Knowledge Building

We are all curious about the world around us.
- We want to better understand our world
  - Natural environment
  - Our engineered world
- What is the process for gaining a better understanding... for learning?
  - (Posted readings on webpage)

We want to better understand our world:
1. What curiosities do you have about electric power systems?
2. What do you want to be doing to develop your ability to build knowledge?
   - To find and frame problems
   - To engage in collective idea improvement
   - To engage in meta-discussion on your p
3. How do you want to structure idea improvement and knowledge building for this semester?

TED Math Talk & NPR segment

- Dan Meyer on teaching math:
  - Intro bit
  - Start ~ 3:00 to ~10:20
- New York to overhaul energy grid
  - http://www.npr.org/player/v2/mediaPlayer.html?action=1&fr=1&docId=347553779&m=347309906&live=1
Discussion for KB
- What questions, or problems, are of interest to you (collectively)?
- How do you want to pursue these questions this semester?
- Perhaps start with a 2-week warm-up
  - From now until Sept 24/26 work on questions
  - Use scaffolding and built-in tools
  - Do some rise-aboves
  - We will regroup in class after these 2 weeks

Knowledge Building Questions
- A question that asks why, or how
  - not a simple yes/no question
- A question for which you can propose or develop theories
- A question that encourages everyone to investigate further and increase your collective understanding
  - And improve your ideas
- A question that encourages the community to engage in meta-discussion
  - Whether or not the group is making progress in terms of your question
  - If you need to develop a new question or have the current question evolve to reflect your improved understanding

Motivation for Energy Policy
- What justifies government intervention into an industry? (in a “free-market” economy)
- What is the scope of an energy policy?
  - What elements are included?
- We will continue with energy policy on Friday, with regulating CO2 discussion

What justifies an energy policy?
1. Externalities in production and in use
2. Issues of intertemporal/intergenerational equity – Sustainability
   - Resource depletion
   - Environment degradation (extraction, emissions)
3. The industry is a natural monopoly
4. Economic and Political issues
   - Economic growth – energy is an input into everything else
   - Trade and import dependency
   - National security, military deployment
Government regulation

- What does “government regulation” mean?
  - What is being regulated?
  - What does a government do when regulating an industry?

- Government role
  - Determine allowed prices
  - tax credits for RET, incentives for oil drilling
  - Environmental regulation
  - emissions from production, heating rivers, coal extraction…
  - Guidelines for system expansion
  - Rights-of-way and eminent domain
  - System reliability