

Crude Oil Extraction for the World

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Introduction

Crude Oil, also known as [petroleum](#), started as a major drilling enterprise in the United States with the Drake Well in 1859 near Titusville, Pennsylvania.

This document is a quantitative history and projection of extraction of crude oil in the various nations of the world.

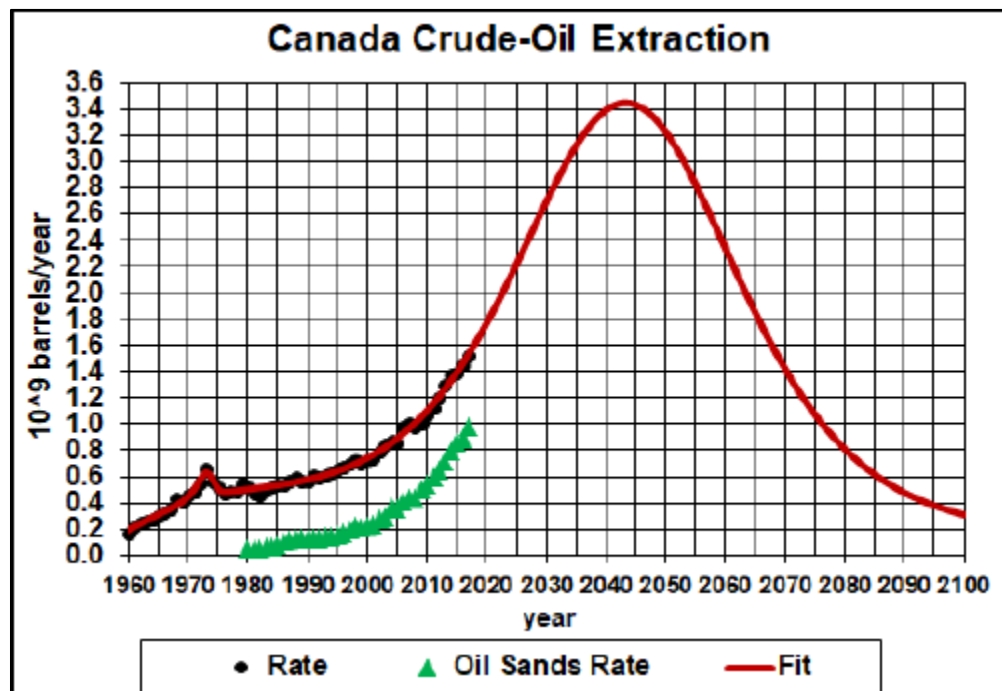
The data needed for the analysis reported herein are taken from the [U.S. Energy Information Agency](#) for recent years and from various documents for all years. The analyses involve fitting a series of [Verhulst functions](#) to the extraction data and extrapolated into future years by optimistically using more than the estimated reserves value.

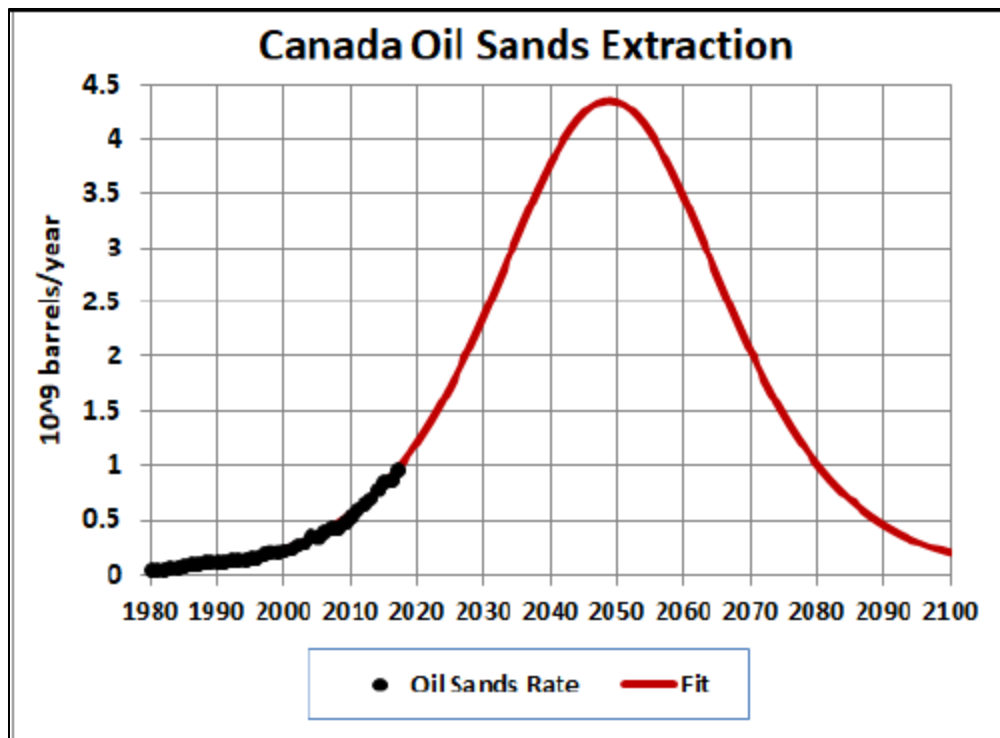
When extraction for recent years is rising and considerable estimated reserves exist the future is approximated by a single peak continuing the rise. When extraction for recent years is falling and considerable estimated reserves exist the future is approximated by a valley followed by a single peak.

The nine nations with the highest extraction rate over time, including the projected future, are listed in alphabetic order.

Canada

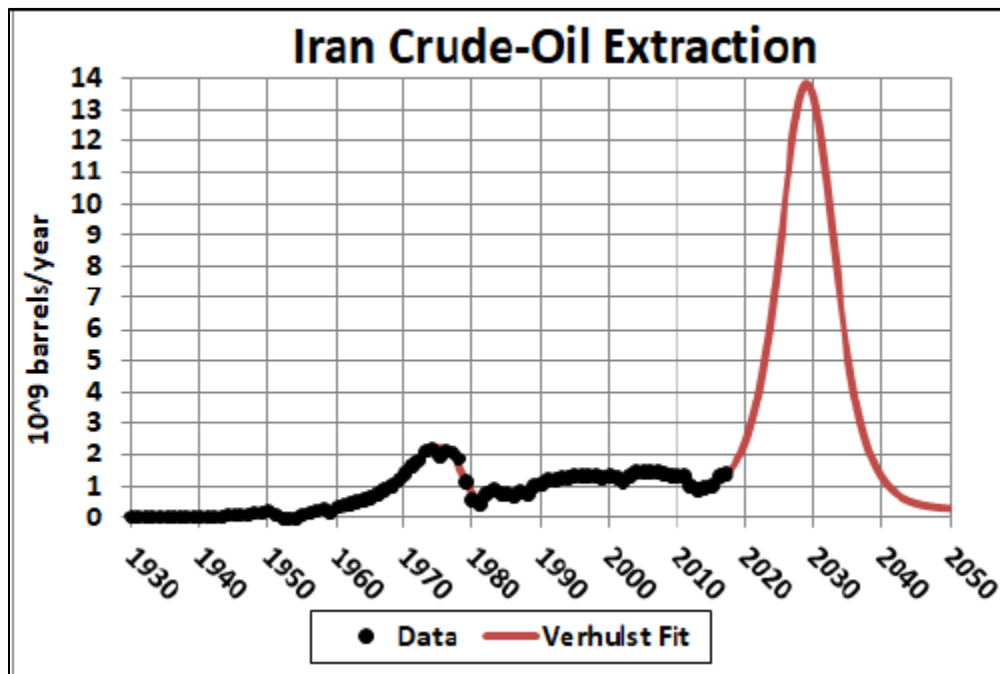
The estimated 2017 reserves value is 170×10^9 barrels. Used is 198×10^9 barrels to be optimistic. The future peak is assumed to be symmetric.





Iran

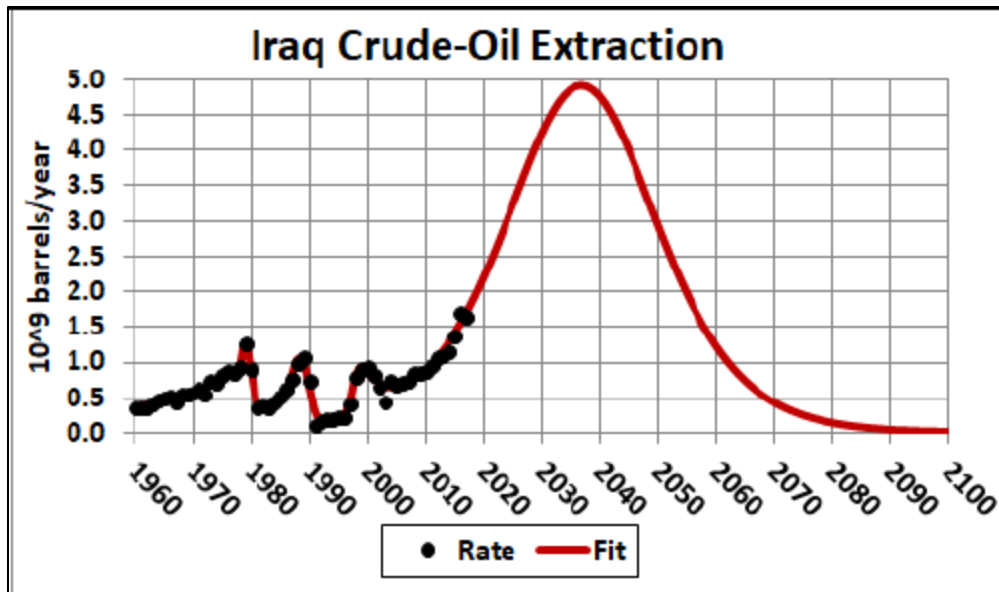
The estimated 2015 reserves value is 158×10^9 barrels. Used is 168×10^9 barrels to be optimistic. The future peak is assumed to be symmetric.



Iran's political situation needs to improve for the large peak to occur.

Iraq

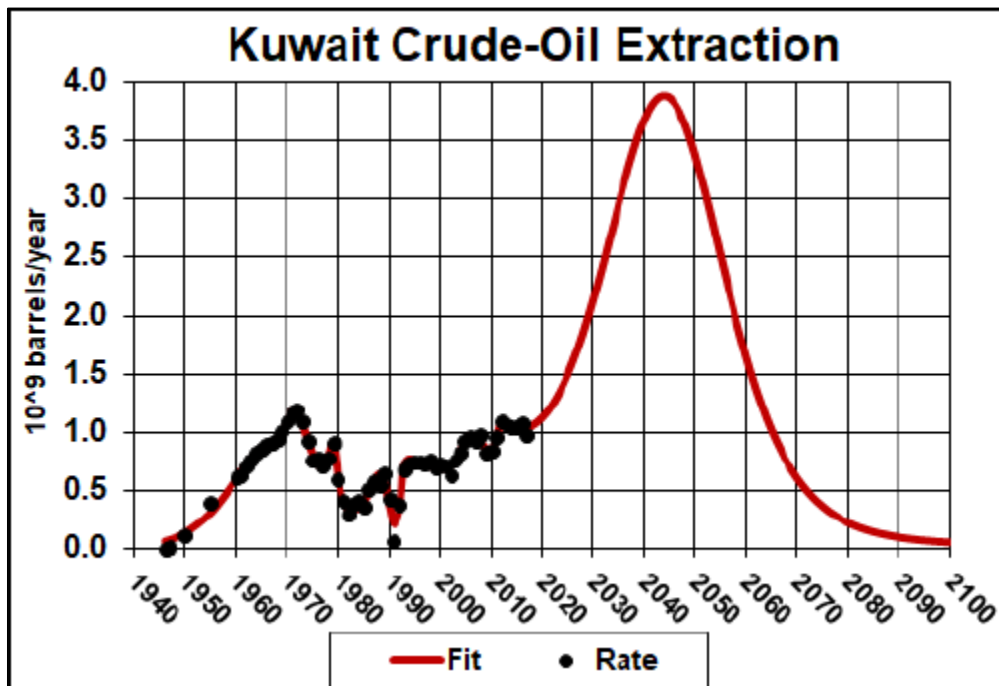
The estimated 2015 reserves value is 143×10^9 barrels. Used is 157×10^9 barrels to be optimistic. The future peak is assumed to be symmetric.



Iraq's political situation needs to improve for the large peak to occur.

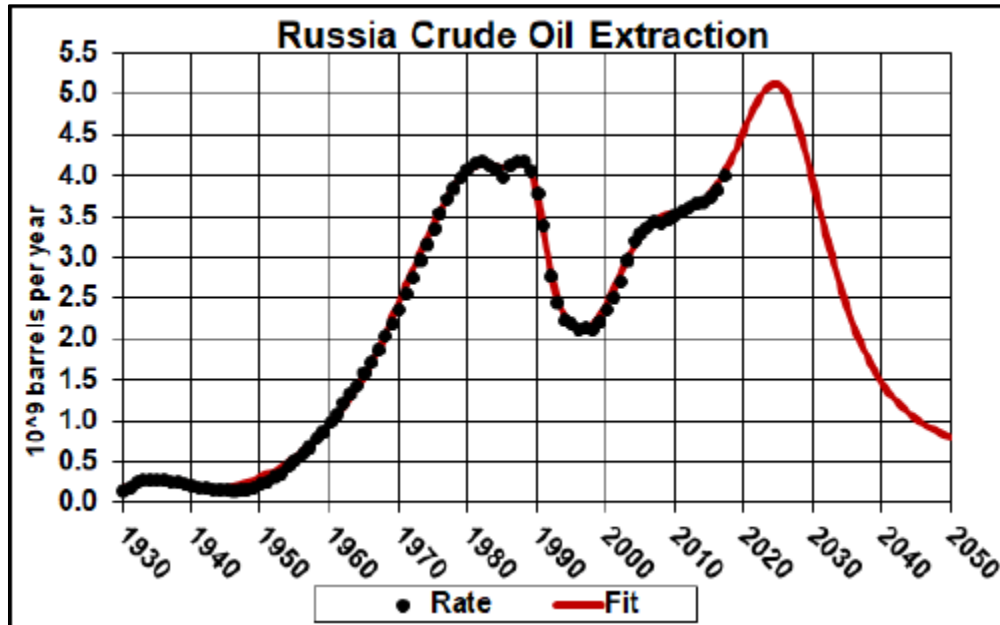
Kuwait

The estimated 2015 reserves value is 102×10^9 barrels. Used is 127×10^9 barrels to be optimistic. The future peak is assumed to be symmetric.



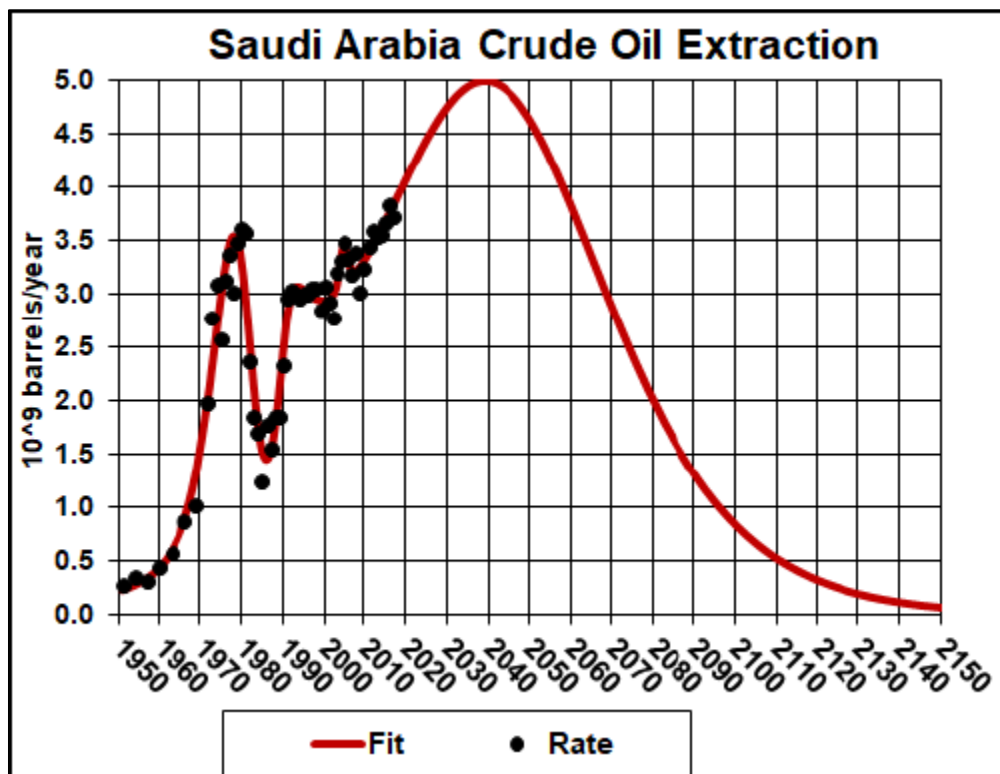
Russia

The estimated 2016 reserves value is 80×10^9 barrels. Used is 116×10^9 barrels to be optimistic. The future peak is assumed to be symmetric.



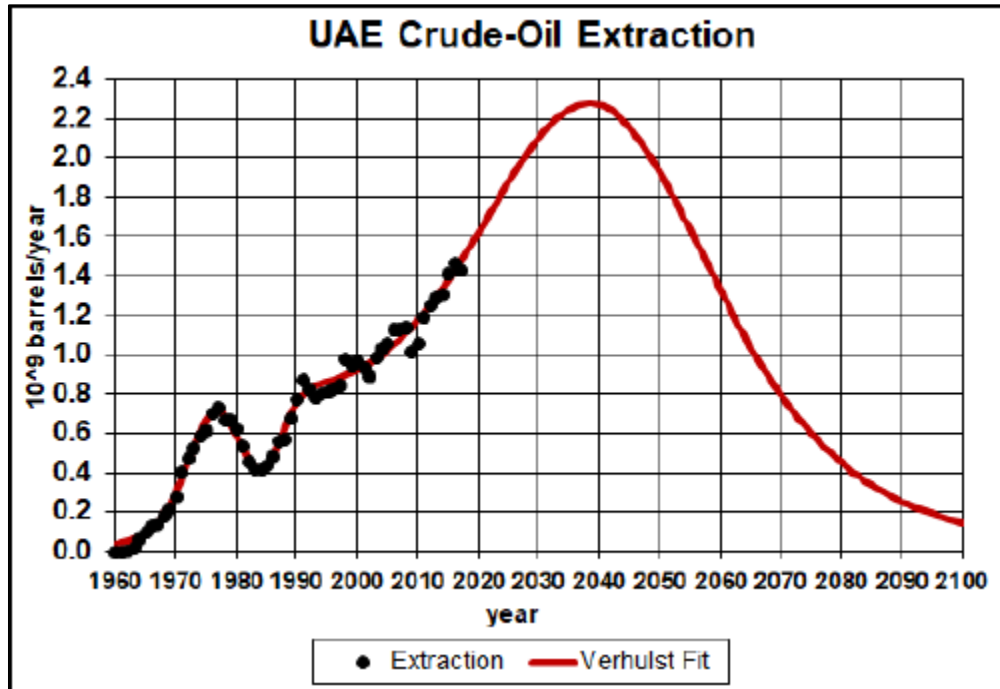
Saudi Arabia

The estimated 2016 reserves value is 266×10^9 barrels. Used is 299×10^9 barrels to be optimistic. The future peak is assumed to be symmetric.



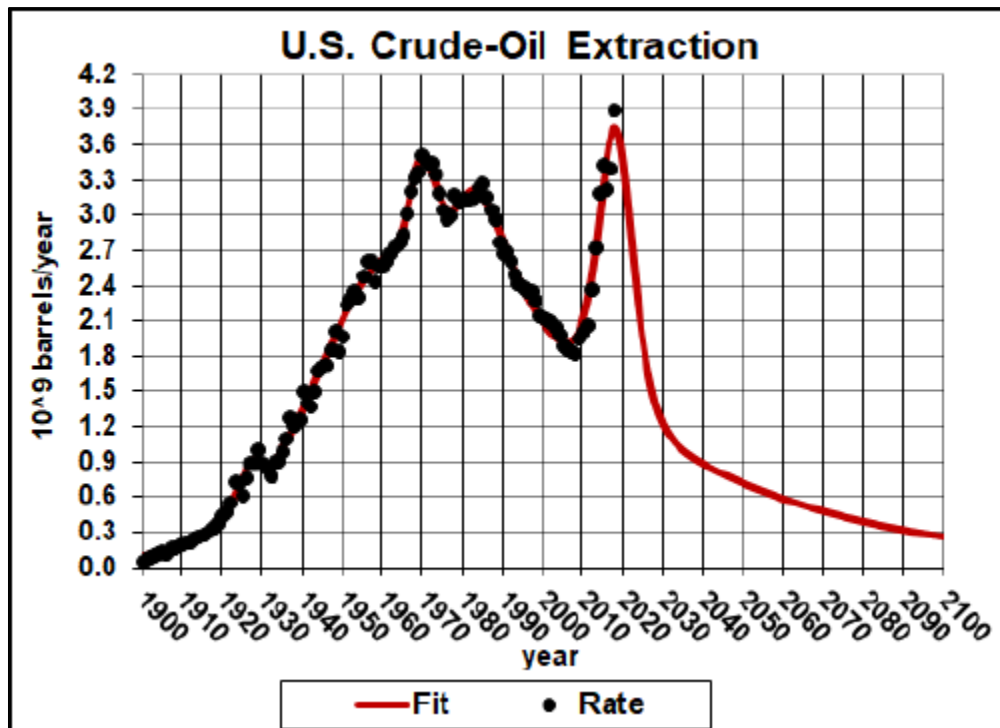
United Arab Emirates

The estimated 2015 reserves value is 98×10^9 barrels. Used is 109×10^9 barrels to be optimistic. The future peak is assumed to be symmetric.

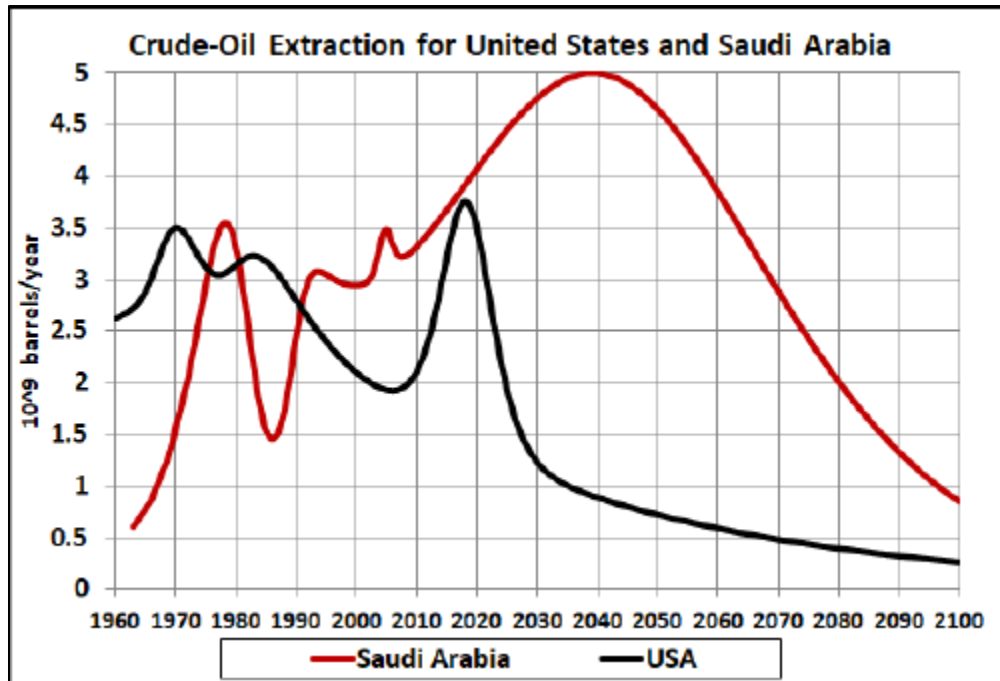


United States

The estimated 2016 reserves value is 33×10^9 barrels. Used is 86×10^9 barrels to be optimistic. The future peak is assumed to be symmetric. The high reserves was necessary to get a good fit to the extraction data.



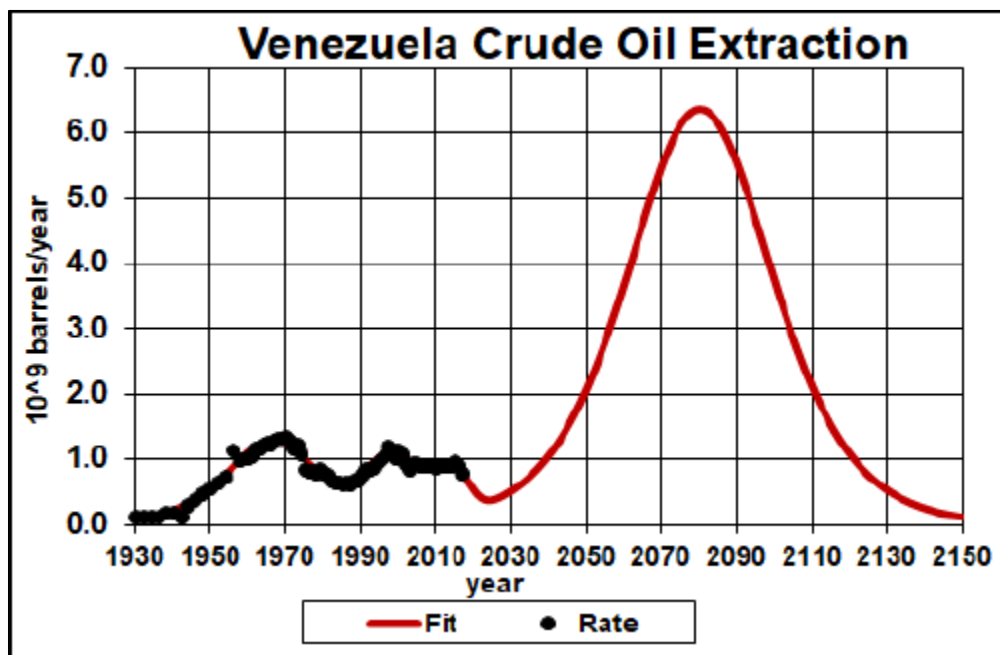
Petroleum and political analysts in the United States often compare crude-oil extraction in the U.S. to extraction in Saudi Arabia. The two fit curves developed in this analysis plotted together are:



Many analysts state that the U.S. now is extracting more crude oil than is Saudi Arabia. These curves show that the two are about the same currently. However, the U.S. peak will be very short lived compared to the width of the larger Saudi Arabia peak.

Venezuela

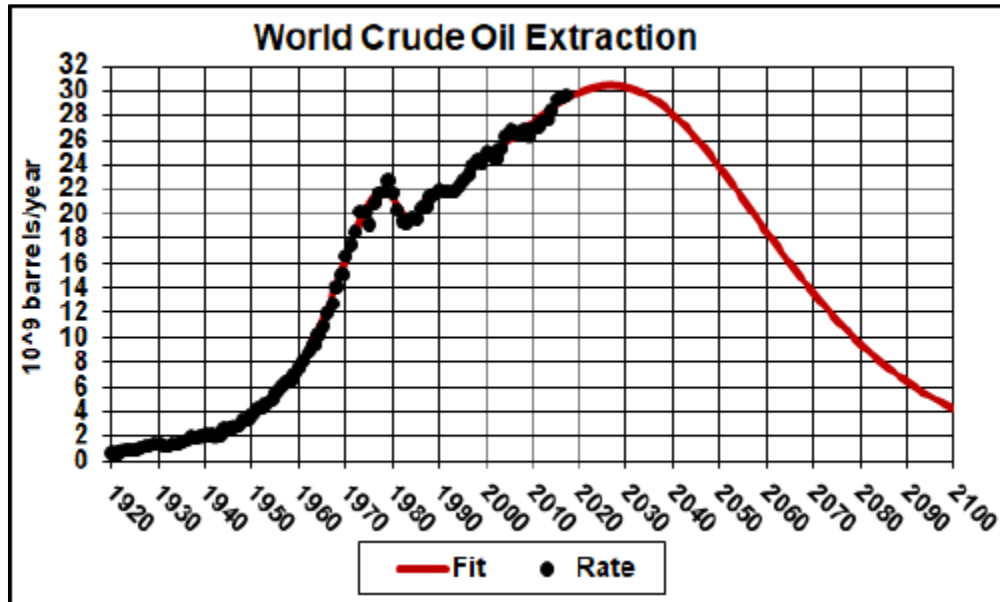
The estimated 2016 reserves value is 300×10^9 barrels. Used is 331×10^9 barrels to be optimistic. The future peak is assumed to be symmetric.



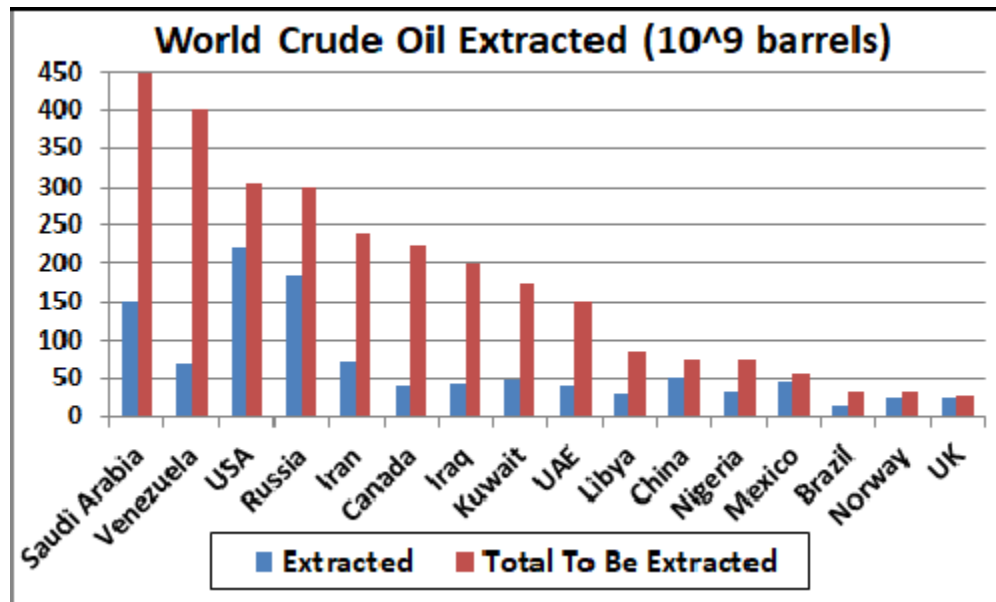
Venezuela's political situation needs to improve for the large peak to occur.

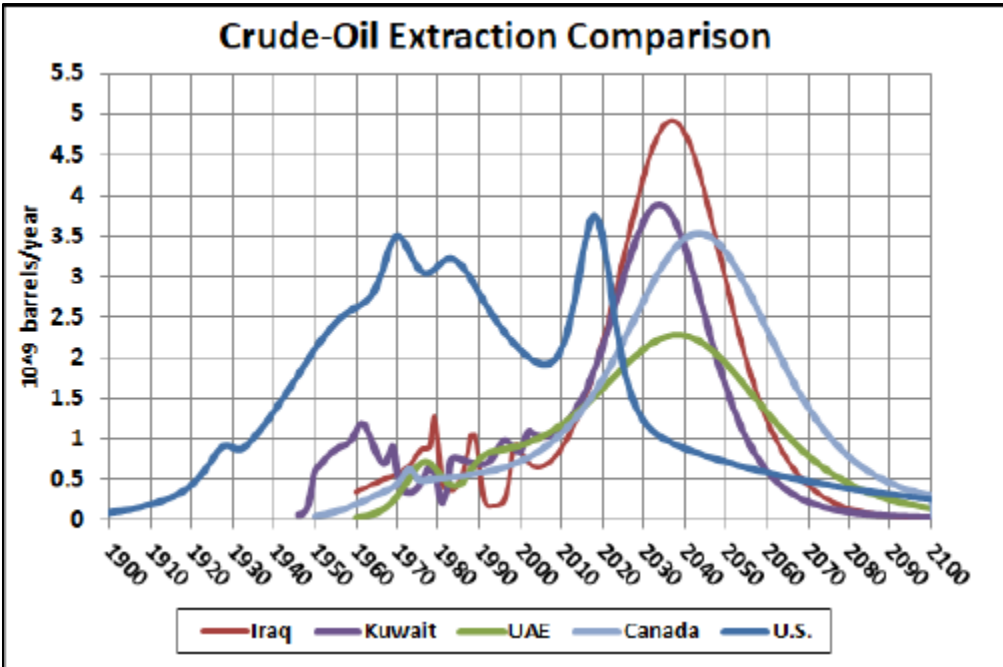
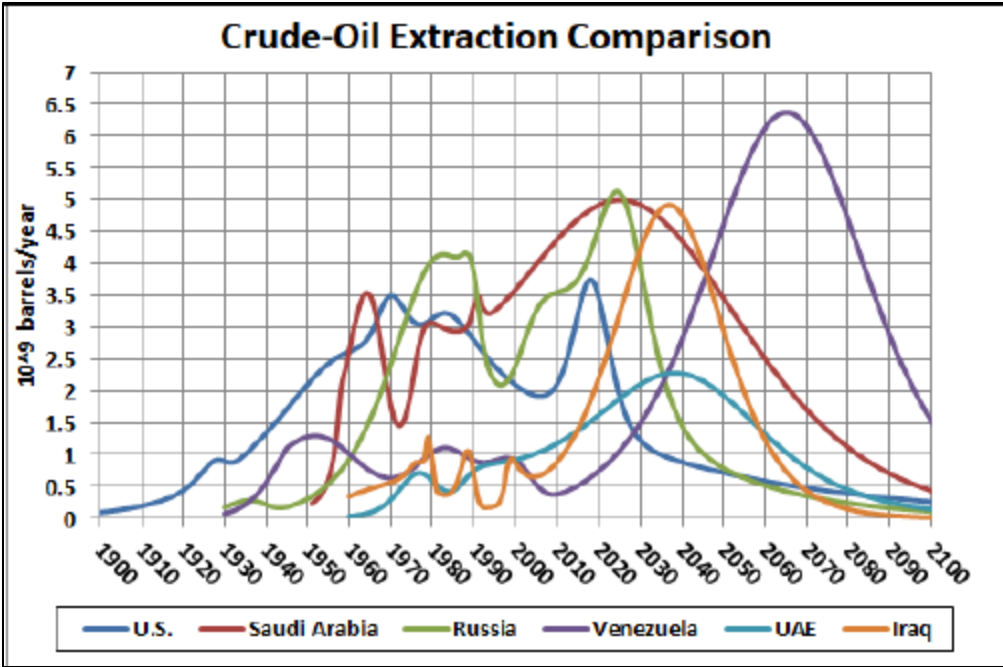
World

The estimated 2017 reserves value is 1697×10^9 barrels. Used is 2136×10^9 barrels to be optimistic. The future peak is assumed to be symmetric.

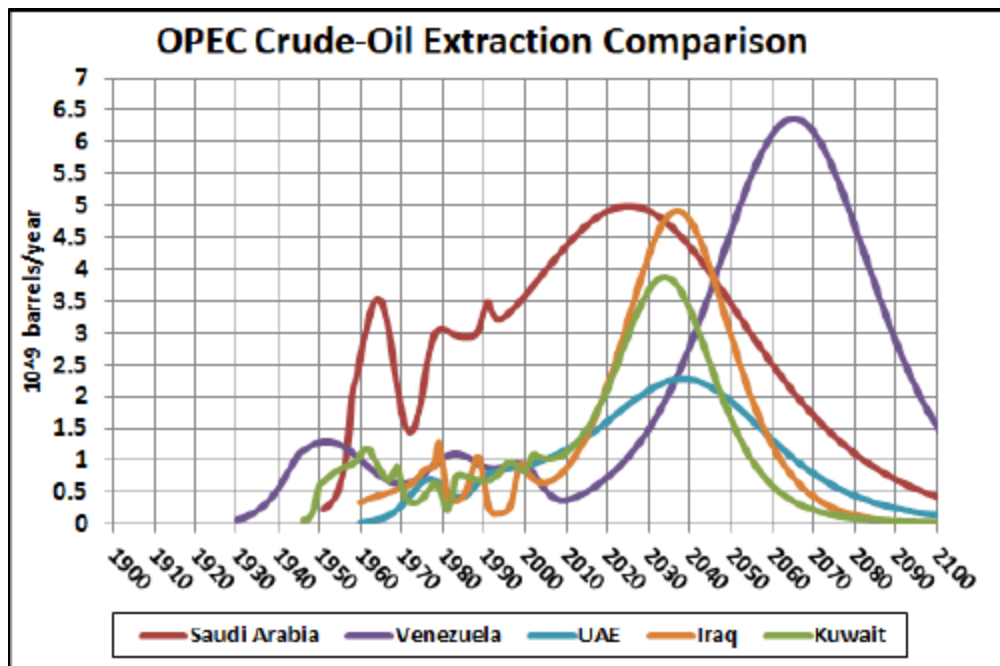


There may be a small future peak due to fracking for tight oil.





The two graphs above show that Venezuela could dominate the world crude-oil extraction from 2050 to 2100 if its political situation improved before 2030. Also, they show that Iraq could be a major extractor from 2025 to 2050 if its political situation improved before 2020.



Conclusion

The author does not study crude-oil extraction because he approves of burning it in automotive engines. It is too valuable for making useful items to waste it by burning it and burning it cause global warming. That is a major reason the author has driven hybrid cars since 2005 and [electric cars since 2007](#).

Also, the author does not approve fracking for extracting crude oil because it depletes the water supply. Drilling for crude oil should be regulated to the maximum extent to keep the damage to the environment as low as possible.

If readers want the [Verhulst-function](#) parameters for any of the extraction fits shown above, contact the author L. David Roper at ROPERLD@VT.EDU.

<http://www.roperld.com/science/minerals/FossilFuels.htm>

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