East Coast Energy Group, Summary of Meeting
Meeting #5: November 10, 2004

Here is a summary of what transpired at yesterday's meeting, which had the theme "technological change in energy/environment models." Presentation materials will be posted on our web site http://www.engr.umd.edu/~sgabriel/Other/ECEG.htm. Thirty attended the meeting, with Don Hanson of ANL winning the award for furthest travel.

Richard Newell of RfF kicked it off with an overview of economic principles and issues, pointing out that some market failures are better represented than others. "Learning by doing" is commonly represented (even though it results in nonconvexities), whereas the public good aspect of knowledge, imperfect information in markets, and the opportunity cost of innovation (you innovate in windmills, but then less resources are available to innovate in coal, perhaps) are less widely or never represented so policies directed at the latter are more difficult to analyze. We don't know how to endogenize technological change in disaggregated markets while accounting for full costs, and empirical values are missing for behavioral relationships.

Bob Eynon of EIA and Don Hansen then got us down to "brass tacks" by discussing two comprehensive energy models (NEMS and AMIGA), and how they deal with these issues. NEMS includes learning by doing in supply and in buildings on the demand side. Because of learning, solutions depend on starting points (some experience in one technology rather than another will result in lowering the costs of the former, which will result in still more penetration of the former, etc.) AMIGA is a macroeconomic that covers all 200 sectors of the economy, and has been used to look at innovative policies such as tradeable efficiency permits on equipment. The market failure of firm marginal cost of capital exceeding the average is represented; this lead to a spirited discussion of why hurdle rates for non-core investments (including energy efficiency) are so high.

The last two talks, by Bruce Biewald of Synapse and Neil Elliott of ACEEE, focused on one particularly important set of technologies (energy efficiency) and one approach (engineering-economic analysis of potential and economic savings, yielding energy efficiency supply curves). This allowed the group to wrestle with the practical issues of applying the general economic principles to a particular situation. Bruce proposed the notion that lower cost opportunities might be better characterized than higher cost ones, resulting in a downward bias for efficiency potential estimates in that part of the curve. Neal compared a number of different estimates, noting that estimates of the ratio of "economic" to "technologically possible" tend to be higher for electricity and gas. There was extensive discussion of the relationship of such bottom-up estimates to the more general production function-type parameters of aggregate models. How does one reflect particular technological opportunities in market demand models in both the short and long run? It was suggested that low cost measures that are not now being taken advantage of imply that there are market failures that policy needs to address, so putting them in as an unaltered supply curve in a market model could be misleading. Whereas higher cost measures on efficiency supply curves that might be economic in the future might partially be implemented by consumers as prices rise, and the rest would require policy measures...how does one differentiate between the two?

---Ben Hobbs, on behalf of this ECEG meeting's organizers (Skip Laitner, Fred Murphy, Steve Gabriel)