

**PLCY 480 / ENST 480****Environmental Decision-Making (3)**

Spring 2010

MW 3:30-4:45

217 Wilson

Instructor: Professor Richard Andrews  
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Environmental policy issues are not only about natural processes and trends, but about the impacts on them of human decisions and behavior patterns. From global warming and the stratospheric ozone hole to tropical deforestation, over-fishing, air and water pollution and urban sprawl and other issues, unsustainable or damaging uses of the environment result from human behavior: as individual consumers and citizens, as employees or managers in businesses and other organizations, as legislators and government administrators, and as representatives of countries negotiating international agreements, among other roles.

This course has two primary objectives. The first is to examine the factors affecting environmental decision-making by individuals, businesses, governments, and international institutions, and the theories and evidence available for understanding and explaining their behavior. The second is to identify the implications of these considerations for designing public policies and action strategies to promote more environmentally sustainable outcomes. The basis for this inquiry will be a combination of readings, cases, and guest presentations by environmental decision-makers. The course expectations are designed particularly to serve students majoring in public policy, environmental studies, environmental sciences, and related fields; other students interested in engaging the subject matter at that level are also welcome.

For this course, we will focus particularly on human behavior related to the causes and consequences of global climate change. We will discuss three broad types of environmental decisions: decisions by individuals, by businesses, and by governments. For each of these types of decision makers, we will discuss one to several examples. For each of these examples, we will typically discuss background readings and theories of decision-making, and several case studies, including discussion of public policy options for promoting behavior and decision-making that is better for the environment. In your papers, you will also have the opportunity to explore examples of environmental decision-making on your own and in greater depth.

## **Course requirements**

The specific requirements of the course include required readings for each class session; active participation in class discussions; several papers; and a final examination.

**Readings:** All required readings can be downloaded directly from the internet, or from the course web site on Blackboard, or in some cases from E-reserves on UNC Library's web site. **Please start by going to the course website on Blackboard immediately and downloading an electronic copy of the course syllabus.** This will allow you to access many readings directly from hotlinks in the syllabus. Updates to the syllabus will also be posted periodically on Blackboard and announced by email.

**Class discussions:** Class discussion is an important core element of the course. Please be sure to do the readings ahead of each class for which they are assigned, and come prepared to participate actively in class discussions. From time to time we will also use smaller group and team discussions.

**Written assignments.** At the end of each of the three major segments of the course, each student will be expected to submit a 5-8 page paper (longer is allowed if you wish to) representing your best ideas on the most promising strategies for improving environmental decision-making and behavior by individuals, businesses, and governments respectively.

In each paper, you are encouraged to apply what you have learned from the readings and class discussions, as well as your own research on the issue and on decision-making by the relevant type of decision-makers, to show how it can be used to improve these sorts of decisions. Be sure to use proper practices for citing and identifying all reference materials used (see handout on these practices on the Blackboard site).

**Examinations:** There will be a final examination, which will be based on the readings and related class discussions, but no midterm.

**Grades:** Grades will be calculated as follows: questions for Dr. Hansen (5%), wedge analysis paper (10%), individual and business behavior papers (15% each), government paper (20%), class participation (10%), final exam (25%).

**Documenting source materials and avoiding plagiarism:** It is very important that you develop good habits of documenting the sources both of factual statements and of the ideas, opinions, and arguments of other people that you use in any paper you write.

One basic reason for this is to be able to support the statements you make and the facts you use, both for your own future use and if anyone else should question or disagree with them. A second reason is to distinguish clearly between someone else's ideas and arguments and your own, and not confuse the two. And a third is to protect your own integrity against either deliberate or accidental representation of someone else's ideas or work as your own, which if intentional is known as plagiarism and is a serious violation of the UNC Honor Code and of the standards of ethical writing.

Please read the handout on the Blackboard site for more detailed suggestions on this subject. For additional detail on proper citation and appropriate use of other authors' materials, see <http://www.unc.edu/depts/wcweb/handouts/plagiarism.html>. For handouts on other good writing practices, <http://www.unc.edu/depts/wcweb/handouts/>.

## CLASS SCHEDULE

### I. Introduction: Environmental change, human behavior, and public policy

January 11 Introduction: Environmental issues as problems of behavior and decision-making  
January 13 Global environmental change (*Guest: Dr. Jason West, UNC ENVR Department*)  
January 18 No class (*MLK Birthday*)

### II. International decision making: negotiating global climate change

January 20 Global climate negotiated decision-making: UNFCCC, Kyoto, and Copenhagen  
January 25 Climate Diplomat: playing out the negotiations (**NOTE: this one session runs from 3:30 to 5:30 rather than until 4:45 – please save the time, or let me know ASAP if you simply cannot due to other class obligations**)  
January 27 Climate Diplomat lessons; Copenhagen results, preparation for discussion with Dr. James Hansen (*Guest: Professor Victor Flatt, UNC Law School*)

#### **Sunday evening, January 31: Assignment due (questions for Dr. James Hansen)**

February 1 Discussion: Global climate change and proposed solutions (*Guest: Dr. James Hansen, Director, Goddard Institute for Space Studies, NASA*)

**February 1 Special extra session, 7:00 p.m.: Public Lecture by Dr. James Hansen, Memorial Hall**

### III. Climate change: proposed solutions

February 3 Getting there: Wedge analysis of potential changes in policies, economy, and behavior  
**February 8 Paper due: wedge analysis proposal and rationale.**  
February 8 Wedge analysis and possible solutions (group problem-solving)

### IV. Environmental Decisions by Individuals: Consumers, Households, Citizens

February 10 Introduction: How could individual and household decisions reduce GHGs?  
February 15 Why do individuals make environmental decisions?  
February 17 Influencing values and attitudes  
February 22 Changing information, beliefs, and education / consumer choices  
February 24 Changing incentives / personal transportation choices  
**March 1 Paper due: changing individual behavior.**  
March 1 Policy options and strategies for changing individual/household behavior

### V. Environmental Decisions By Businesses

March 3 Introduction: How and why do businesses make environmental decisions? Why are some businesses “green” (but not others)?  
March 8, 10 No class (*Spring Break*)  
March 15 Business decision-making: supply chains, corporate and sectoral policies  
March 17 Case study: Wal-Mart and its Suppliers (videoconference discussion with Dr. Andrew Hutson, EDF—Wal-Mart Corporate Partnership)

- March 22 Decision-making by electric utilities. [guest: Ms. Carolyn Choi, Director - Energy Policy & Strategy, Progress Energy]
- March 24 Discussion: Walmart, Progress Energy, the building and development industry, and other types of businesses
- March 29 Paper due: influencing businesses' behavior**
- March 29 Lessons: Environmental decision-making by businesses – opportunities, barriers, and mindsets
- March 31 Case: Green buildings and the development and construction industries [guest: Ms. Krista Egger, Affordable Housing Program Manager, Advanced Energy (NC)]

## VI. Government decision-making

- April 5 Governmental decision-making for climate change: tools and agendas
- April 7 U.S. national policies and proposals for addressing climate change
- April 12 U.S. policies and proposals for addressing climate change (continued): a different perspective
- April 14 State policies and proposals for addressing climate change
- April 19 NC climate change policies and proposals
- April 21 NC climate change policies and proposals: What should the NC Legislative Commission on Global Climate Change and Energy Policy Council recommend, and how persuade state government to adopt them? [Guest: Mr. Tim Toben, Chair, NC Energy Policy Council]
- April 26 Paper due: Influencing government behavior**
- April 26 Decision-making by public universities: UNC-CH [guest: Ms. Cynthia Shea, Director, UNC Sustainability Office]
- April 28 Climate change adaptation, final discussion
- May 1 **FINAL EXAM: Take-home due Saturday, May 1, 4:00 p.m. (same time as scheduled exam period for this class)**

## CLASS SCHEDULE AND READINGS

### VII. Introduction: Environmental change, human behavior, and public policy

January 11 Introduction: Environmental issues as problems of behavior and decision-making

- Self-introductions
- Introduction to syllabus: course objectives, expectations, logistics; Q&A
- Discussion questions: What do we know, or think we know, about global environmental changes that are currently occurring? about climate change in particular? What are believed to be the magnitude and timing of these changes?
  - What are their anticipated consequences?
  - What are the apparent *causes* of these changes? To what extent are they caused by *human behavior* or *human decision-making*? Whose behavior, and who makes the decisions – individuals, organizations, governments? social or cultural norms and expectations?
  - What should be done about them, if anything? Should we try to mitigate (that is, reduce the extent of) these changes, or merely try to adapt to them? Should we leave these responses up to individuals, and to economic markets, or should governments also respond with *public policy* changes – and why or why not? What can governments do about them that individuals or other organizations can't? Is government a solution or just another cause of the problems?

January 13 Global environmental change (*Guest: Dr. Jason West, UNC Department of Environmental Sciences & Engineering*)

*Discussion*: Read the IPCC *Summary for Policymakers* report and other readings assigned below (there are several, but most are not long). To the extent that you have time and interest, also bring to class examples of any different or opposing points of view on these predictions that you find on the internet that you consider credible enough to deserve consideration.

- Discussion questions: What are the most important trends and other changes in climate and other environmental conditions that are currently taking place at a global scale? How do we know, and with what level of likelihood? What are the possible consequences, how likely are they to occur, and over what time scale?
  - How should governments (and businesses, and consumers and citizens) approach issues such as climate change involving long-term, large-scale, but uncertain consequences?
  - How should they decide among actions to *mitigate* global warming, to *adapt* to it, or some combination of the two?

Woods Hole Research Center. (n.d.). *The Warming of the Earth: A beginner's guide to understanding the issue of global warming. [A good background reading, especially for those who have not previously studied climate science]* On line (accessed 1/4/10) at [http://www.whrc.org/resources/online\\_publications/warming\\_earth/](http://www.whrc.org/resources/online_publications/warming_earth/)

Intergovernmental Panel on Climate Change. 2007. *Fourth Assessment Report: Climate Change 2007: Synthesis Report, Summary for Policymakers*. On line at [http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4\\_syr\\_spm.pdf](http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf) (accessed 1/7/10)

U.S. Global Change Research Program. 2009. Southeast region summary. On line at <http://www.globalchange.gov/images/cir/region-pdf/SoutheastFactSheet.pdf> From Regional Highlights from *Global Climate Change Impacts in the United States* (<http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf>). Accessed on line 1-7-10.

Kolbert, Elizabeth. 2009. The Copenhagen Diagnosis: Sobering Update on the Science. <http://www.e360.yale.edu/content/feature.msp?id=2214> (accessed 1-7-10)

Copenhagen Diagnosis (science update). 2009. Executive Summary. On line at [http://www.copenhagediagnosis.org/download/Copenhagen\\_Diagnosis\\_ES\\_English.pdf](http://www.copenhagediagnosis.org/download/Copenhagen_Diagnosis_ES_English.pdf) (full report at <http://www.copenhagediagnosis.org/default.html> ) (accessed 1-7-10)

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(Optional, for more detailed background information) Pew Center on Global Climate Change. (n.d.). *Climate Change 101: Overview*. [http://www.pewclimate.org/docUploads/1114\\_OverviewFinal.pdf](http://www.pewclimate.org/docUploads/1114_OverviewFinal.pdf) (accessed 1-7-10)

(Optional) National Academy of Sciences. *Understanding and Responding to Climate Change*. On line (accessed 1-7-10) at <http://dels.nas.edu/climatechange/understanding-climate-change.shtml>

(Optional) Millennium Ecosystem Assessment. 2005. *Ecosystems and Human Well-Being: Opportunities and Challenges for Business and Industry*. [An important scientific assessment of the broader range of global environmental trends and their human causes and consequences]. On line at [http://wdc.nbi.gov/ma/EcosystemsAndHumanWellbeing\\_Opportunities%20and%20Challenges%20for%20Business%20and%20Industry.pdf](http://wdc.nbi.gov/ma/EcosystemsAndHumanWellbeing_Opportunities%20and%20Challenges%20for%20Business%20and%20Industry.pdf) (accessed 1-7-10)

(Optional) Stern, Nicholas. Executive Summary. *The Economics of Climate Change* ["Stern Review"]. (Sir Nicholas Stern is Head of the British Government Economic Service and adviser to it on the economics of climate change: an influential and provocative report on the *economic* implications of climate change). [http://www.hm-treasury.gov.uk/media/4/3/Executive\\_Summary.pdf](http://www.hm-treasury.gov.uk/media/4/3/Executive_Summary.pdf) (accessed 1-7-10)

January 18 No class (*MLK Birthday*)

## **VIII. International environmental decision making: negotiating global climate change**

January 20 Global climate negotiated decision-making: UNFCCC, Kyoto, and Copenhagen

*Discussion:* Read the chapter by Hempel, and the summary of the UN Framework Convention on Climate Change and fact sheet on the Kyoto Protocol assigned below. How are *international* environmental agreements negotiated, and how do these negotiation practices influence the ways in which government negotiators make decisions affecting the environment? How do each country's *domestic* politics and political processes influence the negotiation of *international* environmental agreements?

What are the particular challenges associated with negotiating a multilateral agreement on limiting human causes of excessive global climate warming?

NOTE: We will also use part of this session to prepare for the simulation of a climate change negotiation which we will carry out during the next session.

Hempel, Lamont. 1996. The Environmental Policy-Making Process. Chapter 5 in his *Environmental Governance: The Global Challenge*. Washington, DC: Island Press, pp. 121-149. (on Blackboard)

UN Framework Convention on Climate Change (UNFCCC). 1992. Summary available on line at [http://unfccc.int/essential\\_background/feeling\\_the\\_heat/items/2914txt.php](http://unfccc.int/essential_background/feeling_the_heat/items/2914txt.php) ; full text (optional, 25 pp) on line at <http://unfccc.int/resource/docs/convkp/conveng.pdf> (accessed 1-7-10)

UNFCCC. (n.d.) Fact sheet: The Kyoto Protocol. On line (accessed 1-7-10) at [http://unfccc.int/files/press/backgrounders/application/pdf/fact\\_sheet\\_the\\_kyoto\\_protocol.pdf](http://unfccc.int/files/press/backgrounders/application/pdf/fact_sheet_the_kyoto_protocol.pdf)

(Optional) Evans, Alex, and David Steven. 2007. Climate change: the state of the debate. Center on International Cooperation, New York University. (*A useful report on a survey of public attitudes toward climate change across the major countries of the world*). Esp. Sec. 1, pp. 1-15)  
<http://www.cic.nyu.edu/internationalsecurity/docs/LondonAccordclimatepaper.pdf>

January 25 Climate Diplomat: playing out the negotiations (**NOTE: this one session runs from 3:30 to 5:30 rather than until 4:45 – please save the time, or let me know ASAP if you simply cannot due to other class obligations**)

*Climate Diplomat*: Read thoroughly and carefully the General Instructions and Economic Analysis (on Blackboard), and confidential instructions for your role (to be distributed by email), and come prepared to launch immediately into a negotiating period in your role.

January 27 Climate Diplomat lessons (debriefing); Copenhagen results, preparation for discussion with Dr. James Hansen (*guest: Prof. Victor Flatt, UNC Law School*)

*Discussion*: What were the main lessons you learned from this simulation? In what ways was this simulation similar to a real negotiation among nations? In what ways was it different?

Read the readings assigned below. What were the actual results of the negotiations at Copenhagen last month, and what lessons does the Climate Diplomat simulation suggest about environmental decision-making by governments, and especially by negotiators among governments?

Given these lessons, what do you see as the most promising strategies for international governance initiatives to achieve further reductions in human contributions to excessive global warming?

Finally, what questions should we pose to Dr. James Hansen when he visits our class next Monday?

Benedick, Richard E. 2007. Avoiding Gridlock on Climate Change. National Academy of Sciences, *Issues in Science and Technology*, Winter 2007. On line at [http://www.issues.org/23.2/p\\_benedick.html](http://www.issues.org/23.2/p_benedick.html) (accessed 1-7-10)

Copenhagen Accord – text of proposed agreement as agreed to and noted 12-18-09. On line at <http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf> (accessed 1-7-10)

Anderson, Frederick. 2009. Anderson's Notebook: What Can We Make of the Copenhagen Accord? *BNA World Climate Change Report*, December 21, 2009. (on Blackboard)

(Optional) Wara, Michael. 2007. Is the Global Carbon Market Working? *Nature* 445:595-96

**Sunday evening, January 31: Assignment due (email to instructor): Read the readings for February 1, and list at least three questions you think are the most important questions we should pose to Dr. James Hansen when he visits our class on Monday. Note that this class session is a unique opportunity to have a direct discussion with one of the world's most prominent climate change scientists and activists: he will give a few introductory remarks but not a full class lecture (his public lecture will follow in the evening), so we should use the opportunity to learn as much more from him as possible beyond what is readily available in the readings and the press.**

February 1 Discussion: Global climate change and proposed solutions (*Guest: Dr. James Hansen. Trained in physics and astronomy, Dr. Hansen is best known for his Congressional testimony on climate change in the 1980s that helped raise broad awareness of global warming. Time Magazine designated Dr. Hansen as one of the world's 100 most influential people in 2006.*)

*Discussion:* Read the readings below, and come prepared with questions to ask Dr. Hansen about global climate change, about what actions he thinks should and could be taken to limit its damage, and about his own actions as a scientist and activist to try to persuade policymakers and other leaders and citizens to take the actions he thinks are needed.

Kolbert, Elizabeth. 2009. The Catastrophist: NASA's Climate Expert Delivers the News No One Wants to Hear. *The New Yorker*, June 29, 2009, pp. 39-45. (on Blackboard)

Cope, Jerry. 2009. Storm Front: An Interview With the Nation's Foremost Climate Scientist, James Hansen. On line at [http://www.huffingtonpost.com/jerry-cope/storm-front-an-interview\\_b\\_375533.html](http://www.huffingtonpost.com/jerry-cope/storm-front-an-interview_b_375533.html) (posted December 2, 2009) (accessed 1-7-10)

(Optional) Hansen, James E. 1988. The Greenhouse Effect: Impacts on Current Global Temperature and Regional Heat Waves. Statement presented to the U.S. Senate Committee on Energy and Natural Resources, June 23, 1988. (on Blackboard)

**February 1 Special extra session, 7:00 p.m.: Public Lecture by Dr. James Hansen, Memorial Hall**

### **IX. Climate change: proposed solutions**

February 3 Getting there: Wedge analysis of potential changes in policies, economy, and behavior

*Discussion:* Reactions, afterthoughts, lessons from Dr. Hansen's talks and our discussions with him?

What kinds and scale of changes in human decisions and actions will it take to achieve the level of global climate stabilization that scientists now believe is necessary to avoid serious negative consequences?

Pacala, S., and R. Socolow. 2004. Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies. *Science* 305:968-72. (on Blackboard)

Rockström, Johan et al. 2009. A safe operating space for humanity. *Nature* 461: 472-475 (on Blackboard)

**February 8 Paper due: wedge analysis proposal and rationale (~5 pages). Turn in paper before February 8 class. Propose and justify a combination of “wedge element” solutions to keep greenhouse gas emissions at current levels (as opposed to doubling) over the next 50 years. (Note that even this challenging level of emissions avoidance would still leave emissions far higher than Dr. Hansen and other leading scientists believe is needed to prevent further serious impacts of global climate change: in their view considerably greater reductions will be necessary).**

February 8 Wedge analysis and possible solutions (class problem-solving)

Pacala, S., and R. Socolow. Stabilization Wedges: A Concept & Game. (on Blackboard)

## **X. Environmental Decisions by Individuals: Consumers, Households, Citizens**

February 10 Introduction: How could individual and household decisions reduce GHGs?

*Discussion:* In what ways are environmental changes such as global warming influenced by *individual human decisions and behavior*? by individuals’ personal or household choices as consumers, by their behavior in their workplace organizations (businesses, government agencies, institutions such as universities and hospitals, etc.), and/or by their decisions and actions in other organizations?

Read the readings listed below. What changes in U.S. individual and household behavior do Dietz et al. and Vandenberg propose as the most promising to achieve significant reductions in global warming? What do Dietz et al. mean by “plasticity” and by “reasonably achievable” reductions? How would you deal with trends such as those identified by Mouawad and Galbraith, and can you think of other trends in U.S. individual and household behavior that also are causing increased greenhouse gas emissions by households?

Consider the five different categories of behavior that Dietz et al. differentiate (W, E, M, A, D). What are the most important differences among these categories from the perspective of trying to motivate behavioral changes that would significantly reduce greenhouse gas emissions? Can you think of any additional categories that might be worth considering as well?

How much difference do you think U.S. individual and household actions could make to reducing global warming? Compared to what other causes of it? How would you begin to think about and address the impacts of individuals and households in other developed countries? In rapidly developing countries?

Dietz, Thomas; Gardner, Gerald T.; Gilligan, Jonathan; Stern, Paul C.; and Michael P. Vandenberg. 2009. Household actions can provide a behavioral wedge to rapidly reduce U.S. carbon emissions. *Proceedings of the National Academy of Sciences* 106:18452-56. On line at <http://www.pnas.org/content/106/44/18452.full.pdf+html> (accessed 1-7-10)

Mouawad, Jad, and Kate Galbraith. 2009. Plugged-In Age Feeds a Hunger for Electricity. *New York Times*, September 20, 2009. (on Blackboard)

February 15 Why do individuals make the environmental decisions they do?

*Discussion:* Why do people do things that cause these impacts, and why do they keep doing these things even in spite of the impacts?

Given these possible reasons, how would you propose to try to *change* patterns of individual behavior that cause serious environmental damage? What kinds of public policies or other actions might be most likely to influence these patterns for the better?

Read the articles by Ridley and Low, Stern, and Slovic et al. What are the essential elements of Ridley and Low's argument about how people behave toward the environment, and about what kinds of strategies environmental advocates should use (and not use) to promote environmentally sustainable behavior? What are the strengths of their argument concerning rational self-interest versus altruism, and what are the possible criticisms of it? What strategies might be most successful in influencing the Kansas farmer/irrigators (in the Ridley/Low example) to conserve their use of groundwater – the example of the European irrigators? Appealing to their altruism, their self-interest, or something else?

How is Stern's behavioral characterization of environmental decision making similar to and different from Ridley and Low's approach? What implications do these similarities and differences have for understanding and trying to influence people's environmental decisions? For instance, how would you apply Stern's VBN and ABC concepts to the Kansas irrigators of Ridley and Low's example? What strategies might Stern propose would be most successful in influencing them to conserve their use of groundwater: changing their values, their information, or their incentives, or...?

Stern's theory argues (among other things) that motivations for pro-environmental behavior are based on perceptions of risk to environmental conditions that a person values. Slovic and his colleagues describe in greater detail how people characterize and act on such perceptions of risk. What are their main findings? What implications do these findings have for theories of "rational self-interest" as a basis for people's environmental decisions and behavior?

Can you think of any examples of behavior to protect the environment that might be based on motivations other than a sense of risk or threat to environmental values? If yes, how might we amend Stern's and Slovic's perspectives to state a clearer theory of environmental behavior and decision-making?

What lessons do each of these readings offer for influencing individual behavior to mitigate and adapt to climate change? What additional ideas do they lead you to propose for dealing with this issue?

Case study: energy use. Energy production and use is a major source of environmental damage throughout the modern world, including air pollution from fossil fuel combustion and petroleum refining as well as global warming.

Which particular types of behaviors and intervention points do Gardner and Stern propose as most important and effective for reducing environmental damage from energy production and use? What strategies might one then try to design to influence behavior at each of these points?

Ridley, Matt, and Bobbi Low. 1993. Can Selfishness Save the Environment? *The Atlantic Monthly*, September 1993, pp. 76-86.

Stern, Paul C. 2000. Toward a Coherent Theory of Environmentally Significant Behavior. *Journal of Social Issues* 56(3): 407-424.

Slovic, Paul; Fischhoff, Baruch; and Sarah Lichtenstein. 1979 (April). Rating the Risks. *Environment* 21(3): 14-20, 36-39.

Gardner, Gerald, and Paul Stern. 2002. Choosing the Behaviors to Change and the Points to Intervene. Chapter 10 in their *Environmental Problems and Human Behavior* (Boston, MA: Pearson Custom Publishing, 2002, 2<sup>nd</sup> ed.), pp. 253-76.

February 17    Influencing values and attitudes

*Discussion:* Read the readings assigned below (including at least the summary of the Maibach study; the full study is much richer if you have time to read it, but optional).

According to Gardner and Stern, how do people's values and attitudes about the environment shape their decisions and behavior? How do people's values, attitudes, and perspectives about other things affect their decisions affecting the environment: for instance, about the rights of individuals, businesses, or governments to control the outcomes? About preservation of the status quo versus change: does change represent progress and improvement or risk and destruction? About material wealth and comfort versus nonmaterial values (community, spirituality, simplicity, ...)? About their own roles as individual consumers or citizens, as members of families and communities, and as managers or employees? How do *your* values, attitudes, and perspectives on these sorts of issues affect your environmental decisions?

What lessons does Maibach et al.'s "*Six Americas*" survey suggest about the roles of values and attitudes in people's climate-relevant individual behavior, and in their support for changing their own behavior and public policies to reduce carbon emissions? In light of these findings, what kinds of behavior-change strategies and policies would you propose?

*Case:* Personal transportation. The transportation sector – in particular, the effects of individual behavioral choices on purchases of motor vehicles, fuels, driving behavior, and vehicle miles traveled (VMT), and on the election of political representatives who support or oppose policies to change these behaviors – is one of the major contributors to global warming, as well as to other problems such as urban air pollution and congestion. In light of the findings from these readings, what kinds of behavior-change strategies and policies would you propose to try to reduce carbon emissions from personal transportation? What are the key barriers to change?

Gardner, Gerald, and Paul Stern. 2002. Religious and Moral Approaches: Changing Values, Beliefs, and Worldviews. From Chapter 3 in their *Environmental Problems and Human Behavior* (Boston, MA: Pearson, 2002, 2<sup>nd</sup> edition), pp. 59-70.

Maibach, Edward; Roser-Renouf, Connie; and Tony Leiserowitz. 2009. *Global Warming's Six Americas: An Audience Segmentation Analysis (summary)*. Yale Project on Climate Change and the George Mason University Center for Climate Change Communication. On line at

<http://www.americanprogress.org/issues/2009/05/6americas.html> (accessed 1-7-10)

Fontanelle, Anthony. What Triggers SUV Purchase Decision? On line (accessed 1-7-10) at <http://ezinearticles.com/?What-Triggers-SUV-Purchase-Decision?&id=498396>

Wickell, Dale. (n.d.). 5 Reasons Why People Buy SUVs. On line (accessed 1-7-10) at [http://trucks.about.com/cs/suvreviews/a/suv\\_5reasons.htm](http://trucks.about.com/cs/suvreviews/a/suv_5reasons.htm)

Popely, Rick. 2006. Hardly pumped: Fuel economy ranks 26th with car shoppers—even in times of high gas prices. *Chicago Tribune*, November 19, 2006

Ohlemacher, Stephen. 2007. More commuters driving to work alone. Associated Press, *Raleigh News & Observer*, June 13, 2007

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(Optional) Maibach, Edward; Roser-Renouf, Connie; and Tony Leiserowitz. 2009. *Global Warming's Six Americas 2009*. Yale Project on Climate Change and the George Mason University Center for Climate Change Communication. On line at <http://www.climatechangecommunication.org/images/files/GlobalWarmingsSixAmericas2009c.pdf> (accessed 1-7-10)

(Optional) Leiserowitz, Anthony; Maibach, Edward; and Connie Roser-Renouf. 2009. *Climate Change in the American Mind*. Yale Project on Climate Change and the George Mason University Center for Climate Change Communication. On line at [http://www.climatechangecommunication.org/images/files/Climate\\_Change\\_in\\_the\\_American\\_Mind.pdf](http://www.climatechangecommunication.org/images/files/Climate_Change_in_the_American_Mind.pdf) (accessed 1-7-10)

(Optional) Public Opinion Strategies / Hart Research. 2005. Environmental values poll. Read pp. 1-22. <http://www.nicholas.duke.edu/institute/surveywhitepaper.pdf> (accessed 1-7-10)

(Optional) Smart Growth America. (n.d.). The Link to Energy Security and Climate Change. <http://www.smartgrowthamerica.org/factsheets/climate.pdf> (accessed 1-7-10)

(Optional) Homer-Dixon, Thomas. 2009. The Great Transformation: Climate Change as Cultural Change. Text on Blackboard and on line at [http://www.homerdixon.com/download/the\\_great\\_transformation.pdf](http://www.homerdixon.com/download/the_great_transformation.pdf). Presentation on line at [http://www.greattransformation.eu/images/stories/downloads/homer-dixon\\_presentation\\_opt.pdf](http://www.greattransformation.eu/images/stories/downloads/homer-dixon_presentation_opt.pdf) (accessed 1-7-10)

February 22 Changing information, beliefs, and education / consumer choices

What are the strengths and limitations of trying to change people's environmental behavior through educational and informational programs? Is it true that if we just educated people better and provided them with better information, they would make environmentally responsible decisions? What do Gardner and Stern say?

What does Vandenberg mean by "norm activation," and how would this focus support his policy proposals for primarily information-disclosure strategies such as an individual carbon-release inventory, increased information on specific behaviors, information on economic and human health harms, and a "carbon-neutral registry?" What do you see as the strengths and limitations of these proposals, and what else would have to be true for his approach to work? What does Vandenberg propose as particularly promising policy proposals to motivate carbon-significant behavior changes, and? What other policy options can you think of to motivate these behavior changes?

Case: "Eco-labeling" and "carbon footprint labeling" of products. Proposals have been made to label products for their "carbon footprint." There are quite a range of

environmental product-information initiatives already in existence: for instance “dolphin-safe” labels on canned tuna fish, energy-use labels on appliances, gasoline mileage labeling on cars, recyclability and recycled-content labels, “organic” content labeling for foods and cosmetics, warning or hazard labels (toxic contents, genetically engineered foods), and “seal of approval” labels (Germany’s Blue Angel, FSC forest products sustainable-management label, sustainably-harvested fish labels).

What has been the experience so far with these other forms of environmental labeling, and given that experience, what would you expect to be the strengths and limitations of “carbon footprint labeling” as a strategy for motivating individual and household behavior change? What lessons does Germany’s Blue Angel eco-label program offer, for instance, about the relationship between changing education and information, and changing people’s environmental behavior?

Markets also are being created for individual consumers to purchase offsets for the carbon emissions associated with their decisions and behavior? How could these be designed to be an effective influence on consumer decisions and behavior? Should carbon footprint labels and individual carbon offsets be mandatory?

Gardner, Gerald, and Paul Stern. 2002. Educational Interventions: Changing Attitudes and Providing Information. From Chapter 4 in their *Environmental Problems and Human Behavior* (Boston, MA: Pearson Custom Publishing, 2002, 2<sup>nd</sup> edition), pp. 71-94.

Vandenbergh, Michael P., and Anne C. Steinemann. 2007. The Carbon-Neutral Individual. *N.Y.U.L. Rev.* 82:1673-1745. Skim initial sections as interested, read pp. 13-37. (on Blackboard)

Müller, Edda. 2005. Environmental Labeling, Innovation, and the Toolbox of Environmental Policy: Lessons Learned from the German Blue Angel Program. Chapter 2 in *Environmental Policymaking: Assessing the Use of Alternative Policy Instruments*, edited by Michael T. Hatch (Albany, NY: SUNY Press), pp.17-44.

Murray, James. 2007. Tesco to introduce carbon footprint labels. (accessed 1-7-10) <http://www.computing.co.uk/business-green/news/2200892/tesco-introduce-carbon-labels>

Specter, Michael. 2008. Big Foot: In measuring carbon emissions, it’s easy to confuse morality and science. *The New Yorker*, February 25, 2008

Rosen-Molina, Mike. 2007. Carbon Credit Report: Can buying carbon credits to offset the greenhouse gases you spew in daily life really help save us from global warming? *East Bay Monthly*, August 2007. <http://www.themonthly.com/feature-08-07.html> (accessed 1-7-10)

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(Optional) [http://en.wikipedia.org/wiki/Personal\\_carbon\\_trading](http://en.wikipedia.org/wiki/Personal_carbon_trading))

(Optional) U.S. EPA. 2001. Information Disclosure Labeling Schemes. Pp. 164-72 in its *The United States Experience With Economic Incentives for Protecting the Environment*, Report No. EPA-240-R-01-001, January 2001. [http://yosemite.epa.gov/ee/epa/ermfile.nsf/11f680ff78df42f585256b45007e6235/dal1eb5228bd1257b852569e0007130c6/\\$FILE/EE-0216B-13.pdf](http://yosemite.epa.gov/ee/epa/ermfile.nsf/11f680ff78df42f585256b45007e6235/dal1eb5228bd1257b852569e0007130c6/$FILE/EE-0216B-13.pdf)

(Optional) Thøgersen, John. 2002. Promoting “Green” Consumer Behavior with Eco-Labels. Chapter 5 in *New Tools for Environmental Protection*, edited by Thomas Dietz and Paul Stern (Washington, DC: National Academy Press), pp. 83-104.

(Optional) The European Eco-label At A Glance. 2001. On line (accessed 1-7-10) at [http://ec.europa.eu/environment/ecolabel/brochures/producers/en/versionfinal\\_en.pdf](http://ec.europa.eu/environment/ecolabel/brochures/producers/en/versionfinal_en.pdf) For examples of specific product standards see (accessed 1-7-10) [http://ec.europa.eu/environment/ecolabel/promo/broch\\_prod\\_en.htm](http://ec.europa.eu/environment/ecolabel/promo/broch_prod_en.htm)

(Optional) For additional information on eco-labels, see also [www.eco-labels.org](http://www.eco-labels.org)

February 24 Changing incentives / household energy use

*Discussion:* What are the strengths and limitations of trying to change people’s environmental behavior by changing the economic incentives they face? Is it true that if we just fixed the incentives, such as raising the price of carbon-intensive goods and services – for instance, a carbon tax or a “cap and trade” system for making carbon emissions more expensive – they would make more climate-neutral decisions?

What else would have to be true for this strategy to work? What can we learn from Gardner and Stern’s findings on incentives programs for municipal waste reduction? For household energy conservation? For incentive-based strategies more generally?

Case: The “cash for clunkers” program. The CARS Act of 2009 is widely considered a success as an economic incentive for behavioral change, but not for its beneficial effects to reducing global warming. What key design factors made this program work so effectively to get people to trade in old cars for new ones with higher fuel efficiency? How could it have been better designed to achieve similar behavioral success but greater benefits to reducing global warming? Would a higher gas tax, or a rebate for drivers of clean cars while imposing a fee on drivers of gas hogs, have worked better, as the *New York Times* argued in an editorial? Why or why not?

Gardner, Gerald, and Paul Stern. 2002. Changing the Incentives. From Chapter 5 in their *Environmental Problems and Human Behavior* (Boston, MA: Pearson Custom Publishing, 2002, 2<sup>nd</sup> edition), pp. 95-124.

Stern, Paul C. 1986. Blind Spots in Policy Analysis: What Economics Doesn’t Say about Energy Use. *Journal of Policy Analysis and Management* 5:200-227. Read pp. 200-219.

U.S. Department of Transportation, NHTSA. 2009. Consumer Assistance to Recycle and Save Act of 2009 (summary and Q&A). (*on Blackboard*)

Graham, John. 2009. Obama’s Auto Pitfalls. *The American* (American Enterprise Institute), August 16, 2009. On line (accessed 1-7-10) at <http://www.american.com/archive/2009/august/obama2019s-auto-pitfalls>

Clunkers Don’t Come Cheap. *New York Times* editorial, August 31, 2009 (*on Blackboard*)

**March 1 Paper due (before class). Write a paper of approximately 5 pages critically evaluating Thomas Homer-Dixon’s paper “The Enticements of Green Carrots” in light of what you have learned so far about approaches to**

**changing individual behavior by influencing values and attitudes, information, and incentives.**

Homer-Dixon, Thomas. 2009. The enticements of green carrots. *Toronto Globe & Mail*, August 7, 2009. On line at <http://www.theglobeandmail.com/news/opinions/the-enticements-of-green-carrots/article1245360/>

March 1 Changing individual behavior: positive vs. negative incentives.

*Discussion:* What are the most important differences between positive and negative incentives for “greener” behavior choices by individuals? What are their psychological impacts? Their economic impacts? Political feasibility and consequences? Their relative likelihood of achieving strong carbon-reduction outcomes at least cost?

North Carolina’s major electric utilities have recently been mandated to promote energy conservation and renewable energy use far more aggressively (SB 3, enacted in 2007). Other states such as Texas and California, and some utilities such as Austin Energy, already offer far more incentives for these purposes than North Carolina’s new requirements. What lessons does experience with economic incentives offer for designing effective incentives for individual actions to improve household energy conservation? Should popular utility rate plans such as predictable level-payment-per-month options be banned?

Murawski, John. 2008. State may ban popular utility plans. *The News & Observer*, February 23, 2008

NC State Energy Office residential programs. (accessed 1-7-10)  
<http://www.energync.net/programs/residential.html>

Duke Energy efficiency and conservation programs. <http://www.duke-energy.com/north-carolina/savings.asp> (accessed 1-7-10)

(Browse) Austin (TX) Energy: a model utility for energy conservation incentives.  
<http://www.austinenergy.com/About%20Us/Newsroom/Press%20Releases/2007/conservationPrograms.htm> (accessed 1-7-10)  
<http://www.austinenergy.com/Residential/index.htm> (accessed 1-7-10)

(Browse) Texas State Energy Conservation Office incentives resource page.  
<http://www.infinitepower.org/incentives.htm> (accessed 1-7-10)

(Browse) Sample residential energy conservation incentives available in Sacramento, CA (from Flex Your Power, CA’s statewide energy conservation marketing program)  
[http://www.fypower.org/res/tools/rgl\\_results.html?z=95819&s=res](http://www.fypower.org/res/tools/rgl_results.html?z=95819&s=res) (accessed 1-7-10)

**XI. Environmental Decisions By Businesses**

March 3 Introduction: How and why do businesses make environmental decisions? Why are some businesses “green” (but not others)?

*Discussion:* Decisions by business organizations – about the materials and energy they use, about their production processes, and about their products – often have far greater

environmental impact than those of individual consumers. How do businesses consider environmental impacts in making decisions that affect such impacts?

Who makes businesses' decisions affecting the environment, and what factors and pressures most strongly influence them? How do the environmental decisions of individuals as executives or agents of an organization differ from the environmental decisions they might make as individuals? What factors might cause such decisions to be different? Should they be different?

What are the distinctive characteristics of business corporations, and how do these characteristics affect their environmental (and other) decision-making?

Do you agree with Friedman's arguments about the nature and limits of corporate social responsibility? With which, and why or why not? Can you envision any circumstances in which he might be wrong (i.e. that corporations might have far broader social and environmental responsibilities than he suggests), or that would significantly modify the apparent blunt simplicity of his principles? Bring to class a list of your main points in response to these questions about Friedman's arguments.

In light of Friedman's arguments, are WBCSD's claims of business commitment to social responsibility credible? Why do some businesses publicize themselves as leaders in environmental sustainability and corporate social responsibility, while others continue to resist and even to violate environmental laws? Why are some companies active members of the Pew Climate Initiative and other environmental alliances, for instance, while others (and the U.S. Chamber of Commerce, among others) are still actively resisting them?

Is there really a "triple bottom line" for some companies – creating greater value by combining economic profit *and* environmental sustainability *and* social equity – or just a more (or less) enlightened focus on a single bottom line? What kinds of corporations would you expect to be members of an organization such as WBCSD, and which ones not? What would Milton Friedman say about the WBCSD, and why? Are Friedman's arguments persuasive?

Depending on your answers, do corporate social responsibility initiatives offer a promising basis for environmentally responsible decisions by businesses? If not, what other approaches should be considered? Government regulation? Environmental "codes of conduct" for all firms operating in each industry? Economic incentives? Other approaches?

Friedman, Milton S. 1970. The Social Responsibility of Business is to Increase Its Profits. *New York Times Magazine*, September 13, 1970.

World Business Council for Sustainable Development. 1999. "Corporate Social Responsibility In Brief" and "CSR—Delving Deeper." *Corporate Social Responsibility*. Geneva: WBCSD, pp. 3-11. On line (accessed 3/1/10) at <http://www.wbcsd.org/DocRoot/Fc7YqesJY1mU6ilvhnSZ/CSRmeeting.pdf>

(*optional*) Derber, Charles. 1998. What's Right and Wrong With Corporate Responsibility. Chapter 12 in *Corporation Nation* (NY: St. Martin's), pp. 221-41.

Cases: (Also review our January reading on business lessons from the Millennium Ecosystem Assessment).

Case: British Petroleum (BP). In the late 1990s, the CEO of British Petroleum rebranded the company as simply BP, announced that this name should also be taken to stand for "Beyond Petroleum," and launched a major initiative to position BP, the

second-largest petroleum company in the world, as a “greener” company and as the corporate leader in dealing responsibly with global warming.

Read the articles on BP, and at least skim SustainAbility’s business case for corporate social and environmental responsibility. Is BP a “green” oil company? What factors might explain its “greener” strategy than competitors such as ExxonMobil? If BP’s strategy works for BP, why aren’t Exxon/Mobil and other oil companies following its lead? What are the barriers, and how could they be removed? Bring your own examples to class of businesses that you think are doing a good job environmentally, and of companies that you think are not doing so. What’s the difference, and what are possible reasons for them?

BP. 2002. BP Beats Greenhouse Gas Target By Eight Years And Aims To Stabilise Net Future Emissions. Press release, March 11, 2002.

Frey, Darcy. 2002. How Green Is BP? *The New York Times*, December 8, 2002, Section 6, p. 99

Mouawad, Jad. 2006. A Mission to Repeal Murphy’s Law. *New York Times*, July 13, 2006: C1

(*Skim, focusing on key arguments differing from Friedman’s*). SustainAbility.com. *Buried Treasure: Uncovering the Business Case for Corporate Sustainability*. On line (accessed 1-6-07) at

[http://www.sustainability.com/downloads\\_public/insight\\_reports/buried\\_treasure.pdf](http://www.sustainability.com/downloads_public/insight_reports/buried_treasure.pdf).

*Note: if necessary, you can first register on this site at no cost at*

<http://www.sustainability.com/compass/register.asp?type=download&articleid=12>

(*Optional*) For BP’s environmental web pages see

<http://www.bp.com/subsection.do?categoryId=9004433&contentId=7007978> (and related links)

(*Optional*) For Exxon Mobil’s environmental web pages see

<http://www.exxonmobil.com/Corporate/energy.aspx>

March 8, 10 No class (*Spring Break*)

March 15 Business decision-making: supply chains, corporate and sectoral policies

*Discussion:* One important channel for influencing business decisions about climate change and the environment is their own relationships and expectations of their suppliers, business customers, companies whom they insure or to which they lend money, and companies who are members of particular trade associations. There are now a variety of examples of green requirements being imposed in some of these relationships. In principle, some such requirements can leverage changes in business behavior far more pervasively than direct actions by government; in practice, of course, they may fall short, or not be enforced, or be used as preemptive substitutes for stronger government requirements.

Read the readings below, and come prepared to discuss why some businesses or business associations would be motivated to impose green requirements on their suppliers, members, or other business partners. On Wednesday we will then have a videoconference discussion with Dr. Andrew Hutson, who has led the Environmental

Defense Fund—Wal-Mart Corporate Partnership for the past several years which recently culminated in a major public initiative by Wal-Mart to require carbon footprint reduction by its suppliers.

Rosenbloom, Stephanie. 2010. Wal-Mart Unveils Plan to Make Supply Chain Greener. *New York Times*, February 26, 2010. *On Blackboard*.

Andrews, R. N. L.; Hutson, A.; and D. Edwards Jr. 2006. Environmental Management Under Pressure: How Do Mandates Affect Performance? Chapter 5 in *Leveraging the Private Sector: Management-Based Strategies for Improving Environmental Performance*, edited by Cary Coglianese and Jennifer Nash. Washington, DC: Resources for the Future Press, pp. 111-136. *Read pp. 1-9, 15-18; skim rest as interested. On Blackboard.*

Wal-Mart. 2009. Sustainability Report 2009. *Read pp. 20-26; skim 27-65, rest as interested.* On line (accessed 3-10-2010) at <http://walmartstores.com/sites/sustainabilityreport/2009/>

Mui, Ylan Q. 2007. At Wal-Mart, 'Green' Has Various Shades ; Environmental Push Earns Mixed Results. *Washington Post*, Friday, November 16, 2007. *On Blackboard.*

(Optional) Vandenberg, Michael P. 2008. Climate Change: The China Problem. *Southern Cal. Law Rev.* 81:905-58. *Read pp. 14-19 and 25; skim the rest as interested. On Blackboard.*

(Optional) Hutson, Andrew M. 2006. *Diffusion of Environmental Practices through Supply Chain Mandates: Evidence from Mexican Industry*, Chapters 1 and 2 (Ph.D. dissertation, UNC-Chapel Hill). *On Blackboard.*

(Optional) Gereffi, Gary; Humphrey, John; and Timothy Sturgeon. 2005. The governance of global value chains. *Review of International Political Economy* 12: 78–104. *On Blackboard.*

(Optional) The Equator Principles. On line (accessed March 9, 2010) at [http://www.equator-principles.com/documents/Equator\\_Principles.pdf](http://www.equator-principles.com/documents/Equator_Principles.pdf)

March 17 Case study: Wal-Mart and its Suppliers [*videoconference discussion with Dr. Andrew Hutson, EDF—Wal-Mart Corporate Partnership*]

*Discussion:* How does the world's largest retailing business approach climate change? Why? Is its behavior typical of other major retailers? Ahead of or behind them? What factors most fundamentally drive its decisions, and how are those factors affected by anticipation of global climate change and of public policy responses to it? Why has Walmart evolved from core focus on Made in the USA and rock-bottom prices to a focus on sustainability and on mitigating and adapting to global climate change? How much has it evolved – what fraction of its business is affected by this, and is it adding or reducing costs and/or sales? What does EDF feel they have really accomplished with Walmart?

Given the fact that Wal-Mart's customers generally are unwilling to pay a premium for environmentally friendly products, how is the company deriving business

value from its sustainability and climate change strategies, or if not, how can it ensure that it does?

Walmart. 15 Questions for Suppliers (n.d.) On line (accessed 3-10-2010) at <http://walmartstores.com/download/3863.pdf>

(Optional) Wal-Mart. (n.d.). Supplier Sustainability Assessment. On line (accessed 3-10-2010) at <http://walmartstores.com/download/4055.pdf>

March 22        Decision-making by electric utilities. [*guest: Ms. Carolyn Choi, Director - Energy Policy & Strategy, Progress Energy*]

*Discussion:* How do investor-owned electric utilities approach climate change? Is Progress Energy typical? Ahead of or behind other utilities? What factors most fundamentally drive its decisions, and how are those factors affected by anticipation of global climate change and of public policy responses to it?

A key characteristic of electric utilities' decision making (and very different from manufacturing or retail industries like Walmart) is that in NC and many other states, they are regulated by a state agency to assure high reliability of service, low costs to customers, and a "fair" rate of return to the companies and their investors. The readings include two brief introductory readings (one pagers) on the NC Utilities Commission and how it regulates the major utilities, and then two primary readings: Progress Energy's Integrated Resource Planning document (the official planning document they have to submit to the NC and SC state utility regulatory commissions) and Progress's climate change policy plan; and one critical opinion piece, by John Blackburn and Jim Warren. Finally, I've also included a number of short pieces for you to take a quick look at, including Progress Energy's own Frequently Asked Questions and a few news reports about some of their recent initiatives; and optional/skim readings about several other leading utilities around the country such as Austin Energy, Pacific Gas & Electric, a global perspective from WBCSD and a group of major global electric utilities, and a new analysis of how wind and solar together could meet a high percentage of NC's electric needs (but at what cost?).

As you read, be alert to key questions that may not be fully answered. What assumptions are implicit, for example, in Progress's projections of future electric demand growth, and could these be changed? If Progress builds large new nuclear power plants, will it also have the capital and the motivation to invest in major new renewable energy facilities (such as wind and/or solar), or even in promoting energy efficiency and conservation, or will it need to encourage people to use the power generated by these new facilities in order to pay for them? Could there be an alternative option meeting far more of NC's electric demand with a combination of wind and solar, with much less need for coal, natural gas or nuclear as "baseload" or "backup" (or will these too add high costs)? And how will the added costs of new facilities affect and motivate individual and business customers – to use energy more efficiently, for instance, or use less of it? Finally, how do Progress's policies and initiatives compare with those of other leading utilities in its own industry?

NC Utilities Commission (n.d.) History and Description. On line (accessed March 17, 2010) at <http://www.ncuc.commerce.state.nc.us/overview/ucdesc.htm>

NC Utilities Commission (n.d.) Industries Regulated by the Commission. On line (accessed March 17, 2010) at <http://www.ncuc.commerce.state.nc.us/industries/industries.htm>

Progress Energy Company. 2009. Integrated Resource Plan. On line (accessed March 17, 2010) at <http://dms.psc.sc.gov/pdf/matters/7720CE30-0FA1-88A6-69350BF53B4B8DF1.pdf>

Progress Energy. 2008. *Global Climate Change: Challenges, Strategies, Actions*. Worth reading: detailed background on Progress's position and strategy. On line (accessed 3-10-2010) at [http://thomson.mobular.net/thomson/7/2714/3262/print/Climate\\_change\\_50208\\_LR.pdf](http://thomson.mobular.net/thomson/7/2714/3262/print/Climate_change_50208_LR.pdf). Read at least the Executive Summary (pp. 2-4), and more to the extent you have time and interest.

Blackburn, John, and Jim Warren. 2009. A course change for utilities. *News & Observer*, Jun 05, 2009. *On Blackboard*.

(*Skim as interested*) Progress Energy: Frequently Asked Questions. On line (accessed March 10, 2010) at [http://progress-energy.com/aboutenergy/poweringthefuture\\_carolinas/harris\\_faq.asp#28](http://progress-energy.com/aboutenergy/poweringthefuture_carolinas/harris_faq.asp#28)

(*Skim*) Murawski, John. 2008. Progress gets go-ahead to offer energy-saving plans; But state hasn't yet decided how much of the cost ratepayers will bear. *News & Observer*, October 17, 2008. *On Blackboard*.

(*Skim*) Progress Energy launches customer home efficiency programs. 7/8/2009. On line (accessed 3-10-2010) at <http://progress-energy.com/aboutus/news/article.asp?id=22062>

(*Skim*) Progress Energy programs connect business customers to solar energy. 7/6/2009. On line (accessed 3-10-2010) at <http://progress-energy.com/aboutus/news/article.asp?id=22002>

(*Skim*) Murawski, John. 2009. Progress plans solar incentives: Customers who install rooftop solar panels could be eligible for as much as \$20,000. *News & Observer*, June 4, 2009. *On Blackboard*.

(*Skim*) Murawski, John. 2009. Progress wants 31% rate jump in Florida; N.C. electricity still cheap, for now. *News & Observer*, August 30, 2009. *On Blackboard*.

(*Optional*) Austin Energy – *Resource and Climate Protection Plan to 2020*. On line (accessed 3-10-2010) at <http://www.austinenenergy.com/About%20Us/Newsroom/Reports/climateProtectionPlan.pdf>

(*Optional*) Pacific Gas & Electric Co. *Global Climate Change: Risks, Challenges, Opportunities and a Call to Action*. On line (accessed March 10, 2010) at [http://beta1.pge.com/includes/docs/pdfs/shared/environment/pge/features/global\\_climate\\_06.pdf](http://beta1.pge.com/includes/docs/pdfs/shared/environment/pge/features/global_climate_06.pdf)

(*Optional*) World Business Council for Sustainable Development. 2006. *Powering a Sustainable Future*. On line (accessed March 10, 2010) at [http://www.wbcd.org/DocRoot/WKFOhBZNTQKqRQkU1uAi/powering\\_sustainable\\_future.pdf](http://www.wbcd.org/DocRoot/WKFOhBZNTQKqRQkU1uAi/powering_sustainable_future.pdf)

(Optional) Blackburn, John. 2010. Matching Utility Loads with Solar and Wind Power in North Carolina: Dealing with Intermittent Electricity Sources. On line (accessed March 17, 2010) at <http://www.ieer.org/reports/NC-Wind-Solar.pdf> . See especially Executive Summary, pp. 5-7.

March 24 Discussion: Walmart, Progress Energy, the building and development industry, and other types of businesses

*Discussion:* What did we learn from our discussions with Andrew Hutson and Carolyn Choi, about how two major examples of businesses approach decisions involving climate change? What questions did we not ask them that we should consider ourselves?

How typical are each of these businesses of others in their sectors, and why are some more progressive on climate change than others? What are the distinctive characteristics and barriers of each of these business sectors, and how do they differ from one other and from other sectors – and what lessons do these differences provide for identifying and removing barriers in other sectors?

To consider yet another sector, what about the building and real estate development industries: what factors distinguish firms in this sector, and shape their decisions that impact climate change? What specific sub-sectors are involved, what are the distinctive barriers for each, and what might motivate them toward more rapid adoption of “green” building construction?

**March 29** **Paper due: influencing businesses’ behavior.** Based on what you will have read and learned about influencing environmental decisions by businesses, choose one type of business or industry that has significant effects on greenhouse gas emissions (not necessarily the ones we have discussed in class), and write a 5-8 page paper (longer if you wish) on how you would propose to influence business decisions to reduce their impacts on global climate change. Consider what kinds of changes would make the most difference, what the primary barriers are that need to be removed, and the most promising combination of policies and/or other initiatives to remove them including strategies to influence values and attitudes, information and beliefs, and/or incentives.

March 29 Case: Green buildings and the development and construction industries [*guest: Ms. Krista Egger, Affordable Housing Program Manager, Advanced Energy (NC)*]

*Discussion:* Buildings of all kinds make up one of the major drivers of environmental impact: on energy and materials use, air and water pollution, landscape transformation, and many other impacts. They also are one of the major types of long-term fixed investments that once built, determine such impacts for many decades. Creating and using buildings, in turn, involves a wide range of decision-makers with varied values and attitudes, information and beliefs, and incentives; and these also may differ with different types of buildings (housing, commercial, mixed-use, and other types of developments such as universities and other institutions).

In recent years there has been a substantial increase of interest in developing “green buildings” (see readings below), but such buildings are still a small minority of the new buildings under construction, and are also far outnumbered by the large existing stock of older buildings still in use.

Read the readings assigned below, including the USGBC and Langdon readings on green building practices and costs, and particularly the reading by Hoffman and Henn on barriers. Who makes decisions about buildings and their environmental impacts, and what are the barriers they perceive and face? How can these decisions be influenced toward greater environmental sustainability? Do third-party certification programs such as LEED certification offer a promising strategy, or merely a cosmetic benefit or “niche market?” What other information, incentives, and other strategies might effectively promote “greener” construction and operation of buildings by those who make such decisions?

What questions should we ask Krista Egger about the opportunities, barriers and incentives to GHG reduction that face (and/or are perceived by) decision-makers in the building and real estate development industries?

U.S. Green Buildings Council. 2003. An Introduction to the U.S. Green Building Council and the LEED<sup>™</sup> Green Building Rating System. On line (accessed 3/10/2010) at [http://www.usgbc.org/Docs/About/usgbc\\_intro.ppt](http://www.usgbc.org/Docs/About/usgbc_intro.ppt)

U.S. Green Building Council. Building Impacts – Why Build Green? On line (accessed 3-10-2010) at <https://www.usgbc.org/ShowFile.aspx?DocumentID=4317>

Langdon, Davis. 2007. *The Cost of Green Revisited*. On line (accessed 3/10/2010) at <http://www.davislangdon.com/upload/images/publications/USA/The%20Cost%20of%20Green%20Revisited.pdf>

Hoffman, Andrew J., and Rebecca Henn. 2008. Overcoming the Social and Psychological Barriers to Green Building. *Organization & Environment* 21(4):390-419. *On Blackboard*.

(Optional) Bourland, Dana. 2009. Incremental Cost, Measurable Savings: Enterprise Green Communities Criteria. Summary available on line (accessed March 23, 2010) at <http://www.practitionerresources.org/cache/documents/672/67299.pdf> ; full report at <http://www.enterprisenextgen.org/pdf/form/form.php>

(Optional) Johnson Controls. 2009. Empire State Building energy retrofit. Main website = <http://www.esbsustainability.com/> ; white paper, *A landmark sustainability program for the Empire State Building*, On line (accessed 3-10-2010) at [http://www.esbsustainability.com/SocMe/Content/Files/ESB%20White%20Paper\\_061809.pdf](http://www.esbsustainability.com/SocMe/Content/Files/ESB%20White%20Paper_061809.pdf)

(Optional) Council on Environmental Cooperation. *Green Building in North America – Opportunities and Challenges*. On line (accessed March 10, 2010) at [http://www.cec.org/Storage/61/5386\\_GB\\_Report\\_EN.pdf](http://www.cec.org/Storage/61/5386_GB_Report_EN.pdf) . See esp. Chapter 6, pp. 51-56.

March 31      Lessons: Environmental decision-making by businesses – opportunities, barriers, and mindsets

*Discussion:* what businesses / sectors did you each choose to write about, and what did you learn?

Read the articles by Hart and Andrews below. Taken together, these articles suggest potentially contradictory approaches for influencing business decisions toward greater environmental protection and sustainability: government regulation and

enforcement, or cooperative approaches based on a presumption that innovation and cooperation are in businesses' own self-interest.

*Regulation.* Friedman argued that businesses' only social responsibility, other than making a profit, is to follow the law. If he is correct, then laws and regulations, not just corporate social responsibility or "voluntary" initiatives may be necessary constraints for businesses to protect the "open access resources" of air and water from pollution and overuse. Most studies conclude that the environmental regulations of the past several decades have in fact played a major role in reducing air pollution, water pollution, and hazardous wastes from businesses, and that they also have turned waste management itself into a far safer and more professionally (and profitably) managed business than previously existed. But many scholars also argue that regulations can be inefficient (more costly than more "market-oriented" incentives), and not as effective for solving longer-term environmental problems that remain.

What effects do environmental regulations have on businesses' decisions and behavior? On businesses' values, beliefs and information, and incentives? What kinds of regulations would you expect to be least effective, and what kinds most effective, in promoting better environmental decisions and behavior by businesses? What differences in effects would you expect from so-called "market-oriented" regulations, such as those allowing businesses to "trade" pollution allowances under an overall "cap"? What about effects of information-disclosure or liability-based regulations?

What kinds of businesses would you expect to be most successful in improving their environmental performance when faced with such regulations, and what kinds least successful? What differences would you expect to result from the business's size? Its profitability? Competition? Technological innovation? Visibility to the public? Political influence? Other factors? What then are the overall strengths and limitations of environmental regulations for influencing business behavior and decision-making toward the environment?

*Innovation, creative advantage, and business self-interest.* In contrast, are "sustainable enterprise" and "natural capitalism" fringe ideas, or the way of the future? If these ideas are so promising, why haven't they already dominated the market economy? What conditions or factors would have to be present for these environmentally preferable ideas to spread to all businesses that significantly affect the environment? What roles do public policies play in defining these conditions for success, and how might they be enhanced?

Cases: Think of examples of businesses that you think are doing a good job environmentally, and of companies that you think are not doing so. What's the difference, and what are possible reasons for them?

Hart, Stuart L. 1999. Business Decision Making About the Environment: The Challenge of Sustainability. Chapter 4 in *Better Environmental Decisions: Strategies for Governments, Businesses, and Communities*, edited by Ken Sexton et al. Washington, DC: Island Press, pp. 77-90. *On Blackboard.*

Andrews, R. N. L. 1998. Environmental Regulation and Business "Self-Regulation." *Policy Sciences*, v. 31, no. 3, pp. 177-97. *On Blackboard.*

(*Optional*) Lovins, Amory; Lovins, L. Hunter; and Paul Hawken. 1999. A Road Map to Natural Capitalism. *Harvard Business Review* (May-June 1999), pp. 145-58. *On Blackboard.*

(Optional) Book, *Natural Capitalism* (by Hawken, Lovins and Lovins): An excellent book-length presentation of these ideas, with individual chapters on many specific industries and examples of ways of profitably achieving greater environmental sustainability by businesses. Downloadable chapters available on line at <http://www.natcap.org/sitepages/pid20.php>

## XII. Government decision-making

April 5 Governmental decision-making for climate change: tools and agendas

*Discussion:* What public policy “tools” can governments use to try to influence climate change decisions? Consider the range of tools Beck and Martinot identify for promoting renewable energy – and any others you can think of that are missing from their list – and for each of these tools list what you imagine might be its greatest strengths and limitations (*ungraded assignment -- be prepared to turn this in*).

Read Kingdon’s chapter. How do governments’ agendas for legislative decisions affecting climate change – and their choices of policy tools – get set? How would you apply this perspective to current U.S. national agendas for greenhouse gas reduction? How does a policy goal such as greenhouse gas reduction or environmental protection or sustainability get onto the governmental agenda, or get taken off of it? How do *political* processes influence this result?

Which of Kraft and Furlong’s models of political decision-making is most persuasive to you as an explanation of how Congress makes environmental policy decisions (elite theory, group theory, institutional theory, rational choice theory, political systems theory, ...), and why? How do issues get framed as legislative decision issues, what factors affect the framing and agenda-setting process, and how do these answers affect the outcomes?

Beck, Fred, and Eric Martinot. 2004. Renewable Energy Policies and Barriers. In *Encyclopedia of Energy*, ed. Cutler J. Cleveland (Academic Press/Elsevier Science, 2004). On line (accessed 3-10-2010) at [http://www.martinot.info/Beck\\_Martinot\\_AP.pdf](http://www.martinot.info/Beck_Martinot_AP.pdf)

Kingdon, John W. 1984. Wrapping Things Up. Chapter 8 in his *Agendas, Alternatives, and Public Policies* (Boston: Little, Brown), pp. 205-218. *On Blackboard*.

Kraft, Michael E., and Scott R. Furlong. 2004. Understanding the Politics of Public Policy. Chapter 3 in their *Public Policy: Politics, Analysis, and Alternatives* (Washington, DC: CQ Press), pp. 68-99. *On Blackboard*.

(Optional) Laird, Frank N., and Christoph Stefes. 2009. The diverging paths of German and United States policies for renewable energy: Sources of difference. *Energy Policy* 37:2619-29. *On Blackboard*.

April 7 U.S. national policies and proposals for addressing climate change

*Discussion:* Read the materials below on current U.S. policy proposals for mitigating global warming. What are their main similarities and differences, and what do you think are the most significant decision issues among them? Why?

What are the potential strengths and limitations of the several current federal greenhouse-gas mitigation proposals? What would you expect to be their likely outcomes

for human decisions and behavior, for greenhouse gas reduction, for the economy and for American society? What are the costs of each, and what do you (and the authors) count as costs? What benefits? Who gets the benefits, and who pays the costs? What economic, behavioral, and political assumptions would have to be true for them to succeed? Come prepared to present your case for why one of these approaches is preferable to the others.

Dernbach, John C., and Seema Kakade. 2008. Climate Change Law: An Introduction. *Energy Law J.* 29:1-31. *On Blackboard.*

Pew Climate Center. 2009. American Clean Energy and Security Act of 2009 at a Glance. On line (accessed 3-10-2010) at <http://www.pewclimate.org/docUploads/Waxman-Markey-short-summary-revised-June26.pdf>

Pew Climate Center. 2009. Eight Myths about the Waxman-Markey Clean Energy Bill. On line (accessed 3-10-2010) at <http://www.pewclimate.org/docUploads/Policy-Memo-2-8-Myths-July09.pdf> .

Environmental Defense Fund. 2009. Key Features of the American Clean Energy and Security Act. On line (accessed 3-10-2010) at <http://www.edf.org/article.cfm?contentID=9854>

The Cantwell-Collins CLEAR Act – How It Works. On line (accessed 3-10-2010) at <http://cantwell.senate.gov/issues/CLEAR%20Act%20how%20it%20works.pdf>

Cantwell CLEAR bill – frequently asked questions. On line (accessed 3-10-2010) at <http://cantwell.senate.gov/issues/Frequently%20Asked%20Questions.pdf>

Cantwell Bill (CLEAR) Side by Side with Waxman-Markey (ACES). On line (accessed 3-10-2010) at <http://cantwell.senate.gov/issues/CLEAR%20Act%20Side-by-Side%20with%20ACES.pdf>

U.S. EPA “Endangerment” and “Cause or Contribute” Findings, and Frequently Asked Questions. On line (accessed March 10, 2010) at <http://www.epa.gov/climatechange/endangerment.html> and [http://www.epa.gov/climatechange/endangerment/downloads/EndangermentFinding\\_FAQs.pdf](http://www.epa.gov/climatechange/endangerment/downloads/EndangermentFinding_FAQs.pdf)

(*Optional*) Williams, Erik. 2010. An Analysis of the Carbon Limits and Energy for America’s Renewal (CLEAR) Act and Comparison to Waxman-Markey. On line (accessed 4/1/10) at [http://www.nicholas.duke.edu/institute/policy\\_brief.10.01.pdf](http://www.nicholas.duke.edu/institute/policy_brief.10.01.pdf)

(*Optional*) For additional resources about the Waxman-Markey House bill, see <http://www.pewclimate.org/acesa> . For additional resources about the Kerry-Boxer Senate bill, see <http://www.pewclimate.org/clean-energy-jobs-american-power-act> . For additional resources on the Cantwell-Collins CLEAR Act proposal, see <http://cantwell.senate.gov/issues/CLEARAct.cfm>

(*Optional*) Yale 360 Debate. 2009. The Waxman-Markey Bill: A Good Start Or A Non-Starter? On line (accessed 3-10-2010) at <http://www.e360.yale.edu/content/feature.msp?id=2163>

(Optional) Boyce, James K., and Matthew Riddle. Cap and Dividend: How to Curb Global Warming While Protecting the Incomes Of American Families. On line (accessed 3-10-2010) at <http://cantwell.senate.gov/issues/Cap%20and%20Dividend%20-%20Boyce%20and%20Riddle.pdf> or [www.peri.umass.edu](http://www.peri.umass.edu)

(Optional) Hoffman, Andrew. 2009. The Limits of Carbon Pricing: Can High Prices Alone Cut Emissions? *Business Week*, November 18, 2009. On line (accessed 3/10/10) at [http://www.businessweek.com/investing/green\\_business/archives/2009/11/the\\_limits\\_of\\_c\\_1.html](http://www.businessweek.com/investing/green_business/archives/2009/11/the_limits_of_c_1.html)

(Optional) Inglis, Bob, and Arthur B. Laffer. 2008. An Emissions Plan Conservatives Could Warm To. *New York Times*, December 28, 2008. (on Blackboard)

(Optional) U.S. Climate Action Partnership. 2009. *A Blueprint for Legislative Action: Consensus Recommendations for U.S. Climate Protection Legislation*. On line (accessed 3-10-2010) at <http://www.us-cap.org/newsroom/blueprint-for-legislative-action/>

April 12 U.S. policies and proposals for addressing climate change (continued): a different perspective

*Discussion:* Read the materials below by Amory Lovins, founder of the Rocky Mountain Institute, and the more recent report by McKinsey & Co. How are these proposed solutions similar to and different from current federal policy proposals? Why? How do they treat the concepts of costs and benefits? What are the strengths and the weaknesses in their arguments? Can both they and the previous authors be right? If not, which do you find more persuasive? why?

Lovins, Amory. 2010. Climate: Eight Convenient Truths. On line (accessed March 10, 2010) at <http://www.rmi.org/rmi/Climate-+Eight+Convenient+Truths>

Wald, Matthew. 2007. Study Details How U.S. Could Cut 28% of Greenhouse Gases. *New York Times*, November 30, 2007. On Blackboard.

McKinsey & Company. 2007. Executive summary. *Reducing U.S. Greenhouse Gas Emissions: How Much and at What Cost?* On line (accessed 3-10-2010) at [http://www.mckinsey.com/client-service/ccsi/pdf/Greenhouse\\_Gas\\_Emissions\\_Executive\\_Summary.pdf](http://www.mckinsey.com/client-service/ccsi/pdf/Greenhouse_Gas_Emissions_Executive_Summary.pdf)

(Optional) Lovins, Amory. 1997. *Climate: Making Sense and Making Money*, pp. 1-26. On line (accessed 3-10-2010) at [http://www.rmi.org/cms/Download.aspx?id=1347&file=C97-13\\_ClimateMSMM.pdf](http://www.rmi.org/cms/Download.aspx?id=1347&file=C97-13_ClimateMSMM.pdf)

(Optional, additional work by Lovins) <http://www.RMI.org>, <http://www.oilendgame.com>

April 14 State policies and proposals for addressing climate change

*Discussion.* Read the chapter by Rabe and his more recent report for the Pew Center. How does environmental decision-making by state governments differ from national decision-making by the U.S. Congress? What differences in opportunities and limitations for environmental initiatives do state government decision processes present, as opposed to national ones? What are the most important initiatives being undertaken by leading

states such as California, and which of these could be adopted by other states such as North Carolina?

Rabe, Barry G. 2004. *The Politics of Climate Change, State Style*. Chapter 1 in his *Statehouse and Greenhouse: The Emerging Politics of American Climate Change Policy* (Washington, DC: Brookings), pp. 1-37. *On Blackboard*.

Rabe, Barry G. 2008. *States on Steroids: The Intergovernmental Odyssey of American Climate Policy*. *Review of Policy Research* 25:105-28. *On Blackboard*.

California's Climate Plan. On line (accessed March 10, 2010) at [http://www.climatechange.ca.gov/policies/2010-01-27\\_FACT\\_SHEET\\_SCOPING\\_PLAN.PDF](http://www.climatechange.ca.gov/policies/2010-01-27_FACT_SHEET_SCOPING_PLAN.PDF). For more details, browse California Climate Change Portal, <http://www.climatechange.ca.gov/>

Environmental Defense. 2005. *Understanding Global Warming for North Carolina*. Raleigh, NC: Environmental Defense. On line (accessed 3-10-2010) at [http://www.environmentaldefense.org/documents/3053\\_NCClimateReport.pdf](http://www.environmentaldefense.org/documents/3053_NCClimateReport.pdf)

(Optional) Rabe, Barry G. *Race to the Top: The Expanding Role of U.S. State Renewable Portfolio Standards*. Prepared for the Pew Center on Global Climate Change, June 2006. On line (accessed 3-10-2010) at <http://www.pewclimate.org/docUploads/RPSReportFinal%2Epdf>

(Optional) Probst, Kathryn N., and Sarah Jo Szambelan. 2009. *The Role of the States in a Federal Climate Program*. Resources for the Future Discussion Paper DP 09-46. On line (accessed March 10, 2010) at <http://www.rff.org/RFF/Documents/RFF-DP-09-46.pdf>

April 19 NC climate change policies and proposals

North Carolina by itself, and the U.S. Southeast more generally, are significant contributors to global greenhouse gas emissions; they also are at significant risk for its potential consequences (e.g. droughts, increasing summer energy and water demand, sea level rise, possible increased frequency and intensity of hurricanes, others). North Carolina is one of many states, though one of the first in the South, that has begun to develop significant state legislation and other policy changes to mitigate global warming. It is also one of the states facing significant potential consequences of climate change to which it may have to adapt.

*Discussion questions:* Read the readings assigned below. How are government decisions affecting climate change and greenhouse gas reduction made in North Carolina, and by whom? What are the most significant behavioral barriers to achieving government action for climate change mitigation (GHG reduction)? What kinds of policy proposals and strategies might be most promising to overcome those barriers? What evidence and reasons for these policies might be most persuasive? What lessons does Rabe's analysis of state climate-change initiatives offer for North Carolina and other states that are just beginning this process? Why isn't North Carolina doing many of the things being done in California?

What are the most significant behavioral barriers to achieving government action for *adaptation* to the potential effects of climate change? What kinds of policies might be most promising to overcome those barriers? What evidence and reasons for these policies might be most persuasive?

NC Sustainable Energy Association. 2007. *A Citizens' Guide: The North Carolina Renewable Energy and Energy Efficiency Portfolio Standard*. On line (accessed 3/10/2010) at <http://www.ncsustainableenergy.org/media/NCSEA%20-%202007%20A%20Citizens%20Guide%20-%20The%20NC%20REPS%20-%20Nov%202007.pdf>

NC Climate Action Plan Advisory Group. 2007. Read Chapter 1 of its *Draft Final Report (Chapter 1 – Background and Overview)*, accessed March 10, 2010), and read or skim any of Chapters 3-6 or others for which you have time and interest (Its home page and other chapters can be accessed at <http://www.ncclimatechange.us/capag.cfm>). Note: the appendices also are particularly useful if you want to get into any policy options in greater detail)

Proposed recommendations to the NC Legislative Commission on Global Climate Change. Read especially those by Crawford et al., and by Everett et al.; others if interested. On line (accessed March 10, 2010) at <http://www.ncleg.net/gascripts/DocumentSites/browseDocSite.asp?nID=14&sFolderName=Commission%20Report%202010\Proposed%20Recommendations%202-5-2010>

(Optional) NC State Energy Office and Energy Policy Council. On line at <http://www.energync.net/> (a variety of useful background materials)

(Optional) NC General Assembly. 2007. Session Law 2007-397 (Senate Bill 3): Renewable Energy and Energy Efficiency Portfolio Standard (REPS). On line at <http://www.ncga.state.nc.us/Sessions/2007/Bills/Senate/PDF/S3v6.pdf>

(Optional) NC Energy Policy Council. 2005. *North Carolina State Energy Plan*. On line (accessed 3-10-2010) at <http://www.energync.net/epc/docs/Energy%20Plan%202005.pdf> (now outdated, but not yet superseded by a new one)

(Optional—browse) There are a number of additional interesting documents and presentations on the web site of the NC Legislative Commission on Global Climate Change, at <http://www.ncleg.net/gascripts/DocumentSites/browseDocSite.asp?nID=14>, under “Meeting Documents” (accessed March 10, 2010).

April 21            NC climate change policy options: what should the NC LCGCC and the NC Energy Policy Council recommend? [*guest: Mr. Tim Toben, Chair, NC Energy Policy Council, and member, NC Legislative Commission on Global Climate Change*]

*Discussion:* Come prepared to discuss the discussion questions posed for the previous session concerning which of the NC LCGCC and CAPAG policy recommendations (or others) might be most promising, and what strategies might be most effective for promoting their adoption by NC government decision-makers.

The NC LCGCC is now considering which of the CAPAG recommendations, or others, to propose to state policymakers; and similar bodies are doing so in other states. Both advocates and critics of such policies are now beginning to assert their views.

Read the critiques below, along with the readings for the previous two sessions (especially the recommendations by Crawford et al. and by Everett et al.). In light of what

you have learned so far, what actions would you recommend by NC state government policymakers if you were a member of the NC LCGCC?

NC Climate Action Plan Advisory Group. 2007. Read Chapter 1 of its *Draft Final Report (Chapter 1 – Background and Overview)* , accessed March 10, 2010), and read or skim any of Chapters 3-6 or others for which you have time and interest (Its home page and other chapters can be accessed at <http://www.ncclimatechange.us/capag.cfm> . Note: the appendices also are particularly useful if you want to get into any policy options in greater detail)

Proposed recommendations to the NC Legislative Commission on Global Climate Change. Read especially those by Crawford et al., and by Everett et al.; others if interested. On line (accessed March 10, 2010) at <http://www.ncleg.net/gascripts/DocumentSites/browseDocSite.asp?nID=14&sFolderName=\Commission%20Report%202010\Proposed%20Recommendations%202-5-2010>

Bakst, Daren. 2008. Taxes, Subsidies, and Regulation: A Guide to North Carolina's Proposed Global Warming Policies. A Policy Report from the John Locke Foundation. On line (accessed March 10, 2010) at [http://johnlocke.org/site-docs/research/Global\\_warming\\_final.pdf](http://johnlocke.org/site-docs/research/Global_warming_final.pdf)

(Optional) LaCapra Associates. 2006. *Analysis of a Renewable Portfolio Standard for the State of North Carolina*. See esp. Executive Summary, pp. 5-20. On line (accessed 3-10-2010) at <http://www.ncuc.commerce.state.nc.us/reps/NCRPSReport12-06.pdf>

**April 26**      **Paper due: Influencing government behavior.** Pick one of the major CAPAG or LCGCC proposed recommendations (or one of your own, if you think of one you think would be more effective), and analyze its strengths and limitations in light of the behavioral barriers that it would need to overcome to be successful (likelihood of adoption, likelihood of successful implementation and staying power/path transformation, likelihood of meaningful impact). Propose your strongest arguments for adopting it, and identify and rebut what you would anticipate to be the strongest objections that might be made against it.

April 26      Decision-making by public universities: UNC-CH [*guest: Ms. Cynthia Shea, UNC-CH Sustainability Coordinator*]

Read the UNC *Climate Action Plan*, the Climate Commitment, and the articles by Monastersky and Blum; also browse the *Campus Sustainability Report* as interested.

How do people serving as senior managers in large nonprofit institutions such as universities make decisions, and how do these practices influence the ways in which they make decisions affecting the environment? What special considerations apply to universities? And especially to public universities, as government enterprises, vs. to private universities such as Yale? What are their main drivers for serious greenhouse-gas mitigation and sustainability initiatives, and what are the biggest barriers? How has UNC so far managed to overcome some of these barriers, and which are the most important ones remaining?

UNC-Chapel Hill. 2009. *Climate Action Plan*. On line (accessed March 10, 2010) at <http://www.climate.unc.edu/portfolio/cap2009>

(Browse as interested) UNC-Chapel Hill. 2009. *2009 Campus Sustainability Report*. [http://sustainability.unc.edu/Portals/0/Documents/2009\\_UNC\\_Sustainability\\_Report\\_web.pdf](http://sustainability.unc.edu/Portals/0/Documents/2009_UNC_Sustainability_Report_web.pdf)

American College & University Presidents Climate Commitment. On line (accessed 3-10-2010) at <http://www.presidentsclimatecommitment.org/html/commitment.php>

Monastersky, Richard. 2007. Colleges Strain to Reach Climate Friendly Future. *Chronicle of Higher Education*, December 14, 2007. On line (accessed 3-10-2010) at <http://chronicle.com/weekly/v54/i16/16a00101.htm>

Blum, Andrew. 2008. Carbon Neutral U. *Metropolis Magazine*, February 2008. On line (accessed 3-10-2010) at <http://www.metropolismag.com/cda/story.php?artid=3150> . SEE ALSO illustrations at:

[http://www.metropolismag.com/PDF\\_files/3150/GRI1.pdf](http://www.metropolismag.com/PDF_files/3150/GRI1.pdf)

[http://www.metropolismag.com/PDF\\_files/3150/GRI2.pdf](http://www.metropolismag.com/PDF_files/3150/GRI2.pdf)

(Optional) UNC Energy Task Force. 2010. Minutes of first meeting. On line (accessed March 10, 2010) at

[http://www.unc.edu/chan/chancellors/thorp\\_holden/files/energytaskforce/UNC%20Energy%20Task%20Force%20minutes%20final%202-10-10.doc](http://www.unc.edu/chan/chancellors/thorp_holden/files/energytaskforce/UNC%20Energy%20Task%20Force%20minutes%20final%202-10-10.doc)

(Optional) UNC Energy Task Force. 2010. Q&A on coal-fired power plant following first meeting. On line (accessed March 10, 2010) at

[http://www.unc.edu/chan/chancellors/thorp\\_holden/files/energytaskforce/EnergyTaskForceQuestionsandAnswers1stMeeting.docx](http://www.unc.edu/chan/chancellors/thorp_holden/files/energytaskforce/EnergyTaskForceQuestionsandAnswers1stMeeting.docx)

(Optional) UNC Energy Task Force. 2010. Presentation on UNC-CH's coal-fired co-generation power plant. On line (accessed March 10, 2010) at

[http://www.unc.edu/chan/chancellors/thorp\\_holden/files/energytaskforce/CogenPresentationforEnergyTaskForce.ppt](http://www.unc.edu/chan/chancellors/thorp_holden/files/energytaskforce/CogenPresentationforEnergyTaskForce.ppt)

(Optional) UNC-Chapel Hill. (n.d.). Sustainability policy documents and resources. <http://sustainability.unc.edu/Default.aspx?tabid=158> (see especially "Top Ten Things UNC is Doing About Climate Change,"

<http://sustainability.unc.edu/Initiatives/tabid/53/Default.aspx> )

(Optional). Black, Sarah; Vaidyanathan, Shruti; and Michael Sciortino. 2009. *Energy-Efficient Program Options for Local Governments under the American Recovery and Reinvestment Act of 2009*. American Council for an Energy-Efficient Economy (ACEEE) Report No. E09X. on line at <http://aceee.org/getfile.cfm?publicationid=125>

April 21            Last class: Climate adaptation issues and policies for North Carolina

*Discussion:* Whatever we find the personal commitment, market incentives, and political will to do about mitigating climate change (reducing greenhouse gas emissions), we can already identify the need to adapt to the consequences of climate change that are already happening and foreseeable, not just from mathematical models but from empirical evidence. What should we do to promote appropriate and effective adaptation to climate change – at the level of individuals, businesses, and particularly governments?

Read the following readings, and think about the various ways in which decisions made by governments and businesses and individuals today might be made differently if they took full account of the climate change trends now visible and predicted. is What

sectors of the economy would be most affected? What would you want decision-makers in those sectors to do differently to prepare for these trends, and to manage their way through them to sustainable outcomes? And what public policies should be adopted, or at least seriously considered, to encourage these results?

US Global Change Research Program. *Global Climate Change Impacts in the U.S.: Southeast* (summary)  
<http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/regional-climate-change-impacts/southeast> (full Southeast chapter available at <http://www.globalchange.gov/images/cir/pdf/southeast.pdf> ).

Fox, James, et al. 2010. *Climate Change Adaptation and Potential Impacts on the Three Regions of North Carolina*. On line at  
[http://www.climatechange.nc.gov/pages/ClimateChange/Fox\\_Three\\_Regions\\_Potential\\_Impacts.pdf](http://www.climatechange.nc.gov/pages/ClimateChange/Fox_Three_Regions_Potential_Impacts.pdf)

Johnson, Zoë. 2010. *Climate Change Adaptation Policy & Practice: Maryland Case Study*. On line at  
[http://www.climatechange.nc.gov/pages/ClimateChange/Johnson\\_Maryland\\_Adaptation\\_Policy.pdf](http://www.climatechange.nc.gov/pages/ClimateChange/Johnson_Maryland_Adaptation_Policy.pdf)

(Optional – skim if interested) Flatt, Victor. 2010. Adapting Legal Regimes in the Face of Climate Change Workshop (notes, on Blackboard).

April 28            [OPTIONAL – original last class agenda] Last class: final discussion; hand out take-home final exam.

*What are the most lessons from what we have discussed concerning ways to change human decisions and behavior that affect environmental problems such as global warming?*

*What does Diamond identify as the key problems in environmental decision-making that have shaped the success or failure of civilizations? How might these considerations apply to decisions affecting climate change and other current trends in global environmental change?*

*What does the Millennium Ecosystem Assessment identify as the most important changes in environmental decision-making that are needed today to achieve an environmentally sustainable future for our civilization?*

*What other key lessons have we learned this semester about climate change decision-making, and what other aspects of environmental decision-making should we note that we did not discuss?*

Diamond, Jared. 2005. *The Ends of the World as We Know Them*. *New York Times*, January 1, 2005, p. A13.

Millennium Ecosystem Assessment. 2005. *Options for the Future*. Pp. 21-23 (Adobe pp. 23-25) in its *Living Beyond Our Means: Natural Assets and Human Well-Being*. On line (accessed 3-10-2010) at  
<http://www.millenniumassessment.org/documents/document.429.aspx.pdf>

*(Optional) Diamond, Jared. 2004. Lessons From Environmental Collapses of Past Societies. Fourth Annual John F. Chafee Memorial Lecture on Science and the Environment, National Council for Science and the Environment, January 29, 2004. Read particularly the section toward the end on a hierarchy or sequence of four decision points that may result in good or bad decisions (in the article, hit "CTRL-F" and type in "hierarchy"). Read pp. 18-35, with particular attention to pages 25-33. On line (accessed 3/10/2010) at [http://www.ncseonline.org/ncseconference/2004conference/page\\_fid=4142.cfm](http://www.ncseonline.org/ncseconference/2004conference/page_fid=4142.cfm)*

May 1

**FINAL EXAM: Take-home exam will be distributed at final class, Wednesday, April 28, and due Saturday, May 1, 7:00 p.m. (same time as scheduled exam period for this class)**