Some Economic Questions About Restructuring

I. Economists' critique of electricity 30 years ago

   A. Regulation creates excessive incentives for more supply and particularly more capital intensive supply

   B. Electricity prices are wrong all the time. Too low on-peak and too high off-peak

II. What has restructuring done about the two problems?

   A. Installed capacity (ICAP) requirements essentially return us to the world before restructuring. If excess generation investment was the problem how can socializing the costs of capacity be the solution?

   B. In states that have restructured, retail prices are still average-cost recovery devices rather than marginal-cost signals. Of what importance is wholesale market restructuring without marginal cost pricing at the retail level?

III. Why are the states that have not restructured and have maintained vertically integrated regulated utilities largely low-cost?

   A. Weighted-average vs. marginal-cost pricing
      1. In regulated world prices are weighted-average
         %output nuclear X nuclear price +
         %output hydro X hydro price +
         %output coal X coal price +
         %output nat gas X nat gas price
      2. In markets, prices reflect marginal cost of producer with highest costs whose output is necessary to meet demand
         a. Infrmarginal producers receive economic rents
         b. Farmland in Iowa vs. Arizona
         c. Hydro and coal vs. natural gas
      3. Low-costs states are low-cost because of inframarginal generation mix (old fully depreciated and pre-1970 clean air coal and hydro) not because of lower marginal costs.

IV. Are there unexploited gains to trade in the traditional balkanized vertically integrated monopoly franchise world and through what changes could we achieve them?

A. Price discrepancies between states (Kentucky 4.3 cents per kWh vs 11.3 cents per kWh in New York) would seem provide the opportunity for gains to trade
   1. If gas is marginal everywhere, then prices would **not** vary across states in unregulated market because the price of gas-fired output would set the market price everywhere.
   2. Thus the fact that prices do vary implies that wealth redistribution as well as efficiency gains result from the eliminating the balkanization of the U.S. electricity market.
   3. Low-cost states do not want **inframarginal** generation rents to go to the highest bidders rather than current customers.
   4. This explains **state** political resistance but not **utility** resistance because in a free market the latter's inframarginal generation would be more valuable like farmland in Iowa.
   5. Are utility managers shirking from utility shareholders' interests?

B. Public good nature of transmission system – gains (and losses) from transmission investment cannot be restricted to those who invest.
   1. Hale et al. (*Regulation* Issue 2 2000) demonstrated that several small transmission investments reduce peak power prices in the summer across several states. The links have not been built because costs are local and no one represents the beneficiaries across numerous state and utility boundaries.
   2. Electricity transmission issues seem similar to unitization issues in petroleum reservoirs – a mismatch between current ownership and regulatory structure and physical nature of the grid.
   3. FERC SMD and RTOs can be seen as analogous to forced unitization contract
   4. Vertical integration and very limited trade may be the transaction-cost minimizing industrial organization because of the public-good nature of transmission investment.
   5. Presumably vertically integrated utilities manage the tradeoffs between more transmission and more local generation? How do we do so over the entire Eastern Interconnection – via either centralized or decentralized decision processes?