39/MtCO <sub>2e</sub>
1	MS	\$ 1.95	\$ 3.00	7.50%	8.37%
2	WY	\$ 2.00	\$ 3.03	7.39%	8.23%
3	AL	\$ 2.24	\$ 3.03	6.60%	7.35%
4	OK	\$ 2.25	\$ 3.08	6.68%	7.43%
5	NM	\$ 2.27	\$ 3.13	6.73%	7.47%
6	AR	\$ 2.39	\$ 3.03	6.18%	6.89%
7	SC	\$ 2.44	\$ 2.97	5.94%	6.63%
8	WV	\$ 2.45	\$ 3.17	6.31%	7.00%
9	GA	\$ 2.40	\$ 3.05	6.20%	6.90%
10	MT	\$ 2.48	\$ 3.18	6.25%	6.94%
41	NV	\$ 4.17	\$ 3.15	3.68%	4.09%
42	MD	\$ 4.21	\$ 3.03	3.51%	3.91%
43	IL	\$ 4.29	\$ 3.19	3.63%	4.02%
44	RI	\$ 4.65	\$ 3.05	3.20%	3.56%
45	HI	\$ 4.66	\$ 3.32	3.48%	3.84%
46	AK	\$ 4.68	\$ 3.03	3.16%	3.52%
47	CT	\$ 5.30	\$ 3.21	2.95%	3.27%
48	MA	\$ 5.31	\$ 3.00	2.76%	3.07%
49	NJ	\$ 5.42	\$ 2.91	2.62%	2.93%
50	NY	\$ 5.76	\$ 3.24	2.74%	3.04%

*Source: FBR Research using BEA and EIA data and price data from fuelgatereport.com*

These data enhance my already profound appreciation for the enormity and complexity of the task ahead for this Committee and the whole U.S. Congress in structuring an economy-wide GHG emissions reduction strategy. These also suggest that the most prudent approach may be to outline a phased strategy to regulate emissions from the whole economy on a sector-by-sector, sequential basis.

## **The United States as a Global Leader**

As I suggested during my February 2007 testimony before this Committee, the power generation sector could represent a natural starting point for sequenced controls as it is already regulated under the existing framework of the Acid Rain program. In light of uncertain economic conditions, a sequenced approach might also give the U.S. economy a chance to respond to changing price dynamics across regions and industrial sectors before injecting further systemic risk. This could be an alternative to the two-year economic review anticipated by ACSA. A rush out of the gate to sudden economic consequences could potentially undermine the Act's stated goal of providing leadership to the developing world.

After all, there is a natural reason why the U.S. and the developed economies of the world must lead the global climate change debate: developing economies have explicitly refused to pay. In fact, the energy use patterns of the developing world make it less likely that the Kyoto Protocol will result in much more than a wealth transfer out of OECD economies, and certainly not an abatement of global climate change. All year, even as oil prices have risen and the U.S. dollar has fallen, the leaders of developed economies have debated how to apportion responsibility for GHG emissions across industrial sectors and national boundaries. By contrast, the leaders of emerging economies have continued to comb the world in a no-holds-barred pursuit of the cheapest fossil energy sources, primarily oil and coal. Wealthy, oil-consuming nations turn to environmental stewardship to incrementally improve an already-high quality of life, while billions of impoverished men and women worldwide regard hydrocarbon fuels as the shortest path to basic amenities. For the fast-growing populations of China and India, but also the oil producing states of the Middle East, the freedom to make environmental responsibility a national priority remains a far-distant dream.

The bottom line is that the U.S. must be able to demonstrate not only its commitment to environmental stewardship, but its ability to undertake needed controls while retaining sound economic fundamentals before the developing world will be likely to consider enacting controls of its own.

## **The Vicissitudes of Markets**

It is in this context that I would suggest that setting carbon price through taxation rather than market pricing may improve prospects that U.S. climate security policies will be both effective and commercially viable. While markets tend to be efficient distribution and pricing mechanisms for commerce, they also possess characteristics that can inject unanticipated volatility into regulation, particularly when the governance structure encourages noncommercial traders to enter the market to provide necessary liquidity.

The challenges arrive under conditions of scarcity, a predicament best exemplified by the current price of crude oil. No fundamental analysis or rational assessment of currency and risk effects can account for \$95 crude, and my models suggest an upper-bound risk and currency-effect-adjusted price should be no higher than \$80 per barrel, particularly with

troubling economic indicators overhanging demand. But refineries are still buying oil at a premium due to market dynamics, not fundamentals. Commodity markets frequently distort price under conditions of scarcity because commercial buyers, whose businesses cannot operate without the commodity in question, are forced to bid up for it at the same time that noncommercial traders, who generate profits through scarcity, may be reluctant to sell. Ultimately these pricing dynamics normalize, sometimes with startling downward pressure on price, but the volatility can make it difficult for commercial buyers to efficiently deploy investment capital. Over the long term, all businesses can respond to price changes, but short-term price volatility ultimately forces commercial buyers to look for ways to ensure price stability, usually by purchasing the option to buy or sell at a range of prices in the future.

Commercial enterprises pay for these options as a cost of doing business, but the costs of managing potentially volatile carbon prices might well undermine the public interest goal of reducing emissions at the lowest economic cost to regulated entities and ratepayers. An emissions option is not an emissions reduction and it provides revenue to its seller whether or not the buyer exercises it; unlike an allowance or an offset, the option itself does nothing to reduce the carbon dioxide levels in the Earth's atmosphere. Nor can emitters devote the cost of hedging to needed investment in next-generation technologies. Even when emitters can achieve financial gains through hedging activities, they still bear the “frictional” costs of commissions and service fees, and businesses that can generate returns on capital through financial engineering are unlikely to undertake investments in sustainable energy production.

The challenges facing the Kyoto Protocol, where 65% of today's global GHG emissions are not governed by mandatory caps, derive in part from its market pricing architecture. The use of emissions credits as a proxy currency requires emitters who would be governed by the caps to value that currency, which is not the case for China, India, Australia or the United States. As unappealing as carbon taxation may seem from a political standpoint, one of its greatest virtues may stem from the fact that taxes can be assessed in any reference currency or exchange-adjusted foreign denomination at the moment of any intra- or international commercial transaction. Governments may also tailor tax regimes to respond to economic conditions faster than they can retire allowances, offsets or any carbon proxy currency.

### **Separate Accounting May Improve Program Durability**

This is not to say that carbon taxation does not also present risks. For example, it might be best to avoid any structure that permits climate-related taxation without accountability for financial and environmental yield, and ACSA's performance reporting structure certainly addresses part of this requirement. Accountability for the use of proceeds may also help to ensure optimal outcomes.

The history of the Crude Oil Windfall Profits Tax Act and the Synthetic Fuels Corporation it was intended to finance may have continued far longer, or been subject to early modification that could have improved the financial durability of the program, had

Congress stuck with President Carter's original design: the allocation of proceeds to a separate account devoted to energy security investments. Whether the pricing mechanism for U.S. carbon standards operates through full auction, phased auction or direct taxation, it may be worthwhile to consider structuring a set-aside account in addition to the laudable reporting requirements already established.

Madam Chairman, this concludes my prepared testimony. I will look forward to answering any questions you or other Committee members may have.