

Carbon Sustainability Wedges

Assignment:

Robert Socolow and Stephen Pacala make two important contributions to the public discussion of climate change and energy policy. First, they provide a framework for conceptualizing the scale of carbon mitigation necessary to address climate change and, second, they provide a portfolio of existing technologies which could be scaled up to mitigate climate change. Your assignment is to investigate in more detail one of the fifteen carbon wedges (which will be assigned to you). The purpose of this assignment is to outline these wedges in some detail, so that your fellow students may draw on your research when compiling a strategy for addressing climate change (assignment #7 and #8).

The final product of Assignment #6 will be a 1- to 2-page single-spaced analysis (no more! 2 pages is the absolute maximum, including illustration and footnotes) of your assigned carbon wedge which addresses the following topics: an elaboration of the proposed wedge and how it might be implemented; examples of such technology already in production or operation; consideration of environmental, economic, and social costs associated with scaling up the strategy; other interesting information including an illustration (only include an illustration if useful), and a list of relevant sources (at least 3 useful sources). Please submit this assignment by 11.59pm on Wed., 4/29, so that I may make it available to the class on Thursday morning. Use the template on the following page.

Sources:

To complete this assignment you will need to conduct independent research on the web. Use your good judgment: draw on peer-reviewed sources when possible and when drawing on other sources, be careful that they are reliable sources of information (leading journals, newspapers, magazines, or government or non-government institutions). Be wary of unsubstantiated blogs, other student work on the web, or other undocumented sources. I'm happy to be a resource: if you are stuck finding sources or unsure about the quality of the sources, come see me or drop me an email.

Please cite your research using footnotes that include the following information for each web page: Author (if available), "Title of Page," Institution, and web address. For the first website below, the proper citation would be: "Wedge Summary Table," Princeton Carbon Mitigation Initiative, <http://www.princeton.edu/~cmi/resources/wedgesumtb.htm>

Here are some useful starting points for researching some of these wedges.

Background calculations on the carbon wedges:
<http://www.princeton.edu/~cmi/resources/wedgesumtb.htm>

Detailed supporting information from the authors of the wedge theory (search this document for information relevant to your wedge):
http://www.princeton.edu/wedges/calculations_data/Wedges_Science_SOM.pdf

U.S. Department of Energy's Energy Efficiency and Renewable Energy webpage:
<http://www.eere.energy.gov/>

MIT Study on the Future of Coal. This report includes information on high-efficiency coal power plants, sequestration, syngas, etc.
<http://web.mit.edu/coal/>

MIT Study on the Future of Nuclear Energy.
<http://web.mit.edu/nuclearpower/>

Please use this template to assemble your write-up (you may modify it as necessary)...

Wedge #x: One-line description of wedge.

Profile by: Authors' names

Detailed description of wedge and how it might be implemented:

Description here.

Are there examples of such technology already in production or operation?

Description here.

What are the challenges of implementing this wedge (political, economic, technological)?

Description here.

What secondary environmental and social costs are associated with this technology?

Description here.

Relevant diagram, photograph, or image (if it enhances your analysis).

Description here.

Useful sources for further information:

Sources.