

## **CHP Analysis Working Group Meeting Summary April 6, 2006**

The purpose of this meeting was to explore how current and forecasted energy markets, especially pricing are likely to affect CHP markets. We had four presenters (presentations attached):

Neal Elliott, ACEEE  
Joel Bluestein, EEA  
Paul Lemar, RDC  
John Kelly, GTI

*Neal Elliott's Presentation:* Current relationships between electricity and gas prices are not necessarily reflective of the future relationships, and the requirements for existing thermal needs means a lower heat rate should be used when assessing spark spread for CHP.

*Joel Bluestein's presentation:* With natural gas prices being so high, it's hard for CHP to be economic. Because of all of this deregulation and removal of rate caps, customers are now exposed directly to market prices (plus utility distribution fees). Natural gas prices are volatile but electricity prices are even worse. The nature of restructured markets and a shift in the structure of distribution tariffs (e.g., reemergence of declining block structures) may make the economics for CHP more difficult if this trend continues.

Question: Is the electricity price volatility stemming from generation or transmission constraints?

Bluestein: There does seem to be an excess of natural gas capacity, but it's not coming out in the price which points to transmission constraints.

*Paul Lemar's presentation:* Smaller DG/CHP installations are slowing due to a number of market factors including "spark-spread." In some regions (e.g., southeast), low off-peak pricing are encouraging shifts to electric boilers. Significant share of recent additions are from larger systems. RPS's do not appear to be encouraging CHP.

Kim Crossman: Biomass is covering some thermal load, (a small amount), but it can be considered a form of CHP.

Question: Any talk of nuclear CHP?

Neal Elliott: In Alberta, they are talking about using nuclear as CHP for enhanced recovery of tar sands. They are burning gas to make steam for recovery but since there is such a huge demand for gas (because of Kyoto and other reasons), they are turning to nuclear.

*John Kelly's presentation:* If we look at things from a carbon standpoint (amount that is about to be pumped into atmosphere, global warming, etc), CHP becomes much more important. The growth in the commercial sector is skyrocketing, but is driving utilization of utility transmission and distribution installed capacity down. 9-story office buildings will be working on mostly peak time, exaggerating the peak. They will be extremely inefficient from an economic utilization perspective.

There will be a huge spark spread as we move into the future as a result of distribution tariffs. Utilities make huge investments in the hopes of increased load in the future and we end up paying for it in the distribution tariffs.

Neal: As we move into a difficult/new pricing environment, (real-time pricing versus average pricing) and as the load duration curve changes, resulting in reduced utilization, distribution company stranded assets could have profound effects on pricing and the viability of CHP.

Kim Crossman and David Bassett: The way we frame the value of CHP is so important. We need to stress reliability issues, the fact that a 5 year payback is a good payback time in the world of energy efficiency, upgrading the grid, etc.

Neal Elliott: In the short-term, hurricanes knock out demand as well as infrastructure (severe interruptions in the economy and business in general). But in the long-term, how much of the demand returns is the important factor.

Joel Bluestein: My main worry is that there are two negative markets for CHP: first, in the regulated utility world (mostly the southeast) and second in the restructured, deregulated utility world (everywhere else). In the first world, gas prices are high and electricity is cheap which creates a bad environment for CHP. In the second world, the utilities are resellers (they don't own generation, they only operate their fixed delivery assets), so they restructure their rates to earn a return on these assets – e.g., they are motivated to increase deliveries. For example, in Maine, they went to 100% demand charge rates—which is death for CHP—because they want to recover their asset costs for the investments required to meet peak load. The Maine situation is similar to what PECO is doing. CHP needs the base-load to make sense, but markets are encouraging DG for peak shaving applications.

John Kelly: We have to go to peak period even though this isn't the optimal place to go.

Bluestein: There are policy issues here at hand—rate design, etc. Issues like energy security, carbon emissions and global warming, national security—these are all things we're not talking about that can help.

Neal: What about the value for surge capacity and reserves—this kind of security if valuable but it's not rewarded by the current structure. What if we value that?

Rich Sweetser: With electric rate design in ME and Philadelphia, what does NYSERDA see happening in NYS?

Scott Smith: It's the same trend here in NYS, pure demand charges. Standby tariffs end up being good things for mid-large scale CHP projects. They have a contract demand component and a daily-as-used demand component.

Paul Lemar: Also, the peak period is spreading out so you're almost seeing a base-load within the peak period—this could be good for CHP.

Joel Bluestein: The commodity component may be moving in the right direction, but the delivery component of the rate may not.

At the end of the meeting Skip Laitner proposed what he thought would be a useful exercise. He will pose a set of questions to this group, in a Delphi-like exercise to see where CHP markets are likely to go. He suggested the following three questions:

- 1) By 2010, what addition of CHP projects is possible?
- 2) What are the 1 or 2 most important policy drivers or market circumstances that could help get us to that point?
- 3) What is the probability of that actually happening?

At the very end, Paul Lemar suggested that the topic for the next group meeting should be “how do you capture data on the installed base of small DG/CHP?” The group is invited to comment on this and other future topics.