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Thesis: “Is Carbon Trading a Desirable Option for Brown?”

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---Executive Summary-----

“Cap and trade” programs with declining emissions caps have been promoted as an efficient way to address carbon dioxide (eCO₂) emissions, based in part on the apparent success of the US EPA’s mandatory SO_x and NO_x trading programs. Although the U.S. has not committed itself to emissions limits, a voluntary carbon emissions market, the Chicago Carbon Exchange (CCX), has been developed in the US. As of 2006, CCX now has 112 members, two of which are universities – Tufts and University of Oklahoma. In 2003, President Ruth Simmons pledged support for the goal of reducing the University’s emissions in conformance with Rhode Island’s Greenhouse Gas Initiative. Therefore, this thesis examines the question: “Is carbon trading through CCX a viable or desirable option for Brown University?”

In order to create a portrait of Brown’s University’s hypothetical trading activity, I assembled a 1990 “baseline” of Brown’s eCO₂ emissions and examine its trends in eCO₂ emissions from 1990 – 2004. I found that fuel-input (50%), electricity (40%), and transportation (10%) account for the majority of Brown’s eCO₂ emissions. Brown emitted roughly 63,000 metric tons of carbon dioxide equivalent (eCO₂) in 2004, which is 0.5% of Rhode Island’s total emissions. In addition, Brown exhibits a steady growth of 1.8% per year in total emissions. Therefore, I estimate that Brown would have to reduce its eCO₂ emissions by 2,200 metric tons per year to “break even” with the costs of trading, and by 26,880 metric tons to return to its 1990 emissions levels. Currently two other schools conduct carbon-trading, and both report credit deficits every year; Brown can expect a similar outlook.

Brown University can expect no direct financial benefit from participating in CCX because I find that the University would almost certainly have to purchase approximately 2,200 credits per year based on its 2000-04 emissions profile. However the University would be expected to experience a spike in positive media exposure, increased alumni gifts, and political legitimacy for joining CCX. The costs are primarily financial – however, Brown would likely have to pay approximately \$5,400 per year for membership, administrative costs of trading activity, and the purchase of eCO₂ credits.

I conclude that joining CCX might have important symbolic value but would be unlikely to create a major impetus for Brown to reduce its eCO₂ emissions. However, I found that Brown could pursue a variety of no- or low-cost options to reduce its eCO₂ emissions. For example, a 5% reduction in per-capita electricity use on campus would reduce the University’s emissions by 6,000 tons per year and save the University \$350,000 each year. Other feasible options include: (1) switching from residential oil (RO) to natural gas for Brown’s co-generation plant, which could reduce the University’s emissions by 19,000 tons per year, and (2) a short-payback wind turbine project funded in concert with other large private investors in Rhode Island, offering both aggregate emissions reductions as well as a strong possibility for a profit “hedge.” These alternatives are financially and environmentally appealing and should be pursued by Brown.