

Re: UNITE! Info #221en: 1/2 Gold was right: Plenty of oil

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To respond to some of the issues raised in Rolf Martens latest post ---

The very expensive well I was involved in about 20 years ago was costly for three reasons:

1. Preparing a site from which to drill, in a harsh, sensitive environment.
2. Extracting as much useful information from the borehole as possible.
3. Restoring the site afterwards to pristine condition.

The drilling itself was only a small part of the total cost.

The other very expensive well in that general area also had expensive site preparation & clean-up, but in addition had some very severe drilling problems, which required expensive urgent interventions. These things happen!

On a much milder scale, drilling problems seem to have been a feature of the effort in the Siljan Ring. The drilling industry is awe-inspiring! Those guys can improve performance dramatically over the course of a drilling program, by learning from each well and developing creative ways to avoid problems. It's called the Learning Curve. But it takes time & money to drive the costs down that learning curve.

It is worth noting that industry regularly drills wells to depths of about 7,000 meters (about 21,000 feet), in deep gas fields. To test Gold's hypothesis properly, we would have to drill significantly deeper, and we would probably have to drill through much harder rock. A definite technical challenge!

A good source for information on Prof. Gold's hypothesis is his book, "The Deep Hot Biosphere", published by Copernicus Books in 1998. It opened my eyes --- the postulated existence of deep hydrocarbons is only a part of his theory, which helps explain such things as the origin of life.

As to the costs of oil production, there are a whole range of factors to consider:

- Getting access to a promising area (which can be very expensive).
- Deciding where to drill, usually using remote sensing techniques such as seismic exploration. Not cheap. One of the practical issues with Gold's

theory is – Where to drill?

- Drilling the discovery & appraisal wells, and the dry holes too. All of the many failures have to be paid for out of the proceeds of the few successes.
- Getting approvals to develop the discovery – internally, from governments, from regulators, from partners, from lenders. Not cheap, and often not quick.
- Developing the field. This involves large amounts of capital expenditures (e.g. on fixed facilities) which can all be lost if the field does not perform as expected. BP's Badami field in Alaska is a recent classic example of that — BP invested over \$300 Million developing the field, and the wells died within months.
- Operating the field — the ongoing costs of keeping everything shipshape and operating. When the value of the hydrocarbons produced each month is less than those operating costs, the field is played out economically and has to be abandoned (even though it is still producing hydrocarbons).
- Abandonment costs, leaving the wells in a safe condition and restoring the surface to usable form. Not cheap.

The point is that accountants can have a field day trying to sort out all those costs. Rules of thumb about what it costs to produce oil usually have very precise scopes of application (e.g., considering only the operating costs and ignoring the capital costs). Those rules of thumb are easily misused. Be careful!