

CERA's Perception Management

by David Cohen

Cambridge Energy Research Associates (CERA) and its co-founder and chairman, Daniel Yergin, figure prominently in the public debate about energy issues. With the release of the group's new report, *Expansion Set to Continue: Global Liquids Productive Capacity to 2015* (August 2006), the time has come to review CERA's analytical methods, philosophical approach and track record.

A notable surprise upon reading the press release for the report, which costs \$2,500 for CERA clients, is that "the analysis points to global productive capacity rising from 88.7 mbd [million barrels per day] in 2006 to 110 mbd in 2015." Where did the 88.7 figure come from? Those familiar with the Energy Information Administration's (EIA) supply numbers will note that the world averaged 88.517 mbd (all liquids, including natural gas liquids and condensates) for the first five months of 2006. Part of the mystery is resolved when one realizes CERA is citing productive *capacity*, not production per se. Still, the question remains as to how the group arrived at that particular number. One simple analysis using CERA and EIA numbers suffices. Adding 84.6 mbd to 2.3 mbd plus 1.8 mbd yields 88.7 mbd, where these numbers represent actual production rounded up; disrupted production from Iraq, Venezuela, Nigeria and others; and EIA's maximum estimate of Saudi Arabian spare capacity, respectively. However, the actual origin of the number remains unknown.

The EIA defines production capacity as "the maximum amount of production that 1) could be brought online within a period of 30 days, and 2) sustained for at least 90 days." Yergin repeated the 88.7 number before the House Energy and Commerce committee on May 4 without specifying how it was arrived at, while noting that he was not talking about actual production. Apparently the calculation has not changed since May, but is a fixed number. What does the EIA list as the spare Iraqi productive capacity? It is zero. Venezuela? Zero again. Why is Yergin citing this large, mysterious number?

CERA partitions oil production according to two scenarios: their reference case, using *productive capacity*, and an *above-the-ground* case, which includes geopolitical or maintenance disruptions, production delays and the like. By switching back and forth between the two cases, CERA can explain "tightness" in the supply market while simultaneously claiming there is no actual production problem, thus having their cake and eating it too. This methodology can be projected into the future as shown in Figure 1.

The world meets the "upstream oil challenge" by adding new fields producing at least 10 thousand barrels per day over an admitted 5 percent decline rate in existing fields. Projected demand rests close to, but below, the new capacity line. If actual production bears the same relationship to productive capacity in the future as it does today, there appears to be genuine cause for concern belying CERA's rosy forecast.

Upstream oil challenge: 40 mbd of capacity additions needed by 2015

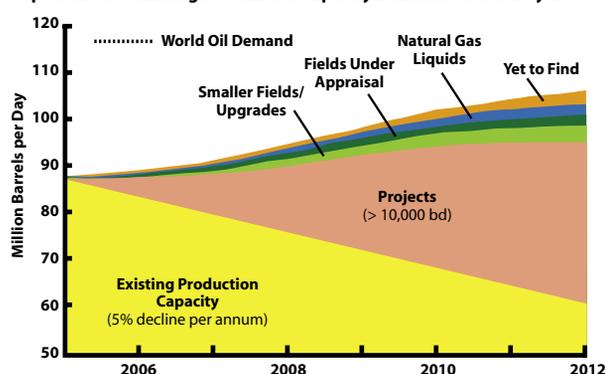


Figure 1

Robert Esser Testifies Before the House

While the media focus remains on Yergin, two geologists, Peter Jackson and Robert Esser, appear to oversee the content of CERA's reports. Testifying before the House Energy and Air Quality subcommittee on December 7, 2005, Esser stated that from "1995 to 2003 global production of 236 billion barrels was more than compensated by exploration success and field upgrades that collectively added 144 billion barrels and up to 175 billion barrels, respectively." These numbers indicate a 133 percent replacement of all liquids produced during the nine-year period. However, Esser's optimistic testimony does not address the disturbing discoveries trend, nor does it reveal the uncertainties in the data used.

Esser reassured the House members that global resources will continue to increase once the 175 billion barrels in reserves growth from field upgrades are counted. The source of all of his numbers is the *Report on 10-Year Petroleum Trends: 1994-2003*, published by IHS Energy, which purchased CERA in 2004. The report clearly indicates that the 175 billion barrels is a proven-plus-probable (P50) rough estimate of backdated pre-1995 reserves growth as assessed at the end of 2003. Moreover, the 144 billion barrels of discoveries constitutes 60.8 percent of what was produced.

An IHS presentation called "The Challenging Role for Giant Fields" reveals that from 2000 to 2005, the discoveries tally is only 66 billion barrels of oil. The figure excludes the onshore Lower 48 and Canada, for which only proved reserves numbers are published. EIA supply data indicates that the world produced approximately 175 billion barrels in the same period, only a 38 percent replacement of all liquids. Excluding the year 2000, the total discovered resources were lower than any comparable period since World War II.

Astonishingly, the entire pre-1995 reserves growth of 175 billion barrels cited by Esser was all used up in six years. The world produced about 30.8 billion barrels of liquids in 2005, but discoveries amounted to only 9.8 barrels of oil equivalent, including natural gas. Esser did not note that

consumption is growing as discoveries decline. His selective use of nontransparent data misrepresents the bigger picture.

Wrong Predictions

Worries about natural gas supply were accompanied by rising prices set in November 2000. Labeling the situation a "shock," not a "crisis," Yergin expressed confidence that the United States did not face a long-term supply shortfall. He further predicted production increases as investment following on higher prices would encourage exploitation of new reserves in North America. Given the long lead times for creating new supply, E&P in "proven reserve areas such as the Rocky Mountains and western Canada will help bridge the supply gap until these frontier supplies are developed." Right on cue, CERA stated in 2001 that "the rebound in North American gas supply has begun and is expected to be maintained at least through 2005."

Not only did the new supply fail to materialize, but natural gas production has apparently peaked in North America and is now declining despite an ever-growing rig count. Figure 2 shows the trend for the U.S. Lower 48. "Gas production has peaked in North America," former ExxonMobil CEO Lee Raymond announced at the Reuters Energy Summit in June 2005. The EIA projects that North American natural gas production will decline 2.6 percent between 2003 and 2010. More recently, CERA has done an about-face and now anticipates higher prices until future LNG imports relieve the pressure on the current tight supply situation.

Cornucopian Fallacies

The so-called cornucopian always views the glass as half full and perpetually replenished. In a 1992 essay titled "The Cornucopian Fallacies," Lindsey Grant listed several characteristics of such thinking, which are summarized here:

1. The implications of endless growth are understated.
2. Past economic trends are projected automatically onto the future.
3. Evidence that doesn't fit growth scenarios is dismissed.
4. There is an extraordinary faith in technology to solve all problems.

Within this context, it is illuminating to review statements Daniel Yergin made in an interview with Tom Ashbrook of WBUR, Boston's public radio station, on September 20, 2005. Yergin's perspective informs his history of the oil industry, *The Prize: The Epic Quest for Oil, Money and Power* (1992). Projecting past economic trends into the future, Yergin asserts that this is "the fifth time that the world is about to run out of oil and each time technology, markets, have changed things."

An inconvenient truth – that North American natural gas production, despite higher investment and rig counts, faltered and is now declining – has been forgotten. The fact that from

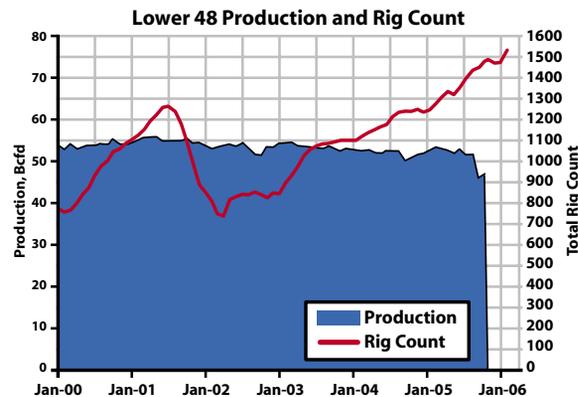


Figure 2

2000 to 2005 only 38 percent of global oil production was replaced by new discoveries is not mentioned.

Yergin cites advanced technology that allows ultra-deepwater drilling on the world's continental shelves. Such drilling may also be viewed as having a geologically limited future. As reported by Hugh Ebbutt in this magazine in "What Can We Learn from Petrobras?" (August 2006), Brazil faces a 9 percent decline rate in existing deepwater production; it must replace 1.11 mbd of existing production by 2011 just to maintain the current level of 1.88 mbd. The future implications of Brazil's aggressive growth strategy remain to be seen. Meanwhile, Brazil's own demand is expected to rise at an average rate of 2.6 percent per year. For Brazil, as in other cases all over the world, the assumption of endless growth must be confronted, not understated or dismissed.

CERA's unceasing optimism does not provide a balanced, cautious view of mankind's increasing fossil fuels usage. Recent CERA statements have dismissed the ideas of peak-oil theorists even while misstating their concerns. Yergin's *Washington Post* opinion of July 2005, "It's Not the End of the Oil Age," begins: "We're not running out of oil. Not yet." No serious analyst makes that claim.

Regarding peak-oil scenarios, it is appropriate to invoke the precautionary principle, which states broadly that it is wise to assess possible harm even if cause-and-effect relationships are not established scientifically. A poor or overly optimistic analysis of oil depletion does a disservice to industry professionals and the public alike. With so much at stake for the health of world economies, the time has come to reevaluate how CERA and Daniel Yergin manage perceptions of our energy future. ♦

After a career in theoretical linguistics and software engineering, David Cohen (davec@linkvoyager.com) turned to investigating climate change and energy issues. A senior contributor at The Oil Drum, Mr. Cohen focuses on oil depletion, natural gas supplying North America and alternative futures.