

Some things look better on paper

BUT RESULTS ALONE MATTER, NOT PROJECTIONS AND PROMISES

My mind usually drifts during keynote sessions, but I found the Power-Gen 2006 offering to be engaging, sometimes for what the speakers said and sometimes for what they did not say. I'll go out of order a bit.

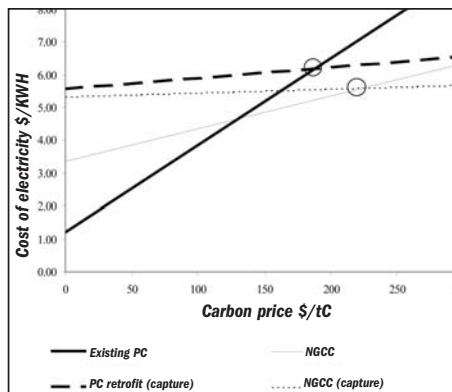
William Rohner, vice president of the electric power division for Caterpillar Inc., offered a view on opportunities for the growth of Cat's power generation as one tied to providing factory-designed and built Uninterruptible Power Supply (UPS) systems. Of course, in the past, Cat had limited its role in this market to that of a bare-shaft engine OEM, selling its products through a variety of UPS system packagers. No doubt some of these packagers included their own distributors.

Although not stated in these terms, this is clearly a strategy of "moving up the value chain," which puts Cat in competition with its existing customers and distributors. This has always been a tempting strategy, but one that carries the obvious implementation risks and it will take some dedicated efforts to focus the Cat distributor salespeople on "data centers."

I was also left with the impression that Bill is a reciprocating engine guy. Not once did he mention Solar Gas Turbines in any of his comments or concepts. I have some "baggage" here, and may be guilty of projecting, so please forgive me. In my formative years, I ran the air compressor sales force for Ingersoll-Rand (I-R).

At the time of my arrival, I-R had three teams each selling the products of one of the air compressor group's three compressor operating divisions — reciprocating, rotary and centrifugal. I-R used to brag that "I-R makes all kinds of compressors and could be impartial in evaluating your needs." The truth was that whoever got there first, sold what they were responsible for. Cross-team referrals did occur, but most often as "late hand-offs," usually as the job was being lost. I can only conclude from what I heard that Cat's Electric Power Division is in name only, and that the reciprocating engine and gas turbine teams still operate largely independent of one another.

Steve Bolze, vice president for power generation at GE Energy focused mostly on the broader picture, but did attempt to reinforce GE's strategic view that Integrated Gasification Combined Cycle (IGCC) is an available and viable technology through the OEM's pre-engi-



Source: Discussion paper on Prospects for Carbon Capture and Storage Technologies by Soren Anderson and Richard Newell of Resources For The Future. The figure assumes a natural gas price of \$3/MBtu

Figure: Cost of electricity with and without carbon capture versus hypothetical price of carbon emissions

neered or turnkey plant offerings.

This is an important initiative, but I have two questions. The first is whether GE will open its process up to technologies that will compete with offerings available within the GE corporate umbrella. The second is whether the company can command the 20% premium cited for its turnkey solution. I think the answer to question one is a "definite maybe" and to question two is "for a while."

Relying on outsourcing

Of the three speakers, Brad Jones, vice president for generation development at TXU Corp. was certainly the most thought-provoking and also the most entertaining. As many of you know, TXU is a merchant power producer located in Dallas, TX. TXU has recently announced that it will spend \$10 billion to build 11 new coal-fired power plants rated at 6,400 MW, at nine existing TXU sites. Equipment orders for eight of these units have been placed. These plants will be completed between 2007 and 2011 and, driven by a scheduling necessity, are conventional Pulverized Coal (PC) plants rather than IGCCs.

Obviously, if you are a merchant power producer — "long" in combined cycle gas turbine units as is normal in the ERCOT [1] region — a good portion of the fleet is economically stranded because of the current and expected price of natural gas. Some 70% of the state of Texas' generation is based on natural gas. Brad did not mention CO₂ capture as part of his presentation, but the question was raised during the Q&A that followed. The generic response was that the facilities will be made "cap-

ture ready," whatever that means.

The TXU program has raised considerable concern among environmentalists who are mobilizing to delay the construction schedule, thereby allowing the use of the newer "clean coal" technologies, but this seems incompatible with the pace of Texas load growth and the continued high forecast price for natural gas. I think what is really missing here is a serious "Cap & Trade Program" for CO₂ that would require TXU to address the environmental concerns now, as well as meet its construction schedule. This would also take pressure off the project financing, clearly required for a program of this size.

The most "outside the box" concept was the stated TXU strategy to outsource 30% of the content of a standard PC plant design, and offer turnkey solutions at \$1,100/kW. In time this would grow to 80% outsourced with a goal of \$850/kW. This strategy is targeted to obsolete the existing inventory of the old and high-polluting, coal-fired assets in the midwest.

The Electric Power Research Institute has done a number of studies on the impact a carbon tax would have on these facilities, and the conclusion is that any carbon tax needs to reach \$200/t to breakeven against these written down assets. The chart shown (Figure) is a little dated, but you can get the picture. TXU is suggesting that lowering the first cost through outsourcing and, no doubt, relying on a presumed viable and valuable carbon trading scheme may also be an effective strategy.

Of course, this is "going down the value chain," which puts TXU in competition with GE, which is "moving up the value chain" with turnkey IGCC plants. Some things look better on paper.

Footnote:

[1] The Electric Reliability Council of Texas (ERCOT) operates the electric grid and manages the deregulated market for 75% of the state. ■

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