The new London transport bus, designed by Heatherwick Studio and Wrightbus, meeting strict emissions standards of 640g CO₂ per km and 3.96 g of oxides of Nitrogen per km, while retaining the famous traditional look and allowing rear entry.
Team Division Orientation
(3 X 2) voluntary teams

Conventional Fuels

- Crude Oil / Nuclear
- Natural Gas / Hydro
- Coal / Electricity

Renewables

- Solar [Photovoltaic/Large scale]
- Wind
- Geothermal
- Conservation [Trans/Buildings]
- BioMass
- Tides/Wave

? Bicycles???
Each team must ...

1. Choose a CEO (for the six)
   • Who will keep the team organized and on track and may delegate some responsibilities
   • Act as liaison to me
   • Keep the collective writing project under control
2. Divide into sub-teams of three for focus on subsector
3. Start doing a general search for background support information for data, technology description, white papers and other useful information pertinent to your area
4. Systematically download key material to a depository on Sakai for others in the class to use.
5. Be prepared to report to the class as a whole about what you have discovered (I will give you ample warning – at least 5 days – before you will be asked to do this)
**General questions that we need answered ... (first stage)**

1. What is the long-term price history of the key (root) commodity in question?
   - in nominal terms
   - adjusted for price inflation
2. What is the long-term price history of subsidiary commodities (such as distillates for crude oil), if relevant?
3. What is the current breakdown of the **use** of the resource (demand)?
4. What is the current breakdown of the **source** of the resource (supply)?
5. What is the **historical** breakdown of the **use** of the resource (demand)?
6. What is the **historical** breakdown of the **source** of the resource (supply)?
7. To the extent this can be determined, what is the KwH cost of using this resource in as many applications as you can determine?
8. To the extent that this can be determined, what are the emissions effects of using this resource?
Descriptions and economic assessment of the technologies

Some of you must be able to translate the engineering or chemistry or physics into the economics – you have to feel comfortable moving back and forth between the technology and its cost, and where both are going.

For the educated lay analyst, you must be able to describe the technology, where it has been, where it is likely to go (or where the options are) and how it affects kWh per $.

It is aluminum ... what is the direct financial tradeoff for doing it this way?

.... I want you to make the calculations, not look them up!!
Based upon personal interest of the individual, each team can have a “specialist” dedicated to a linked area, very specialized or merely focused, and subject to my approval, on a topic like

- the specifics, from a scientific point of view, of the global warming argument, as it ties to subjects in this class;

- the specifics of California’s energy plan, its rollout, and the technologies implied;

- automotive or transportation technology specifically, where it is likely to go and the fuel-use and environmental impact;

- the technology and promise of conservation, especially in construction, and the fuel-use and environmental impact;

- super-specific technologies, like bicycling and bike lane design, development, and usage – the Dutch experiment, etc.
What each team is expected to do …

- Crudely draft out a descriptive foundational document that describes the current status and importance of your chosen sector (like natural gas)
  - intended to be used by individuals as the foundation for the 5-7 page research paper.
- Be prepared to make a team class presentation to the rest of the class describing the same.
- [Voluntary and optional but highly encouraged] – Prepare an 8-10 minute background educational video doing the same.