Climate and Eneregy Decision Making

Sponsored Seminar

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Presenting on:

"Flexible Regulation for Climate Policy"

November 30th, 2010
12 noon
(Lunch served at 11:50 am)

129 Baker Conference Room
Department of Enginering and Public Policy

Seminar Abstract: Achieving substantial CO2 emissions reductions while enabling the continued use of fossil fuel will likely require carbon capture and storage (CCS) technology. We examine investment choices for electricity generation under a strict emissions rate performance standard that would require the installation of CCS on fossil-fired plants. We compare the strict standard with a flexible one that imposes a surcharge for emissions in excess of standard. A third policy allows the surcharge revenue to fund later CCS retrofits. Analytical results indicate that increasing flexibility leads to the earlier introduction of CCS, lower aggregate emissions, and higher profits. We test this using dynamic stochastic optimization, with uncertain future natural gas and emissions allowance prices. Analytical predictions hold under most realizations. However, in some cases different technologies are chosen, or technology is replaced over the time horizon.

Speaker Bio: Dr. Patino-Echeverri is the Gendell Assistant Professor of Engineering Systems and Public Policy at the Nicholas School of the Environment. Her research focuses on public policy design for energy systems, with a particular emphasis on risk management. Much of her current work focuses on the policies that affect capital investment decisions within the electricity industry, and the corresponding costs to society. Her models explore the effects of different government policies by modeling the industry's decisions under uncertainty on future technological advancement, fuel prices, and emissions regulations. Dr. Patino-Echeverri received her Ph.D. from the department of Engineering and Public Policy at Carnegie Mellon University. Prior to joining Duke University, she worked as a postdoctoral researcher at the Climate Decision Making Center at CMU.

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