

# *“Oil’s Twilight in the Desert?”*

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As oil prices rise, experts dispute the extent of oil reserves on this planet Earth. What is the world’s available oil supply? How long can the United States prosper on “cheap oil?”

As the largest historical producer, Saudi Arabia still claims it has the largest oil reserves of any nation, and that it can even increase production as needed to meet the world’s increasing demands in the future. But Saudi Arabia is a member of the Organization of Petroleum Exporting Countries (OPEC), along with Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, United Arab Emirates, and Venezuela, and there are motives within OPEC and its members to overstate capacity. In the 1960’s and early 1970’s OPEC established quotas (how much a country could produce) based on each member nation’s “stated” oil reserves. Thus, each member nation of OPEC had an incentive to inflate their reserves to obtain a larger oil quota. Additionally, assurances to the world that there was an abundance of cheap oil, discourages investment in alternative energy sources, and enhances the political influence of OPEC. So, there are very clear reasons to question not only the reserve claims of OPEC members (as has the investor Jim Rogers who asks, “Tell me which OPEC nation you would trust not to inflate its reserves.....”) but also very valid reasons to question the claims of OPEC itself to a never ending source of fossil fuel.

Twilight in the Desert is a book recently published (2005 ) by a man named Matthew Simmons of Houston, Texas. Mr. Simmons has a long background in the oil industry and is an investment banker specializing in oil. He has testified before Congress, and believes that the world’s oil supply is depleting fast; that consumption is rapidly exceeding production and reserves, and that alternative energy resources are needed quickly. He particularly disputes the claims of Saudi Arabia of unlimited reserves in his book. Others in the industry ( and in OPEC ) dispute Mr. Simmon’s conclusions, but they are worth our consideration, because if he is right, then we are quickly moving to the end of “cheap oil.”

Simmons has three decades of insider experience as an investment banker for the oil industry. He says he has exhaustively researched the Saudi oil and production industry, and analyzed more than 200 historical technical reports prepared by the Society of Petroleum Engineers analyzing Saudi petroleum resources and production operations. His conclusions are drawn in part from reports of American engineers employed by American companies which managed the Saudi oil industry prior to the Saudi’s nationalization of the oil industry in 1980, as well as interviews with those engineers.

Simmon’s book, Twilight in the Desert, provides a history of the discovery of oil in Saudi Arabia, the size and extent of the huge oil fields discovered several decades ago, the production from those fields, and the classic signals of oil field depletion which he says are now being

experienced in Saudi Arabia. The book also discusses strategies used by Saudi Arabia attempting to maintain high production levels and why they will soon be less effective. Simmons also explains Saudi oil field production management and why some methods used actually damaged the long-term productivity of the oil fields. His conclusions are alarming. He argues:

1) The bulk of Saudi Arabia's oil production has come from four super-giant fields which have yielded 80% to 90% of Saudi Arabia's oil production for almost four decades. There exists three or four smaller fields that produced virtually the remaining balance. All of these fields reached their probable peak of sustainable production around 1979.

2) Classic signals present themselves as any oil field ages and begins to deplete. Declining pressure occurs. Over time as oil is produced, water or gas must be injected to replace the produced oil to maintain pressure. Increased water injections into an oil field though massive separation gas and oil separation plants (GOSPs) are indicators of depleting reserves. As early as 1978, oil field managers had already constructed 58 GOSPs.

3) Secondary oil recovery techniques and strategies have been employed for decades on all of the major oil fields in Saudi Arabia. These techniques would not be utilized unless necessary, because of the additional expense. In addition to pumping water and gas into the ground to maintain pressure so that the oil will flow for easier extraction, horizontal well-drilling techniques have been extensively employed within the last decade.

4) It is error to accept the conventional assumptions that the remainder of Saudi Arabia's portion of the Arabian Peninsula has been lightly explored because the super-giant oil fields are adequate for the foreseeable future. To the contrary, Simmons' says his investigation reveals that Saudi Arabia has been actively looking for new fields for decades, but has been unable to find significant new oil reserves. There are still a few areas which have not been explored, acknowledges Simmons, but the most promising areas have been, and the Saudi's have become increasingly anxious since the 1980's that there are no new fields sufficient to replace the declining production.

5) Saudi Arabia's oil output reached its all-time peak in approximately 1979 when the four large fields, Ghawar, Safaniya, Abqaiq, and Berri, accounted for 8.5 million barrels a day of the total 9.8 million barrel peak output. The assumptions of never ending oil are based in part on the size of the Saudi fields which are massive. The "King" is the Ghawar field, the greatest oil bearing structure the world has ever known. It is 174 miles long and 31 miles wide. Since its first production in 1951, it has now produced over 55 billion barrels of oil, accounting for 55-65% of Saudi Arabia's total production. It first began producing oil in 1951 and has now produced over 55 billion barrels. In 1979, Ghawar produced approximately 5.3 million barrels of oil per day, and continues similar production even today but with increasing "water cut" to maintain production levels; i.e 26% of production was water in 1993, and today the percentage is 36%, a clear sign of declining oil pressure and field capacity.

Saudi Arabia stated in early 2004 that it would spend \$18 billion through 2007 to improve and enhance its current production capacity. Simmons disputes these claims and says it will soon be difficult for Saudi to maintain existing production even with current technological advances. He says Saudi will soon join the United States and other western countries that have

reached the point of declining production with increasing world demand.

Simmons purpose in Twilight in the Desert is to inform the public, politicians and business leaders of his concerns, and he presents strong arguments that our government's policy should move to a strong and immediate commitment for the development of alternative energy sources, as well as conservation of fossil fuels, if we are to continue to prosper and maintain our national security. His thesis is well worth our consideration and that of our leaders.

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