

## **The Wedge Game Assignment—Slightly modified from [Princeton University Carbon Mitigation Initiative](#) by Kathy Donnelly, TPP 07**

**BY** class on 9/20, read the entire Wedge Game Assignment and complete the Pre-Game Directions tasks below. Approximate time: 2.5 to 3 hours.

The goal of the game is to build a plausible and politically acceptable portfolio of strategies to keep global carbon emissions flat for the next 50 years. Teams can choose to use each strategy more than once, but must consider the potential physical and economic limitations of each strategy.

### **Pre-Game Directions:**

Visit the [Princeton University Carbon Mitigation Initiative](#) webpage (<http://www.princeton.edu/~cmi/resources/stabwedge.htm>) and explore the website in the following order:

1. Read Introduction and run shockwave introductory presentation
2. Download and read the two background articles
3. Download and read the stabilization wedge game rules (found under the Interactive title)
4. Download and read the wedge strategies in detail (15 total)
5. Re-read page 8 of the wedge game
6. Review sample fact sheet from the UK
7. Select your preferred country choice **and** two backup countries and email for approval (**by 8 pm 9/18**). First come, first served!  
Choices: US, Brazil, New Zealand, Australia, Canada, South Africa, China, India, France, Venezuela, Germany, Japan, Russia. Your country and team assignments will be announced in class on 9/20. While we will try to give everyone their top choices, country assignments will be assigned to encourage global diversity.
8. You may also wish to look through the articles from the September 2006 Scientific American magazine special issue “Energy’s Future—Beyond Carbon” at <http://www.sciam.com/issue.cfm>.

Additional rules:

1. You will determine the best global strategy considering the following factors for your country: economic, energy demand, energy security, environmental, policy, equity, mobility, implementation, and technology issues when selecting your wedge strategies and building your wedge triangle.
2. Your team may develop its own wedges, but must come up with very simplified costs and impacts for each wedge (like the Princeton wedge calculations (see Wedge Table in Princeton Wedge Concept Game directions)).
3. Questions will be taken until Saturday, September 30<sup>th</sup> at noon and answers will be emailed to the entire class.

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**Game Directions**<sup>1</sup>

1. Follow the Wedge Game Directions on page 8. Determine the global strategy from your assigned countries' perspective.
2. Develop your assigned countries' proposed global Wedge Table (like page 12 to 13 of Wedge Concept Game Materials).

**Submissions:**

1. One page outline of work plan (tasks, due dates, and resources (assigned person)) (Due by end of class 9/20)
2. Five to ten page Fact Sheet, including graphics and tables, summarizing your global wedge strategy. See additional rules number 1 and simplified sample (turn in as PDF document—Due by 5 pm October 1<sup>st</sup>)
3. 5 minute PowerPoint presentation of your wedge strategy (Due in class on October 2<sup>nd</sup>)

On October 2<sup>nd</sup>, each team will give a FIVE minute (very strict time limit) presentation on why the world should choose their strategies.

**Grading:** Wedge Strategy: 40%, Fact Sheet: 35%, Presentation: 20%, Work Plan 5%

**Judging:**

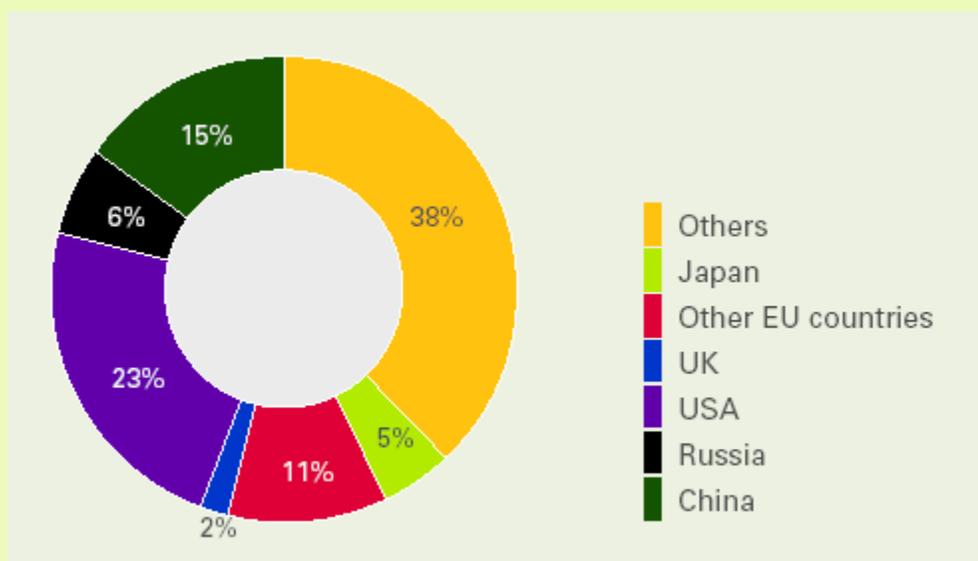
Each team will be judged on its ability to defend its portfolio of strategies, considering both capacity constraints and social (political and economic) impacts of each technology. The team with the highest-scoring stabilization triangle wins the game.

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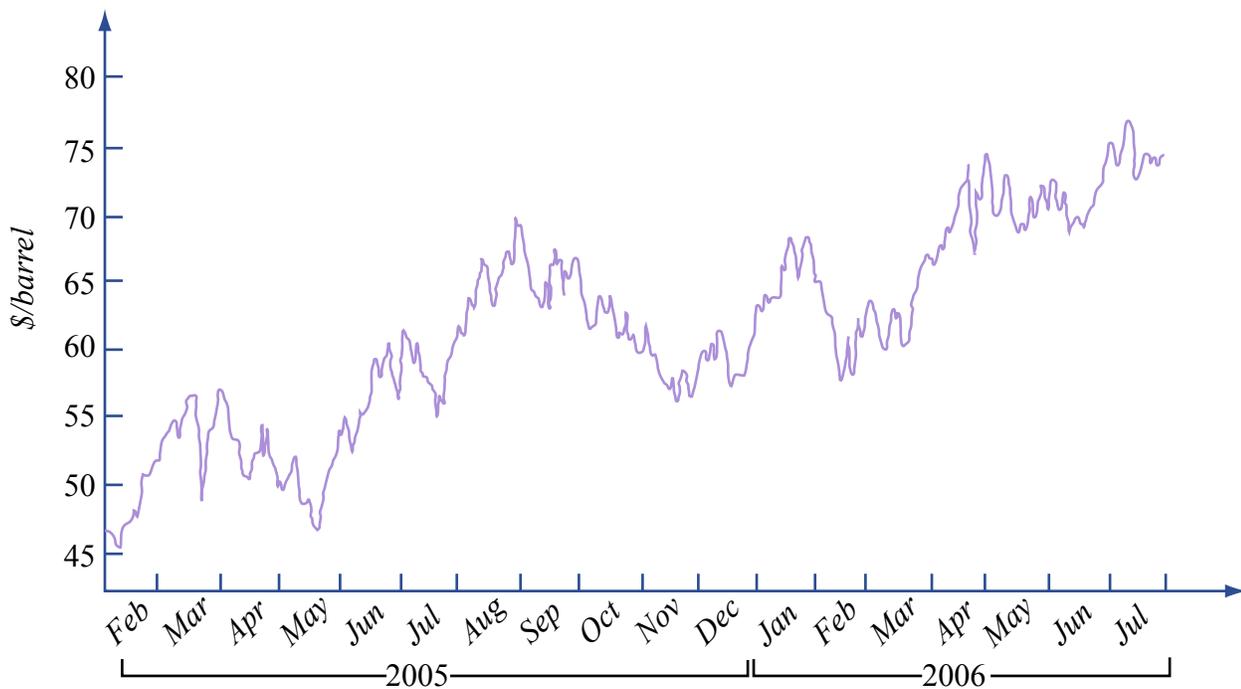
<sup>1</sup> Useful websites: UNC Chapel Hill Units Dictionary: <http://www.unc.edu/~rowlett/units/index.html>  
BP 2005 World Statistics: <http://www.bp.com/productlanding.do?categoryId=6842&contentId=7021390>  
International Energy Agency, IEA: <http://www.iea.org/>  
CIA World Factbook figures: <https://www.cia.gov/cia/publications/factbook/geos/uk.html>

### A Few Interesting Charts:

**CHART 3: GLOBAL EMISSIONS OF CARBON DIOXIDE, 2003**

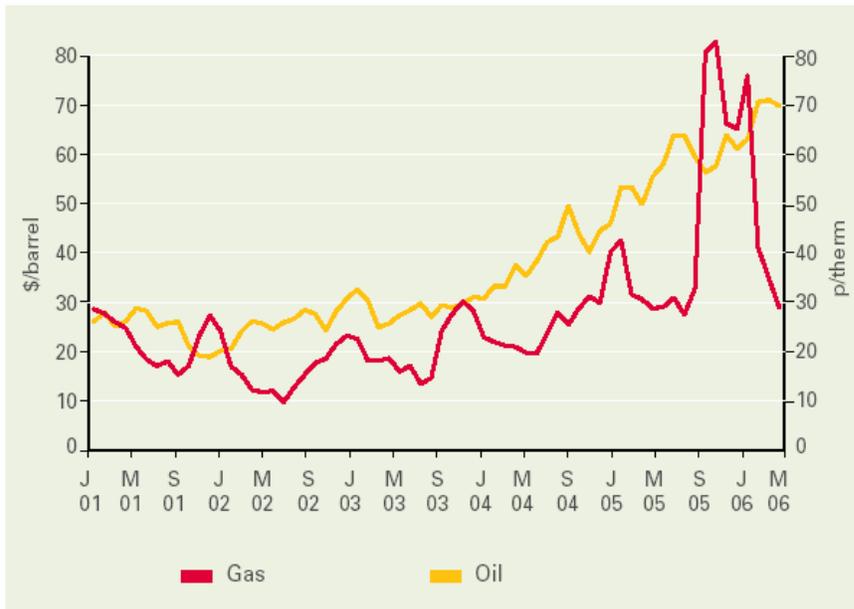


Source: IEA, 2005.



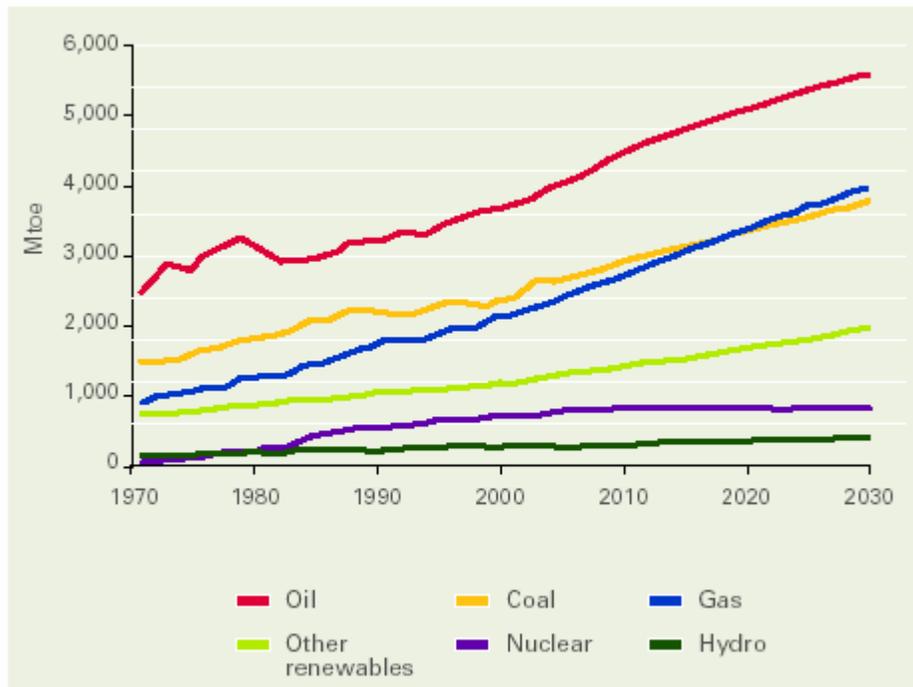
Oil price (WTI) 18 months from 1<sup>st</sup> February 2005 to 31<sup>st</sup> July 2006

**CHART 11. OIL AND GAS PRICES**



Source: DTI, 2006

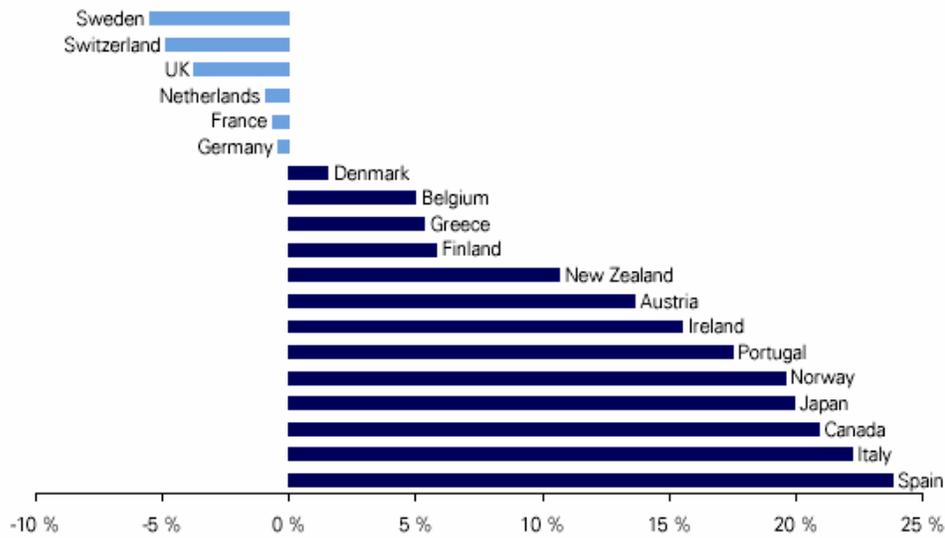
**CHART 10. GLOBAL ENERGY DEMAND TO 2030, BY FUEL**



Source: IEA, 2005

**Figure 2.3 Winners and sinners**

Relative distance to the Kyoto target for countries covered in the study after all policies and programs have been accounted for. Assumes that current allocation in EU ETS continues in phase 2.



Source: Point Carbon

Courtesy of Point Carbon. Used with permission.

**CHART 9. WORLD PROVEN RESERVES OF NATURAL GAS (2004)**



Source: Cedigaz, 2004