

14.44/14.444
Problem Set #6
Due April 13, 2007

1. An electric power system has the following mix of generating capacity installed on its network which is owned by several competing generating firms:

<u>Type</u>	<u>Marginal Operating Cost</u>	<u>Capacity</u>
Nuclear	\$15/Mwh	1000 Mw
Coal	\$25/Mwh	2500 Mw
Gas	\$60/Mwh	1500 Mw
Turbine	\$80/Mwh	500 Mw

a. Draw the competitive supply curve for the production of electric energy on this system

b. Assume that demand is 3000 Mw and is completely price inelastic in the very short run. What would be the spot price in a perfectly competitive wholesale electricity market?

c. Assume that demand is 4000 Mw and is completely price inelastic in the very short run. What would be the spot price in a perfectly competitive wholesale electricity market?

d. Assume that demand is 6000 Mw at a price of \$80, but that 600 Mw of this demand would be willing to be curtailed for a price of \$4000/Mwh or more. What is the perfectly competitive market price in this case?

2. Describe how you would use the information above regarding the attributes of the generating capacity on this system, along with information about actual market prices and supplier behavior to measure whether or not market prices suggest that generators are exercising market power.

3. In New England, spot electricity prices in Maine are often much higher than are spot electricity prices in Boston even though they are part of the same regional network. How can you explain these price differences assume that the market is perfectly competitive.