Thoughts on Financing a Low Carbon Future

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Finding the ways that work

Zero Carbon Electricity & Efficiency



Williams, et. al., The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity, www,sciencexpress.org, November 24, 2011

Energy Efficiency = Avoided Cost



Williams, et. al., The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity, www,sciencexpress.org, November 24, 2011

Assumes Management of Peak Demand



Williams, et. al., The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity, www,sciencexpress.org, November 24, 2011

From Middle East to Middle America



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Pricing Pollution Matters



\$/mmbtu	2020	2030	2040
Natural Gas	5.01	6.21	7.42
Oil	19.59	22.10	27.21
Coal	2.15	2.32	3.12
Nuclear	0.84	0.85	0.92

	2020	2030	2040
CO2 (\$/ton)	\$26	\$33	\$39
NOx (\$/ton)	\$14,913	\$20,041	\$26,934
SOx (\$/ton)	\$92	\$124	\$167
Mercury (\$/lb)	\$5,472	\$7,354	\$9,883

Internal EDF analysis - work in progress, not for attribution

- By 2040, over 80% of U.S. generation capacity will likely consist of new power plants not yet constructed today
- Pricing social cost of pollution into production costs retires coal in favor of efficiency and nuclear.
- While no single pollutant drives overall results, carbon price has dominant role over the long term (2040).
- Capital cost is not a pivotal factor; coal continues to dominate even where assumed capital cost of nuclear is reduced by 50%
- In contrast, when social costs are 70% or less of assumed value, no nuclear gets built.

What the Future Requires

- On Bill Financing: Private Capital Deployed to Finance Efficiency
- Real-Time Pricing to End Users
- Fixed Service & Facility Charge
- National Tariff to Achieve Energy Independence: Eisenhower Goes Electric