

TWO POWER GUYS



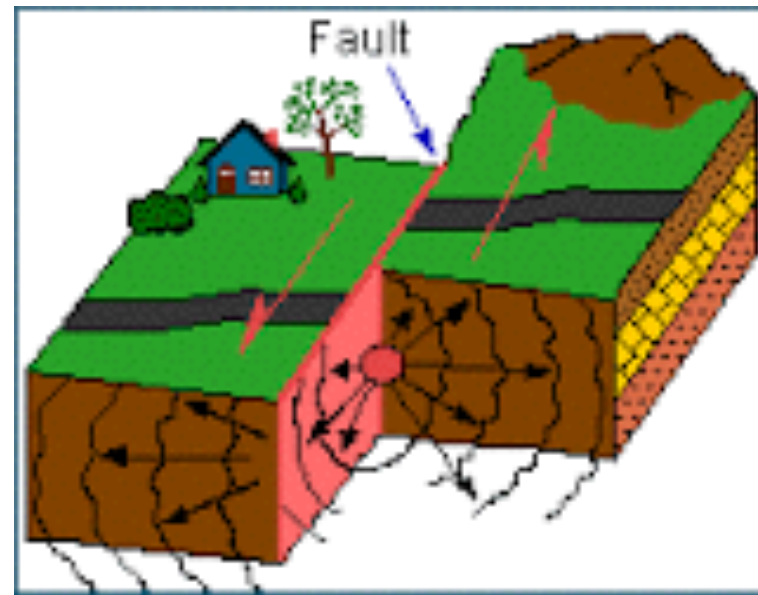
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Competition, climate and cost of capital: a look at electric utilities in the US

Note: Graphs and data for discussion of slides 2-11 can be found in our articles for *Public Utilities Fortnightly* or OilPrice.com. and for slide 12 in forthcoming book on UK by Leonard Hyman (*Energy Acts, Public Utilities Reports, 2017*).

Paradigm shifts

- Carbon (not just cost) effectiveness
- Central to decentralized (technology and choice)
- Business and regulatory structure for new risks
- Financial structure for new risks



Sample risks

- Tech and customer preference lead to on site and microgrid solutions
- Clean crowds out (strands) dirty
- Inadequate depreciation due to climate change and tech obsolescence
- Too much debt for declining industry
- Inability to control pricing or design of product
- Climate change impact on assets and service territory
- Regulator will not anticipate
- Potential competitors with enormous resources
- New central station tech upends structure

Will Trump revisit Thatcherite energy policy?



Competition (“the market”) was the answer

The question was: how can we reduce electric bills and give customers choice?

- Response to a past risk transfer problem (nuclear)
- Ideological movement
- It worked in other industries



The market:

- Lowered generation operating costs
- Did not lead to lower bills (relatively) dereg vs US average
- Made generation unstable and unattractive business
- Was unable to attract long term investment to new generation or transmission (contracts or regulation required)
- Did not produce the innovations or sharp cost and price reductions seen in other dereg industries

Why not?

- Higher cost of capital (not anticipated)
- Industry was not as inefficient as believed
- Not enough competition
- Transaction costs
- Poorly designed markets and incentives (neoliberalism vs moral economy) and incomplete contracts



And what happened where it all began?

- Prices did not improve relative to neighboring countries
- Most customer savings due to regulation not market
- Customers confused by switching
- Pool market dumped due to ease of manipulation
- Not enough competition
- Market unable to attract capital for generation
- Regulated utilities highly profitable despite RPI-X regulation
- Unregulated generator/ retailers barely earn cost of capital
- RPI-X morphs into rate of return (which it was anyway)

**The kids are alright
(for now)**



Up to date (late November) cost of equity (total return) rough and ready calculations

- Based on historical experience, stock investors earn nominal return of corporate bond yield plus 3.5%
- Total return equals dividend yield plus growth rate
- CBY = 4.5%, DY=3.7%, TR=8.0%, GR=4.3%
- That's right, calculated electric utility cost of equity capital is 8% (more or less)
- Actual EEI TTM ROE=9%
- Actual EEI M/B ratio= 145%

A growth industry: growth of what?

- No sales growth absolutely while GDP up
- Industrial activity up but industrial kwh sales down
- Sales down vs population and GDP- secular trend
- Electric car add 30+% to sales— timing?
- LED could reduce sales 10%— timing?
- Utility strategy: grow rate base—consequences?



Grow the rate base

- Averch-Johnson hypothesis
- Clear indication since 2000— equity +124% and sales +9%
- Only pays if rate of return exceeds cost of capital
- A-J plausible because ROR almost always exceeds COC

Final thoughts

- Regulated profits high and market knows it
- Unregulated profits make that business unviable
- Any amount of competition introduced into a no-growth, leveraged business is dangerous
- Nobody can predict the future so plan for scenarios
- Everyone thinks they can get out because bubbles deflate slowly but they really burst quickly
- Electricity is too important to leave to chance

