



Achieve Cheaper, Cleaner Electricity Now through Restructuring
By John Kelly

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In the clutter of competing ideas being debated from Main Street to Capitol Hill about how to best address climate change and increase conservation, one idea seems to be lost: restructuring. Restructuring not only has the potential to enhance the effectiveness of the most proposed solutions — taxing carbon, imposing cap and trade systems or requiring higher percentages of renewable power sources — but it also can expedite their wide-scale adoption.

Those who were undeterred by the mistakes made during the early attempts at restructuring are finding that restructuring helps consumers reach conservation and carbon reduction goals. One only needs to look at the United Kingdom and the handful of U.S. states that made this change to see how effective this approach can be. For instance, according to the United Nations Framework Convention on Climate Change, Britain made nearly a 20 percent change in its greenhouse gas emissions between 1990 and 2007. After restructuring, high-carbon-emitting coal plants were no longer protected as monopoly-owned stranded assets. Consumers and businesses were free to choose their power from cleaner, more efficient power sources, motivating plant operators to improve efficiency and lower costs to retain and gain customers.

Despite this success, critics of restructuring point to the failures in California as an example of why restructuring should not be attempted. A closer look at California's restructuring attempts, however, has allowed others to avoid their mistakes. First, California's failed attempt at restructuring was based on a model (abandoned by Britain) that forced all generators and consumers into an hourly pricing pool, leading to market instability and gaming by generators. Britain learned through their early testing of the "pool-co" approach that it was essential to allow for bilateral contacts between generators and users; California failed to address these concerns.

The lessons learned from California's failures, however, have led to success stories in New England, Pennsylvania, Maryland, Texas and Illinois. Unlike California, these states implemented a bilateral restructuring model whereby the bulk of electricity is traded in direct contracts between generators and large distribution companies or customers. Hourly pricing markets in these regions provide a means for setting competitive market prices. These new markets also provide ancillary service payments to consumers for providing demand response, day-ahead and other market services. In these new pricing markets, entrepreneurs and consumers work together to lower demand when prices rise.

Beyond giving consumers a choice, restructured markets help consumers' wallets because they no longer pay for new generation plant construction overruns. Instead, the bill for these losses is covered by the investors willing to take the risk. Why is shifting the costs associated with risk away from consumers and on to investors important? One only needs to look back to the 1980s when huge construction cost overruns for nuclear power plants had to be shifted to consumers who may not have wanted to assume such risks in the first place.

Beyond helping consumers save money, restructuring spurs efficiency. For instance, restructuring has helped consumers save two quadrillion btu of energy each year, which is more than half of the total natural gas consumed by the U.S. commercial sector. One reason is because New England and Texas





generate a large portion of electricity from natural gas-fired generators. Many of these new gas turbines, built because of restructuring, use approximately half as much natural gas as the older, utility-built, generators they replaced. Consumers in these restructured states also saved billions of dollars in fuel costs when natural gas prices increased dramatically (Table 1).

In addition to these benefits, a future benefit of restructuring is the displacement of coal generation and the elimination of the environmental impacts associated with that power source. In restructured states, the increasing cost of coal-fired generation has led to the emergence of environmentally cleaner energy sources, such as wind and natural gas. In places that are not restructured, the displacement of inefficient coal and gas plants is far less likely to occur as these older, outmoded plants are deemed stranded assets. As carbon costs rise, vertically integrated utilities can pass carbon costs on to consumers as the “least cost option.”

Critics are quick to remind us that California is not the only state where there have been missteps in restructuring. Some generators have gained market power in isolated markets and residential retail markets have experienced problems, but Independent System Operators continue to adjust market rules and standards to address issues and to nurture and improve competition.

In the end, however, restructuring is — and will be — successful because it frees consumers from the top-down approach to power generation and distribution that has dominated the nation for a century. For state leaders and regulators, restructuring offers a market-driven approach that elevates the role of consumers and creates a major opportunity to provide more reliable, affordable, efficient and cleaner electricity, reducing the nation’s carbon footprint and curbing climate change.

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Table 1: Estimates of Selected Restructuring Benefits

Benefit	Delta	Annual Carbon Reduction	Annual Savings
New CCCT capacity displacing simple cycle natural gas*	149 GW of new CCCT capacity	~125 million tons	~2 quadrillion btu ~\$8 billion @\$4/mmbtu
Increased nuclear production due to competition**	230 million MWh of increased nuclear output	~230 million tons	~12 billion
Lower nuclear O&M due to competition, 800 million MWh	\$15/MWh reduced O&M cost		~\$12 billion
Lower coal O&M due to competition, 1.9 billion MWh	\$5/MWh reduced O&M cost		~\$10 billion
Price/Demand Response	Later	Later	Later
Totals		~355 million tons	~\$42 billion
Impact		15% reduction in total electricity-related carbon emissions	Total reduction in costs for consumers of ~\$10/MWh

* Assumed 50 percent capacity factor for all CCCT plants and carbon savings of 500 lbs/MWh for displaced simple cycle gas generation. Also note that annual savings were much higher from 2001 to 2008 during the run-up in natural gas prices.





**Assumed carbon savings of 1 ton/MWH for displaced coal-fired generation. Please note that nuclear total capacity remained constant from 1990 at about 100 GW while output increased by 40 percent due to the threat of competition. The nuclear generation cost is about \$15/MWh less than the coal generation displaced.

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