EE 458 Homework Assignment #1
Due Wednesday, January 23, 2008

Each person has been assigned into a group; you can find your group from the EE 458 home page located at http://home.eng.iastate.edu/~jdm/ee458/index.htm (see "Base Groups" link).

Each group has the responsibility to identify the attributes associated with three or four electricity markets. The four markets and their websites are as follows:

- California ISO: http://www.caiso.com/
- ISO-New England: http://www.iso-ne.com/
- New York ISO: http://www.nyiso.com/public/index.jsp
- Midwest ISO: http://www.midwestiso.org/
- ERCOT: http://www.ercot.com/

Most groups have 4 people assigned, but some groups have 5. Groups that have 4 people assigned should review 3 electricity markets. Groups that have 5 people assigned should review 4 electricity markets. One person in the group (we will call that person the group leader) should be assigned to review all 3 (or 4) markets and identify significant differences and similarities between them. Clearly, this person will not be able to go into as much depth on any one market, but this person will be well positioned to understand the reports that each of the other group members provide and to tie the final report together in a cohesive fashion. Each of the other person group members is responsible for reviewing one of the 3 (or 4) electricity markets and prepare a report on that market. Each of these 3 (or 4) group members should provide the report to the group leader no later than Wednesday, November 16, 2005. The group leader is then responsible for compiling the different reports into a single integrated report for the entire group, to be submitted to me in class on Friday, November 18, 2005. Your report should provide references. Your report should NOT plagiarize (no report should EVER plagiarize). If you quote the document, then it should be made clear in your report that you are doing so. If you paraphrase, then you should say something like, "According to [Ref X], …" It should not be possible for the reader to mistake someone else's original thinking for your original thinking. And you should provide enough information in whatever references you cite that someone else can readily find it. If it is not possible for someone else to readily find it, then you should reconsider citing it as a reference.

The group's objective is to articulate the market architectures of each of the 3 (or 4) electricity markets and to identify any significant differences between them. Your group is entirely free to capture "market architecture" in whatever way makes sense. But below is what I consider to be minimal set of information that you should provide for each electricity market:

1. What is the service area of this market? Provide a map. Identify installed capacity, peak load, and the percentage split between fuel types used by generators (e.g., coal-fired, gas-fired, hydro, nuclear, and other). Is this ISO also an RTO?
2. Energy markets:
    a. What are the different energy markets operated by this ISO?
    b. Summarize basic attributes associated with how each energy market operates. Is it wholesale or retail? Who can participate in the market? What information is required in each interaction? How are clearing prices determined? What is the gate closing? How and when are the markets settled? Are there other significant market rules? What percentage of energy trading takes place in the market that is closest to real time (normally called the real-time market or the balancing market)?
    c. How do the different energy markets interface?
    d. How does bilateral trading interface with the described energy markets?
3. Ancillary service markets:
    a. What are the different ancillary service markets operated by this ISO?
    b. Summarize basic attributes associated with how each ancillary service market operates.
4. Are there any requirements of FERC's standard market design which do not appear to you to be satisfied by this market architecture?
5. How transparent is the market? That is, how easy was it for you to access the answers to the above questions?
6. Compare and contrast the different market architectures that you have reviewed based on the answers provided to each of the above questions for each ISO. What are the significant similarities? What are the significant differences?

Finally, I want your group to consider the following question: Considering all of the markets that you have reviewed, what do you see as the most significant weakness of electricity markets in the US? If you were a FERC commissioner (and thus in some sense the architect of all markets in the US) what would you change?