Group Project Assignment for World Energy: An Interactive, Computer-Simulation-Based Policy Exercise

Your Role

Your team is a group of experts making recommendations to the chair of the "Sustainable Energy for All" initiative of the U.N., who will forward three sets of recommendations to the General Assembly.

Your Mission

Your mission is to recommend a set of global investments, actions and policies that would meet, as much as possible, five goals:

1. **Climate**. Make as much progress as possible towards limiting post-industrial temperature increase to two degrees C.
2. **Economy**. Support economic health. Drive a global energy transition that would least disrupt the economy and most address poverty.
3. **Equity**. Provide a solution that is fair for the poor and the rich.
4. **Environment**. Minimize non-climate-related harmful effects on the environment.
5. **Viability**. Be sure your solution could happen if human civilization was at its best.

You will further work to represent the goals of your "interest group" you are representing.

Your Tools

You will be testing aspects of your recommendations using the computer simulation En-ROADS, which was created by Climate Interactive, Ventana Systems and MIT Sloan. Its purpose is to explore the long-term energy and climate implications of a range of investments and policies related to GDP, energy efficiency, fuel mix, emissions price, land use and other factors.

The software will show you the long-term effects on energy use, energy mix, temperature increase and other factors over the coming century.

More general information on the simulation is available here:
http://www.climateinteractive.org/simulations/en-roads

Your Assignment

There are three parts to this group assignment: a PowerPoint slide, a report including a causal loop diagram and a three-minute presentation.

The following is the weighting of each part in your group's grade: a PowerPoint slide (20%), a report including a causal loop diagram (50%), and a three-minute presentation (30%).

1. PowerPoint Slide Assignment

Create a single PowerPoint slide that summarizes your proposal. You will use it to present your proposal to the other expert groups in your three-minute presentation.

Use the following slide as a template for your slide. Include the same five pieces of content: team name, pithy title, list of proposals, one graph and 2100 temperature

You will not be able to include in your slide everything that is interesting about your proposal.

[Team Name]:[Pithy Version of Strategy]

Our recommendations

- **[Specific action #1]**
  - **Using the name of the exact lever in En-ROADS**
- **[Specific action #2]**
- **[Specific action #3]**
- **[Specific action #4]**
- **[Specific action #5]**
- **[Specific action #6]**

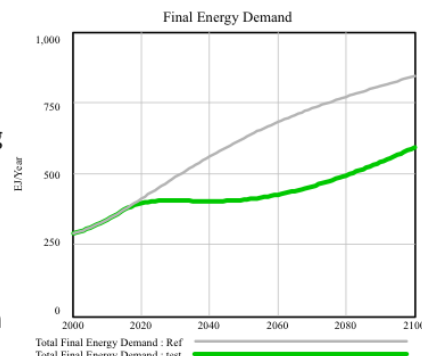[Graph of your choosing that helps tell the story of your strategy and/or your results]

2100 Temperature Increase = [Your result]

Example of slide:

Team Pacific: Nukes, Tax, and GDP

Our recommendations
- **Emissions price** $1.87 starting in 2080
- Nuclear **Subsidy** .2 starting in 2018
- **Other gases** .4
- GDP Growth **Short term** 5.0%/year
- Renewables **Breakthrough cost reduction** .38
- **REDD** .7

2100 Temperature Increase = 2.4 degrees C

(Not intended to be realistic proposals)

2. Writing Assignment

Write a report as a team. Respond to **all** the questions (i.e., your report will have one section for each question below).

Results

1. **Scenario**. What were the settings in the simulation? What "2100 Temperature Increase" did you achieve? Include your PowerPoint slide. And also add any other graphs that you think relevant.

Systemic Structure

2. **Loop/stock-flow diagram.** Draw a causal loop and/or stock-flow diagram that includes causal connections feedback loops that seem to be at work in the En-ROADS simulation. Include at least two loops. Make sure to include "S" or "O" for each link and indicate whether the loop is reinforcing or balancing. Note – you will **not** be able to capture all the connections. Focus on an area of interest. Your diagram could be hand-drawn or created in computer graphics. Either is fine. Spend more time on clear thinking and multiple drafts than fancy graphics.

Meeting Goals

3. **Climate.** How well do you think your proposal does regarding meeting climate goals? If not well, why is this acceptable to you?
4. **Economy.** If the world followed your recommendations, how would the economy be different in 2030? In what ways better? In what ways worse?

5. **Equity.** To what extent does your proposal seem fair and equitable regarding the rich and the poor?
6. **Environment.** How much did you solve climate problems but create other environmental challenges?
7. **Viability.** What would it take for your proposal to be realized?

Implications

8. **Winners/Losers.** Who would be the biggest winners globally in your proposal future? Biggest losers?
9. **Role of business.** What would be required of global business to make your proposal happen? Which industries would require the most significant transformation in thinking and leading?
10. **Getting started.** For your proposal to be implemented, what would need to be the priorities for business, civil society and government over the next two years?

Reflections

11. **Surprises.** What surprised you about the behavior of the energy system as captured in this simulation?
12. **Group diversity of views.** What were the components of your proposal that attracted the most debate and disagreement? What were the principles that differed underneath the debate?
13. **Effect.** How did it feel to see the behavior of the energy and climate system as captured in the simulation?

There is no minimum or maximum length to the report. However, longer is not necessarily better. Clear, tight, focused writing will be rewarded.

3. Presentation

Deliver a three-minute presentation.

Your goal is to convince your colleagues to forward your proposal as one of the three that will be carried forward to the U.N. General Assembly by the chair of "Sustainable Energy for All."

You may use the PowerPoint slide described above.

Do not speak longer than three minutes.