

## CARBON TIPPING POINT?

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This fall, Congress will consider what promises to be the single most important piece of energy legislation of the past thirty two years. Never mind that it will be couched in terms of pollution emission reductions rather than energy policy, the fact remains that climate change legislation will herald the most significant change in energy policy since passage of the Public Utility Regulatory Policies Act of 1978 (PURPA).

PURPA created the non-utility generation industry and then suffered death by a thousand cuts (many self-inflicted as a result of bad decisions taken by PURPA proponents). The Energy Policy Act of 1992 included the first effort at reforming the Public Utility Holding Company Act (PUHCA) and made initial progress in promoting energy efficiency.

The Energy Policy Act of 2005 effectively repealed PUHCA, but neither the '92 or '05 Act changed the fundamental rules of play for fuels and electric generation. Climate change legislation promises to do just

that by requiring hydrocarbon fueled power plants to pay for the right to emit carbon, and possibly other greenhouse gases as well.

Passage of climate change legislation will signal the end of cost-free carbon emissions and the beginning of a legally imposed transition to a carbon constrained economy. It is clear that substantial change is at hand.

Much less clear is how well existing energy companies, whether focused on traditional fuels or renewable resources, will adapt to the new environment.

### THE STATE OF PLAY

Much ink has been spilled debating whether "global warming" or "climate change" even exist. As a political matter, that battle has been won by the proponents of climate change legislation. Although climate change remains sufficiently complex to preclude simple analysis, the essence of the matter has devolved into two basic propositions: that empirical data undoubtedly demonstrates a trend of substantial changes in climate patterns caused by human activity, and that the risks inherent in doing nothing and being wrong exceed the risks of doing something and being wrong.

### THE CURRENT DEBATE

The current debate is about what to do and how to do it. That dialogue initially focused on the politics of a carbon tax versus a "cap and trade" regime (i.e., "taxes bad"/"cap and trade" less so). With a growing consensus that the carbon tax is politically untenable, arguments have shifted to whether cap and trade is an economically efficient way to level the playing field between traditional fuels and renewable resources, or is itself a tax.

### CAP AND TRADE

Again, proponents of "cap and trade" are winning this argument. Their opponents have failed to explain why higher priced energy necessarily equates to a net loss of jobs and, in any event, why lost jobs should trump the lost lives and property caused by climate change. Equally important, opponents have failed to rebut basic arguments favoring cap and trade that extend beyond environmental risks (e.g., that cap and trade will encourage energy efficiency and increase U.S. energy security).

For these and other reasons, Congress is likely to adopt some form of cap and trade legislation this Fall. The final product will be heavily negotiated and likely to leave both sides less than satisfied, but will nevertheless usher in the first statutorily-sanctioned nationwide carbon trading in U.S. history.

### THE BLOWBACK FOR RENEWABLES

The prospect of climate change legislation is already creating palpable effects in the marketplace. Sponsors of hydrocarbon fueled projects are reflecting carbon costs of more than \$20 per ton (in 2006 dollars) in their economic models based on carbon market results to date.

Whatever else may be said about these cost estimates, they reflect the widespread assumption that carbon pricing will increase the costs of producing electricity with traditional fuels.

By contrast, the renewable energy industry continues to rely as much on getting paid for what it doesn't produce—greenhouse gases—as for what it does produce (clean energy). This remains problematic for a variety of reasons.

First, there is no mechanism for

ensuring that renewable energy projects receive the full carbon avoidance value of the electricity they generate. In fact, it may be argued that the monopsony power of electric utilities, combined with the nascent status of carbon markets, virtually guarantee that renewable energy will receive less than full value for its contribution to carbon mitigation.

Second, the energy market's ability to accurately reflect carbon costs in electricity prices is impaired by regulatory policies and market power. In states using "cost of service" regulation, for example, utilities will simply pass along higher costs of hydrocarbon based electricity to their customers.

Thus, higher electric prices will be limited to a specific utility's service territory, while the benefits of carbon avoidance will reach much farther. In addition, most renewable energy projects assign their carbon credits to the entity purchasing their power (typically an electric utility). As a result, renewable energy sponsors lose the long term upside value of carbon credits and electric utilities lack economic, as opposed to legally mandated, incentives to adopt carbon mitigating technologies. Third, and most obviously, renewable resources are intermittent in nature. There is no assurance that the sun will shine, the wind will blow or even that the river will flow as in the past. In many cases, the necessary renewable resources for generating electricity at a project's full capacity are available less than 50% of the time. Nuclear energy, tapping into this problem, is promoting itself as "greener" than hydrocarbon fuels and more reliable than renewables.

Lower prices for oil and gas are further depressing the growth of renewable energy. Renewable energy

economics have traditionally been predicated on the availability of both tax credits and “tax equity” investors that can utilize such credits. In the current environment, tax equity is expensive or non-existent, and projects that were economic with oil prices over \$100/barrel are now significantly less so.

Equally important, the credit crisis has severely limited access to long-term debt for renewables and thus reduced the sponsor population to a relatively small number of large institutions with strong balance sheets targeting above-market returns.

Thus, future hydrocarbon projects are being burdened with higher production costs while renewable energy projects fail to receive full value for their largely carbonfree energy. In short, barring a technological “game changer” (see below), energy prices will increase in the wake of climate change legislation, but the magnitude of the price rise, and its effects on renewable energy growth, may be less than desired by policy makers.

Three additional trends that will vector the transition to carbon caps deserve consideration:

- **ALLOWANCES.**

These carbon credits will be allocated to major carbon emitters in the cap and trade legislation. Watch for whether allowances will be auctioned or given away, and how they are apportioned among competing emitters, (e.g. incumbents vs. independents).

- **INTRA-INDUSTRY COMPETITION.**

Fuel suppliers (i.e. oil, gas and coal companies) are looking to continue their expansion into the renewables space, while electric utilities are becoming more focused on R&D, technological innovation and “smart grid” issues. Look for potential “crowding out” of smaller companies.

- **STRATEGIC TRANSMISSION.**

Governmental mandates for expanding renewable energy (e.g., renewable portfolio standards) will require expansion of the existing transmission grid. Watch for higher returns in transmission projects that simultaneously facilitate service to growing customer loads while supporting the growth of distributed generation and renewable resources.

#### DEPARTMENT OF ENERGY LOANGUARANTEES

Title XVII of the Energy Policy Act of 2005 authorized the Department of Energy (DOE) to provide loan guarantees in support of “innovative” energy technologies. In the immediate aftermath of Title XVII’s enactment, relatively few transaction applications were processed, and even fewer closed. The Obama Administration has now taken the initiative on Title XVII, first by obtaining appropriations as part of the economic stimulus legislation passed early this year, and second by enhancing DOE’s resources for processing and closing loan guarantee transactions. A series of solicitations for electric generation projects using both innovative technologies and more traditional renewable energy resources are contemplated, as well as one for electric transmission projects.

#### STRATEGIC IMPERATIVES

While passage of climate change legislation is by no means assured, pressure from state and regional initiatives, not to mention global pressure from Kyoto signatories, means that a carbon-constrained U.S. economy in the near future is a

virtual certainty. By imposing a cost on carbon emissions, carbon caps will promote both increased efficiency and reduced emissions.

Technological improvements will make renewable resources more competitive as well. The precise pattern and pace of technological “game changers” in these and other areas is as yet undetermined, but will necessarily become a fact of life.

That said, climate change legislation is no guarantee of success for renewable energy. If current economic conditions and the advantages of industry incumbents persist, renewable energy may harvest relatively few immediate benefits from this signal policy shift. On the other hand, breakthrough technologies tend to level the playing field for renewable energy and take the economic sting out of carbon mitigation.

With the economic incentives flowing from carbon pricing, significant improvements in efficiency and technological innovation are mainly a matter of time, and we can look forward to an energy sector that is at once more competitive and more responsive to environmental needs.

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