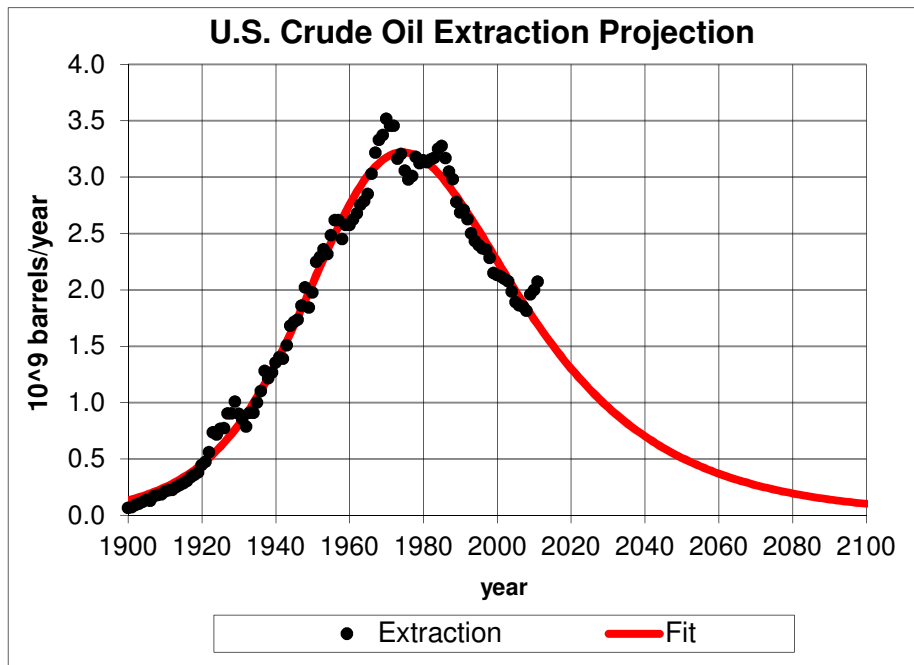


Crude-Oil Extraction in the United States and the World

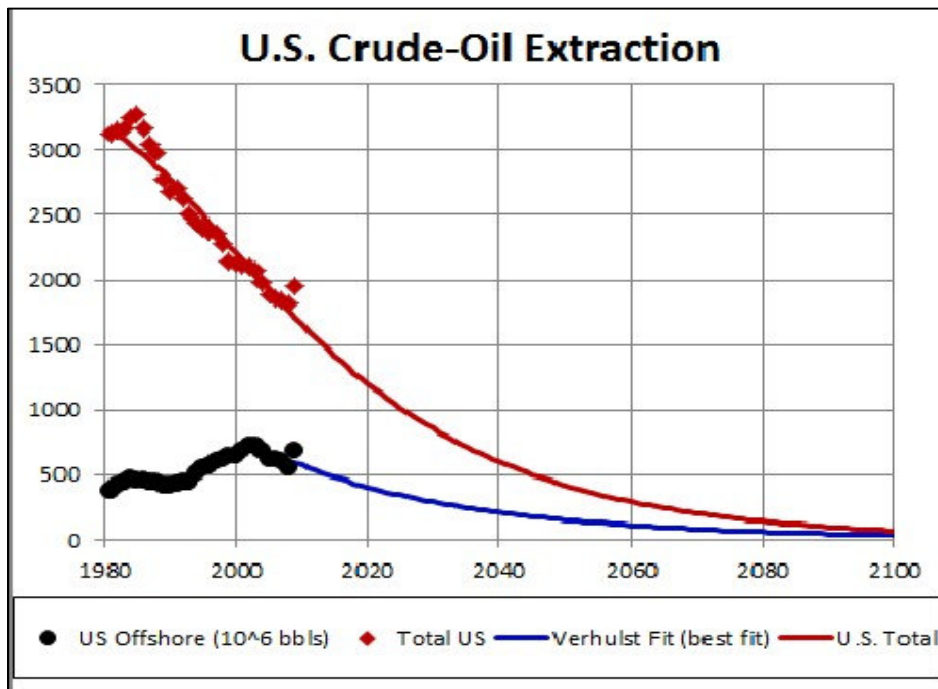
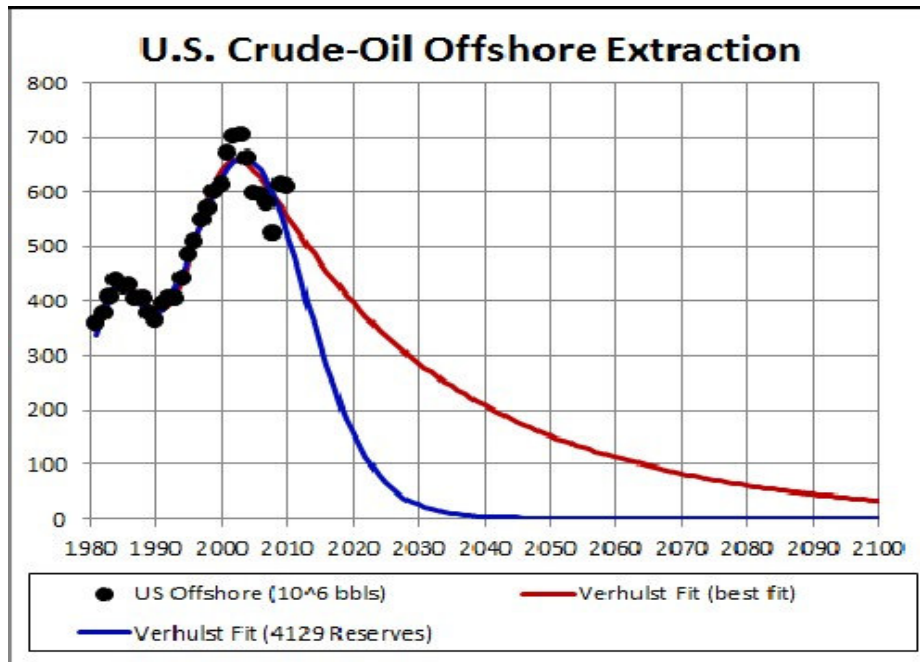
L. David Roper, <http://arts.bev.net/roperldavid/>, roperld@vt.edu, March 2012

This article contains graphs showing the situations for crude-oil extraction in the United States and the World. The main fact about an extraction curve, also called a depletion curve, is that the area under the curve must equal the amount to be extracted eventually. When the amount to be extracted eventually is altered, one must redo the curve calculation get reliable future projections. It is very misleading to talk about “at current usage” when making a future projection.

Crude-Oil Extraction in the United States

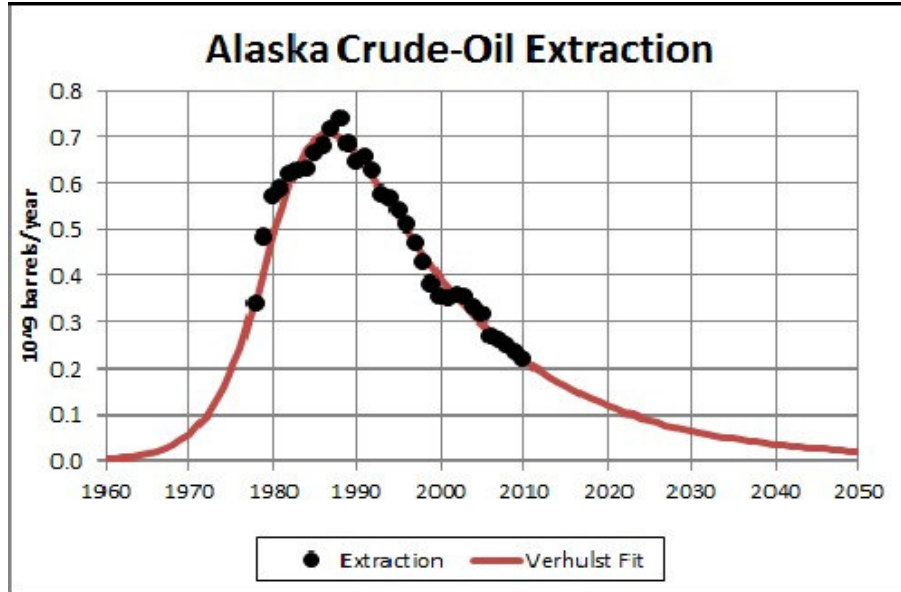


Crude-Oil Offshore Extraction

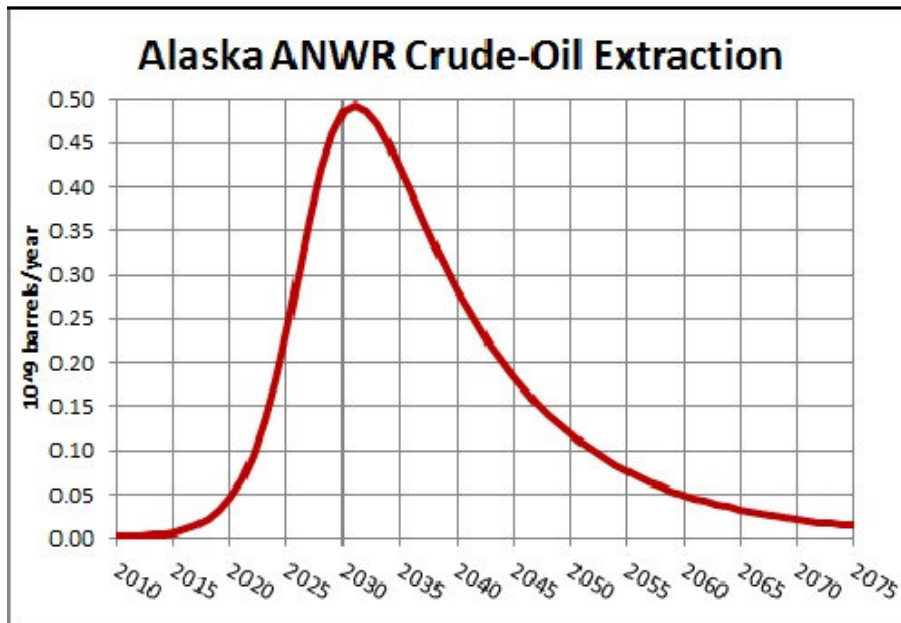


Thus, extraction of crude-oil offshore is not going to help much.

Crude-Oil Extraction in Alaska



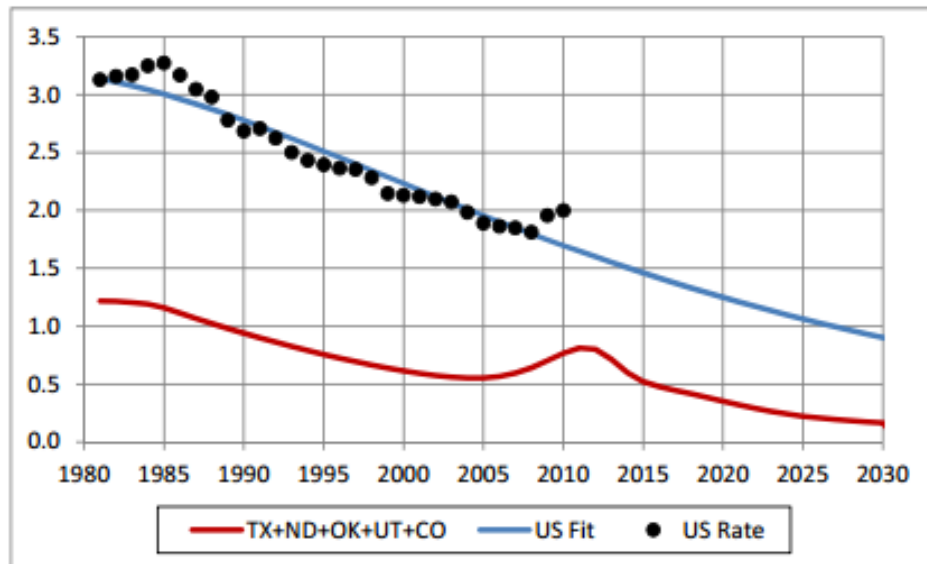
This north-slope extraction did not live up to expectations.



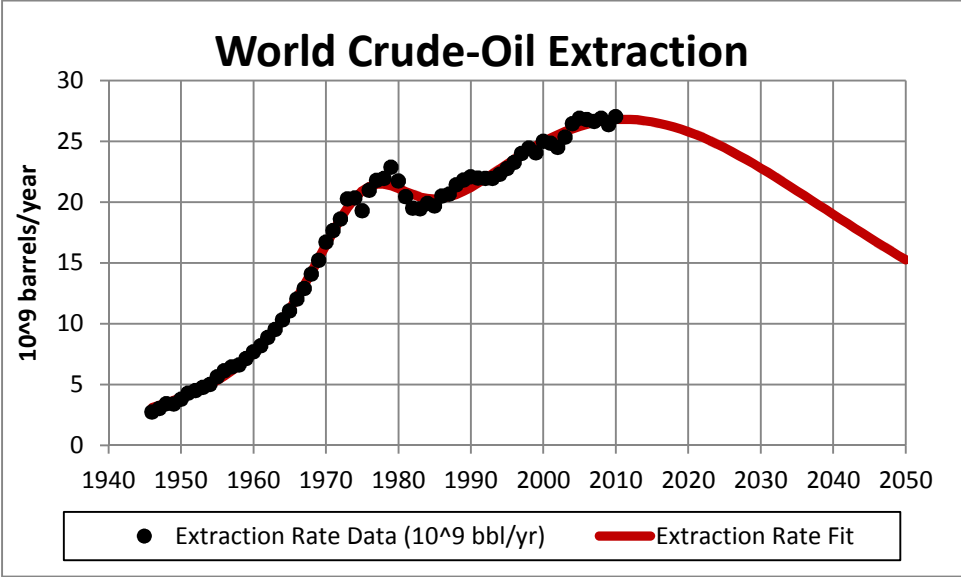
A high-value assumption has been made that the eventual total extraction will be 10^{10} barrels. Further assumptions are that the initial speed of extraction will be $\sim 30\%$ less than the Prudhoe-Bay speed and that the asymmetry will be the same as for Prudhoe-Bay extraction. Thus ANWR extraction will not be of much help.

Crude-Oil Resurgence in the Lower 48 States?

There are mini-oil-booms in several states. However, the net effect of those “resurgences” is rather small:



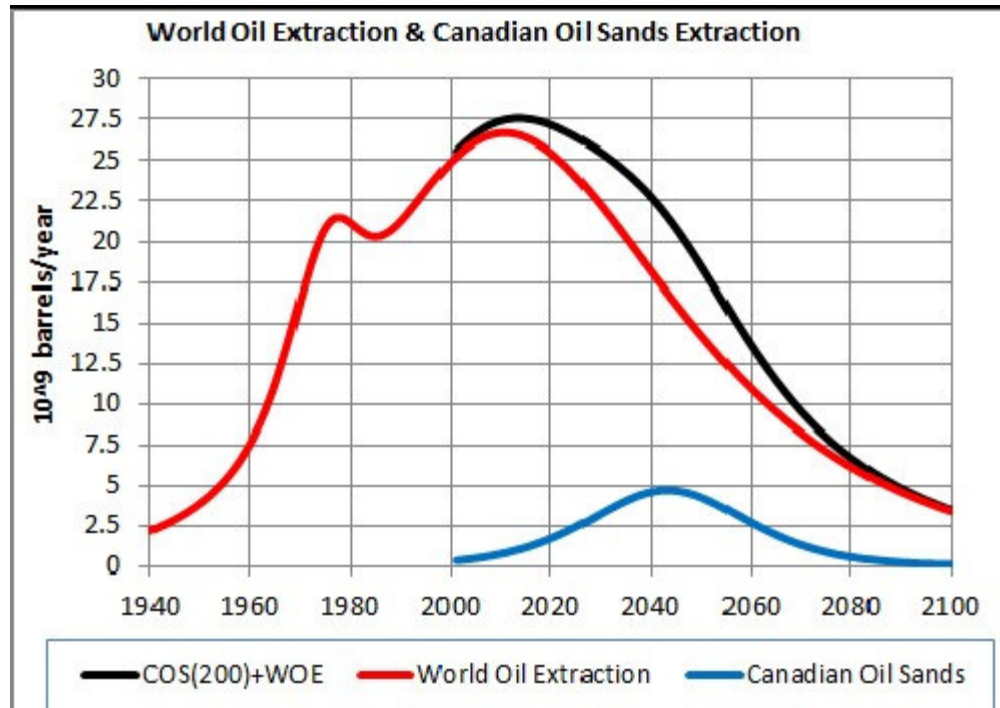
Crude-Oil Extraction for the World



Crude-oil extraction for the world has leveled off and will inevitably fall with minor oscillations, similar to the case for the United States.

Crude-Oil Extraction from Canadian Oil Sands

Using an optimistic assumption for the eventual amount to be extracted, the following graph shows a optimistic view of how much crude-oil extraction from Canadian oil sands will enhance world extraction of crude oil.

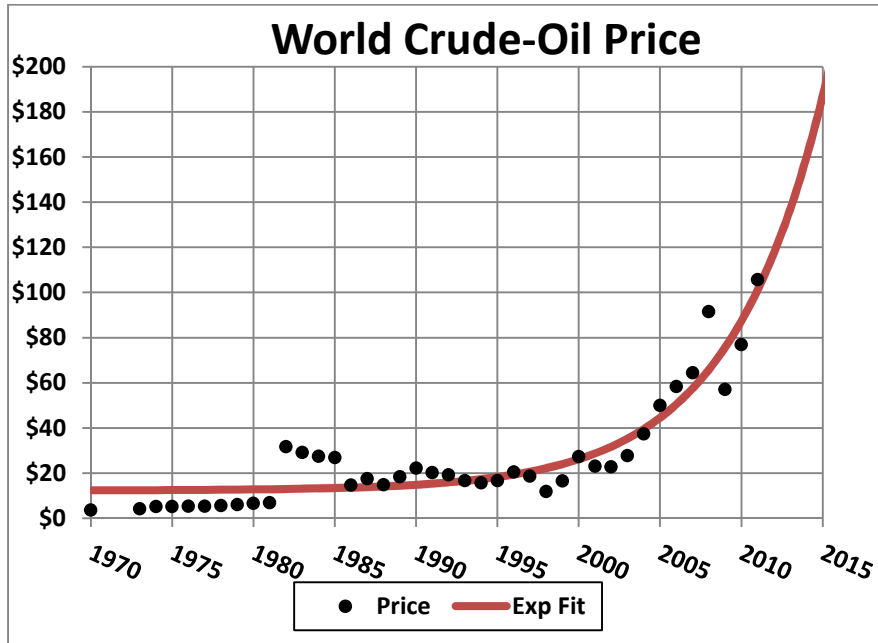


Is the extra crude oil available by extraction of it from oil sands worth the major environmental damage it causes?

There are oil sands in other countries.

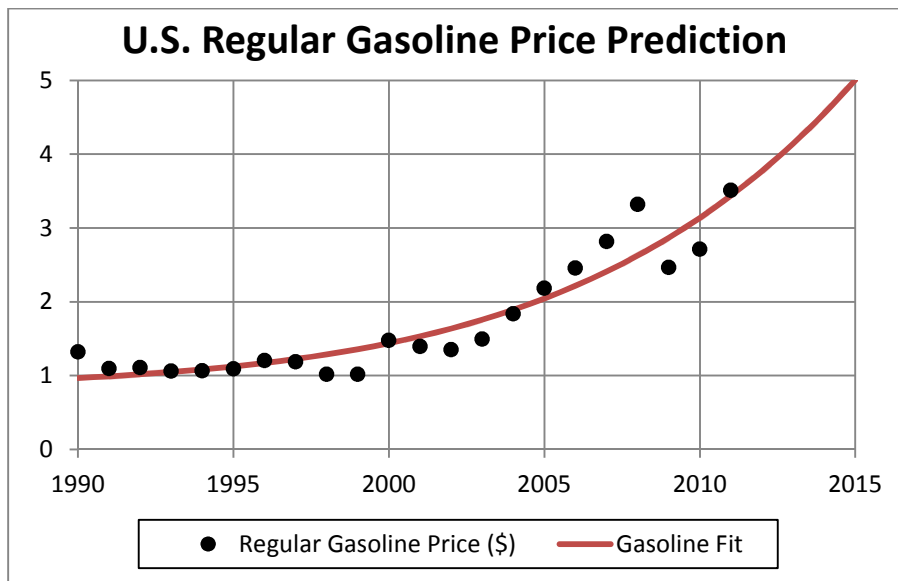
World-Crude-Oil Prices and Gasoline Prices in the United States

Mainly due to the leveling off of crude-oil extraction for the world, crude oil prices are on a steep rise with oscillations:



The exponential-fit red curve is probably a reasonable expectation for the next ten years. After that renewable energy may be so strong that crude-oil prices will level out and perhaps fall.

Gasoline prices in the United States are following a similar course:



Eventually, renewable energy and electric vehicles may be so prevalent that gasoline prices will level out and perhaps fall.