Electricity Markets and YOU

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*The views expressed herein are my own.

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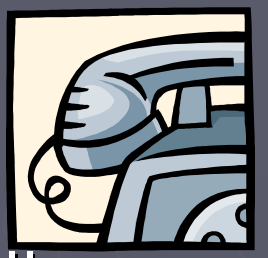


- OCC is an independent state agency with statutory responsibility to represent all customers (residential, commercial, and industrial) of Connecticut's five regulated utilities – electric, gas, water, telephone, and cable television, primarily in matters before the Department of Public Utility Control (DPUC), federal agencies and courts.
- We represent the customers collectively, to promote good policies and reasonable rates.

Conn.'s Elec. Prices Still Quite High

- CT "All Sectors" Average: 17.18 cents/kWh
  - Second only to Hawaii at 25.51 cents/kWh
  - Down from 18.34 cents/kWh 1 year ago.
  - National average is 10.45 cents/kWh
  - New England average is 15.35 cents/kWh
- Source: Federal EIA, Aug. 10 figures
  - Available at http://www.eia.doe.gov/cneaf/electricity/epm/epm_sum.html (Electric Power Monthly, Table 5.6A

ISO Electricity Market Uses Single-Clearing Price

- The unit in the bid stack that "clears" (is needed) and bid the highest price sets the clearing price received by all other units that bid. Units that bid above the clearing price receive nothing.
- Simple Ex. You need 375 MW operating in some hour. Unit A bids $20/MWh, Unit B bids $40, Unit C bids $60, Unit D bids $75, Unit E bids $100, Unit F bids $200. All units are 100 MW. Unit D sets clearing price at $75 for Units A, B, and C. Units E and F get nothing.
- What YOU pay is based on projected prices.

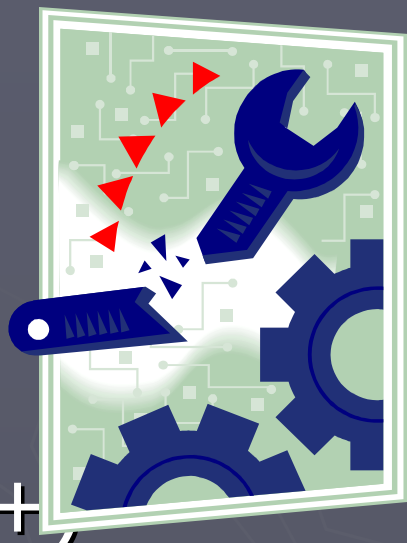
Electricity Price Trend = Natural Gas Price Trend

- ISO Electric Energy Market—A natural gas unit sets the CT clearing prices in virtually every hour.
- Where are Natural Gas Prices Headed?
  - Short-run (1-2 years) – Continued stable and "low" at $3.75-5.50/MMBTU
    - Above-average Storage Volumes
    - Mild 2010-11 Winter?
    - Industrial Demand Picking Back Up Slowly
    - But, large detachment from oil price.

Natural Gas Price Trends, cont.

- Medium-run (2-6 years??, Price of natural gas rises to $5-7/MMBTU range, current $)
  - Increasing demand (shifts from oil, recession over, power plant development).
- Long-run (6 years? +, Stabilization at $7-8 range, current dollars)
  - Prices goes to level at which shale gas extraction is economic, and likely stays there long-term

Monkey Wrenches to Nat. Gas Forecast



- Natural Gas Vehicle Boom (price +)
- Shale gas extraction defeated by environmental concerns (price ++)
- Geopolitical crises causing more rapid U.S. shift to natural gas from oil (price +)
- Technology changes (energy storage?) cause natural gas not to be used as much for electricity (price -)

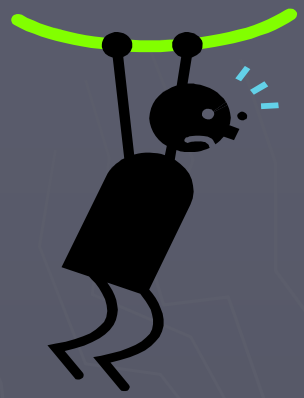
Putting it All Together, So Far

- Natural Gas costs will likely climb steadily from present trough, perhaps faster than inflation mid-term, then stabilize long-term. This is good news. Read the 2006 forecasts and the price of LNG global competition.
- Electric Energy (generation costs) will likely do the same, barring major technological discoveries or other oddities.

BUT…..What about…

- Possible other influences on electric energy prices:
  - Electric vehicle adoption raising demand (this might also raise the clearing price) (price +);
  - Renewable Portfolio Standards (Mid-term/Long-Term rise) (price +);
  - Plant Retirements without Repowering (price +);
  - New Efficiency or Storage Technologies (price -);
  - Demand destruction due to continued economic struggles (price -).
- We try to deal with these issues in DPUC's Integrated Resource Planning (IRP) Process.

What can be done by You?



- Reduce power usage from the grid
  - Self-Help Energy Efficiency
  - Energy Efficiency Programs
    - Some new lighting programs on the horizon?
  - Demand response programs
  - Combined heat and power units
- Shop around among suppliers, but you can't change the fundamentals (ISO market, natural gas price)

Long-Term Contracting for Power Plants Likely to Grow

- Conn. has done some groundbreaking work in this area (e.g, GenConn). NJ and MA are following.
- Combines competition (RFPs) with regulated pricing.
- Financiers seem to be requiring long-term power purchase agreements.
- Significant risks and rewards for ratepayers, which is better than just risks.

Capacity Market Developments

- Forward Capacity Market
  - Has been clearing low due to excess supply.
  - Various adjustments are being considered at FERC.
  - Some feel that FCM needs to clear higher to attract new entry, but will financiers trust the signal? I.e., Will higher prices have a point?
- Locational Forward Reserve Market (Peakers)—tracking lower for CT at last.

Renewables-Northern N.E. vs. Southern N.E.

- N.E. States have Large Renewable Portfolio Standard (RPS) Requirements
- 2nd Half of the Decade Issue
- Do we:
  - Build Transmission Lines to the far-off reaches of Northern N.E. for wind and to Quebec for Hydropower; or
  - Build a Lot of Local Fuel Cells, Biomass, Solar, etc.; or
  - Both? Or Neither?

How to Meet the RPS

- The Northern Strategy may be the least expensive on a pure electricity bill basis, but:
  - Transmission lines are still expensive and the jobs will not be local;
  - Wind in Northern Maine doesn't help CT's environment;
  - Large Hydro is not Class I or Class II at present.

Meeting the RPS, cont.

- A Southern (Local) Strategy could:
  - Create jobs, such as fuel cell or solar jobs;
  - Deal with biomass waste streams;
  - Reduce local emissions.
- But it may be more expensive on an electricity bill basis, even considering the cost of transmission lines in the Northern Strategy.

Meeting the RPS, cont.

- Other options for meeting the RPS:
  - Counting some resources you already have (Efficiency? Nuclear?);
  - Lower the Bar?;
  - Expand the Region that "Counts"
- Renewables can promote sustainability, etc., but do not appear to have hedge value at present.

Questions