



## Playing detective with Saudi production numbers

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There was a question the other day about the number of wells being drilled in the Middle East, and the chances of being able to cross-correlate well performance. Unfortunately, given the sparseness of data this is not that easy. But as numbers change, it is a topic that appears at odd intervals here.

Let me point you in the direction of where some of the numbers can be found since this is one of those detective games that can get quite engrossing. I first ran into this topic reading Matt Simmons article on [Giant Oilfields](#) (It is a pdf given on Jan 9, 2002). He gave a table on the

KEY PRODUCING COUNTRIES	
Country	Barrels per Well per Day (1998 Data)
Norway	5,623
Saudi Arabia	5,140
Iran	3,221
Kuwait	2,278
U.K.	1,728
Abu Dhabi	1,595
Indonesia	1,592
Dubai	1,578
Iraq	1,252
Neutral Zone	1,038
Libya	947
Nigeria	940
Mexico	875
Algeria	642
Venezuela	200
China	44
U.S.	11
Source: 2000 International Petroleum Encyclopedia	

relative productivity of wells in different countries.

Starting from there, the next step is to find out how many wells are being drilled in each country. There are two sources for this, the historical one can be obtained from [OPEC Annual Statistical Bulletin](#) (note it is a highly tabulated pdf file). From this you can get, for each country, the number of wells completed each year, and whether they were oil, gas, dry or others. (This is table 36). The data is given for a number of previous years so that you can also find the trends. Then one can see how much oil was produced in each country each year (Table 13) and how much natural gas (Table (15)). The problem with going much further is that it is not always clear that each country was producing at full bore, particularly when the case is Saudi Arabia. The data in

Saudi Arabia	257	265	250	330	335	1.4
Oil	na	na	162	214	217	1.4
Gas	na	na	45	59	61	3.1
Dry	na	na	9	11	11	-3.3
Others	na	na	34	46	46	-
Average depth (ft)	8,049	8,100	8,150	8,109	8,120	0.1

Unfortunately life now gets a bit complicated. For to determine the increase due to the new wells you have to make an assumption as to how much the existing wells have declined, and subtract that revised production from the new years production and divide by the number of wells, to reach the new number for individual oilwell production.

If we take the Saudi numbers, that a rig will drill a conventional well in 21 days, and a MRC well in 40-50 days (from the CSIS meeting) then one can project that a rig can drill somewhere between 6 and 12 wells a year. Matt Simmons said at the Denver meeting that he had thought they were doing about 10 until he went there and found that the number was about 5 wells per rig per year.

Well we can find how many are drilling by going to the [Baker Hughes table](#) (excel spreadsheet) where one finds that there were, in November, 37 onshore and 6 offshore rigs drilling. (The numbers are going up). Of these 33 are oil and 10 are drilling for gas).

So this is where we start trying to play a conjectures game. I had calculated, based on production data, that the average well in Saudi Arabia now produces around 4,000 bbd (rounding since I can't immediately find the spreadsheet). So we say that we have 33 rigs drilling for oil. Let us say that they average 7 wells each for the year. Then we have a total of new wells next year in Saudi Arabia of 231 oilwells. If they each produce 4,000 bd, then the total of new oil being produced is 4,000 x 205 (allowing for dry holes) or roughly 820,000 bd of new production.

The problem with this number, as I have posted before, is that this production is very close to the Saudi-reported current field declines (800 kbd the combined increase in production from Qatif and Abu Sa'fah), which makes it hard to see how they can, prior to a number of new rigs arriving, increase their production by the planned amount next year. But this is still based on a couple of assumptions, though not, I believe, unreasonable ones.

The critical numbers are the individual well production numbers, and these appear to be steadily decreasing as the fields that are being exploited get smaller or older.

Incidentally, while I have done this only for the Saudi data, the sites I have cited allow the same exercise for other countries.



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