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U.S. oil resources: President Obama's 'non sequitur facts'
Washington Post
By Glenn Kessler
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"As a country that has 2 percent of the world's oil reserves, but uses 20 percent of the world's oil — I'm going to repeat that — we've got 2 percent of the world oil reserves; we use 20 percent. What that means is, as much as we're doing to increase oil production, we're not going to be able to just drill our way out of the problem of high gas prices. Anybody who tells you otherwise either doesn't know what they're talking about or they aren't telling you the truth."

— President Obama, speech in North Carolina, March 7, 2012

"The United States consumes more than 20 percent of the world's oil, but we only have 2 percent of the world's oil reserves — 20 percent we use; we only produce 2 percent. And no matter what we do, it's not going to get much above 3 percent. So we're still going to have this huge shortfall. That's why if we really want energy security and energy independence, we've got to start looking at how we use less oil, and use other energy sources that we can renew and that we can control, so we are not subject to the whims of what's happening in other countries."

— Obama, speech on American energy, March 1, 2012

"After all, oil is a finite resource. We consume more than 20 percent of the world's oil, but have less than 2 percent of the world's oil reserves."

— Obama, remarks on the BP oil spill, June 15, 2010

This appears to be one of President Obama's favorite facts — he says it almost every time he speaks about energy issues — but readers are getting confused. We have received repeated queries from readers asking for an explanation of this startling bit of information.

This is actually an interesting area of inquiry. On the surface, the president's numbers are correct, based on official government data. But this is a good example of what we call "non sequitur facts" — two bits of information that actually bear little relationship to each other.

The president is trying to make the case that the world has finite oil resources, and the United States — the world's biggest oil consumer — needs to use less oil in the future. But using "oil reserves" as a key metric gives an incomplete picture of U.S. oil resources. (Note: the analysis that follows draws in part on a comprehensive Congressional Research Service report on oil resource definitions. We have embedded a copy at the end for readers seeking more information.)

The Facts

"Proven reserves," whether for oil, natural gas or coal, has a very strict definition, in part because reserves are considered actual assets owned by companies. The oil must have been discovered, confirmed and economically recoverable, with at least 90 percent certainty. The level of reserves, in fact, may vary depending on the price of oil, since a higher price may suddenly make some finds economically viable.

The data on proven reserves is collected by the Energy Information Administration, derived from a survey of private companies. EIA data shows that proven U.S. reserves hit a peak of nearly 40 billion barrels in 1970 — after the Prudhoe Bay oil field was found in Alaska — and now stand at about 22 billion barrels. But here's the strange thing: the United States also had proven oil reserves of 22 billion barrels through much of the 1940s.

How is that possible? New sources of oil kept getting found, more-difficult-to-obtain oil suddenly became more economically viable, new oil-extraction techniques gained favor, and so forth.

This brings us to our next category of oil: undiscovered technically recoverable resources. Oil companies cannot consider this oil an asset. Whether that oil will be recovered depends in part on technology and/or the price of oil.

This oil resource figure is based on technical estimates made by two arms of the Interior Department — the U.S. Geological Survey (for onshore estimates) and the Bureau of Ocean Energy Management, Regulation and Enforcement (for offshore estimates). These estimates add at least 140 billion barrels to what is known as the U.S. endowment of oil, for a total of more than 160 billion barrels.

In other words, eight times larger than just proven reserves.

These estimates change over time. The Bakken Formation in North Dakota, South Dakota, Montana, and southern Canada was discovered in the 1980s and 1990s, but because as much as 500 billion barrels of oil was scattered through layers of shale and sandstone, little could be recovered at the time. But with new production techniques, new estimates suggest that 3.65 billion barrels could be extracted from the Bakken Formation.

"Using horizontal drilling and hydraulic fracturing, operators increased Bakken production from about 3,000 barrels per day in 2005 to 137,000 barrels per day in 2009 and 225,000 barrels per day in 2010," noted Richard Newell, the EIA administrator in testimony to

Congress last year.

"The domestic crude-oil and natural-gas industry has undergone a technological revolution that has revitalized the resource base in the onshore lower 48 states," Newell added. "The use of horizontal drilling in conjunction with hydraulic fracturing has greatly expanded the ability of producers to profitably produce crude oil and natural gas from low-permeability geologic formations, particularly shale formations."

And then there is oil that holds tantalizing potential, such as oil shale, that is not yet economically viable, but may be in the future. The Rand Corporation says that between 500 billion barrels and 1.1 trillion barrels may exist in the Green Rover Formation in Colorado, Utah and Wyoming. "The midpoint in our estimate range, 800 billion barrels, is more than triple the proven oil reserves of Saudi Arabia," Rand said in a report. But this still is mostly a simmering mirage, in contrast to the other categories of U.S. oil resources.

There are three other useful metrics regarding oil. The first is "production," which is how quickly the oil comes out of the ground. Even with 2 percent of the world's oil reserves, the United States has nearly 9 percent of the world's production, according to BP's annual survey. The president, in fact, misspoke on March 1 when he said "we only produce 2 percent" shortly after saying "we only have 2 percent of the world's oil reserves."

Then there is the "R/P ratio," which is the length of time the proven reserves will last at the current production rate. BP says the current U.S. ratio is 11.3 years. Does that mean the United States has only 11 years of oil left? No. In fact, the U.S. R/P ratio in 1970 was also about 11 years. The reason the ratio has not changed much is because more oil was found that could be economically recovered.

Lastly, there is consumption. As the president noted, the United States consumes about 20 percent of the world's oil. (The BP annual review puts it at 21 percent in 2010.) Europe and "Eurasia" (Russia and the former Soviet Republics) consume about 23 percent. China consumes nearly 11 percent, Japan 5 percent and India 4 percent.

But measuring the U.S. consumption against its proven oil reserves makes little sense. Europe, with the exception of Russia, Kazakhstan and Norway, has virtually no oil reserves. Japan, a major consumer, has zero. China's oil reserves are about half the size of the United States. In fact, in the relative scheme of things, the United States is relatively blessed with proven oil reserves — and, given the U.S. technological advantage, also with potentially large resources of oil yet to be tapped.

That's why we said the president is using "non sequitur facts." It would make much more sense to note that the United States has just 4.5 percent of the world's population and yet we consume 20 percent of the oil, which is a finite resource, in order to urge Americans that we need to have greater energy efficiency.

But in the context of higher gas prices — which is how the president often uses these figures now — it just is not logical to compare consumption to "proven oil reserves." This is a lowball figure that does not begin to describe the oil known to be within the U.S. borders.

The Pinocchio Test

This is a strange case because the facts are technically correct but are used in service of fuzzy thinking. The president should drop this fact, or alter it as we suggested, or he runs the risk of misleading Americans about the extent of the U.S. oil resources.

He is especially on shaky ground when he says "no matter what we do, it's not going to get much above 3 percent." The estimate of proven oil reserves may change at any moment depending on technological innovations and the price of oil. As we demonstrated, it is largely irrelevant to the supply of U.S. oil that is likely to be recovered — or how much oil the United States has left to consume. The president could also be embarrassed if the EIA suddenly boosts the figure for proven oil reserves.

For the moment, we will label the president's statement with our rarely used category:

TRUE BUT FALSE

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