



## A Different Approach to Calculating Saudi Arabia's Oil Reserves

Posted by [Robert Rapier](#) on December 16, 2006 - 9:44pm

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I posted this information to [my blog](#) last week, and I was asked if I would post it here as a short essay. While preparing my response to Jeffrey on the exports debate, I read as much as I could on Saudi Arabia, their exports, and their reserves. The entire world is at the mercy of Saudi's reserves, so it is important that we know the size of their reserves. The "official" number (from BP's Statistical Review of World Energy) is 262 billion barrels remaining. If this was in fact true, then Peak Oil is very distant (although [Peak Lite](#) would still be a threat). However, many are skeptical of this number. The case for a much lower reserve number was argued by Matthew R. Simmons in [Twilight in the Desert: The Coming Saudi Oil Shock and the World Economy](#). [Khebab and Jeffrey have argued](#) that Saudi reserves may be as low as 70 billion barrels. If true, this would be quite alarming and would in fact mean that Peak Oil is on top of us.

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In my opinion, the opacity of Saudi's reserves is not something the world can afford to live with. It is not that I don't trust them, nor that I think they are necessarily being deceptive. I just believe we can't afford to risk that they are being deceptive. We need to have a better handle on their reserves.

I decided to try a different approach to see what I came up with, and I came across an interesting statistic regarding U.S. reserves. In 1982, Saudi Arabia [stopped allowing their oil and gas data to be scrutinized](#). Prior to that, outsiders had some access to information on their reserves. When that accessibility was shut down, Saudi proven oil reserves were estimated to be 164.60 billion barrels. I have yet to find a challenge to this number. It seems to be accepted that this number does represent their reserves in 1982. However, in 1990 they mysteriously raised their reserve estimate by 90 billion barrels. Since the data are now hidden from public view, there is obviously a great deal of skepticism regarding this new estimate.

So, I started with the assumption that the 1982 estimate of 164.60 billion barrels was correct, and then I just subtracted Saudi production since then. I calculated their total production since 1982 as 69 billion barrels, leaving 95 billion barrels of reserves. This approach would imply either that their 1982 reserves were overstated, or that the models showing Saudi Arabia at 70 billion barrels remaining are in error. (If anyone can find a challenge to the 1982 number, I would appreciate the reference).

But, we know that reserves sometimes legitimately grow, and new discoveries take place. So, I decided to check this approach against what happened in the U.S. over the same time period. I examined U.S. reserves and production from 1982 to 2006. The following data are all pulled from:

[U.S. Crude Oil Proved Reserves, Reserves Changes, and Production](#)

In 1982, U.S. reserves were 27.858 billion barrels. In 2005, U.S. reserves were 21.757 billion barrels. So the U.S. drew down reserves by 6 billion barrels. I then looked at cumulative production over that 24-year time period. What would you guess the cumulative production was, given that reserves were drawn down by 6 billion barrels? It may come as a surprise, but oil production from these reserves since 1982 totals 56.9 billion barrels. Thus, in the past 24 years the U.S. has produced 57 billion barrels of oil and pulled reserves down by only 6 billion barrels. The reason is that there were discoveries that took place over the past 24 years.

The method I tried to apply to Saudi reserves may be conservative, considering what happened with U.S. reserves since 1982. So I still don't have a clue as to how much oil Saudi Arabia actually has. If their reserves followed similar behavior to U.S. reserves, then they could still be sitting on more than 150 billion barrels. But I think it is tough to make a case that their reserves are much lower than 100 billion barrels.



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