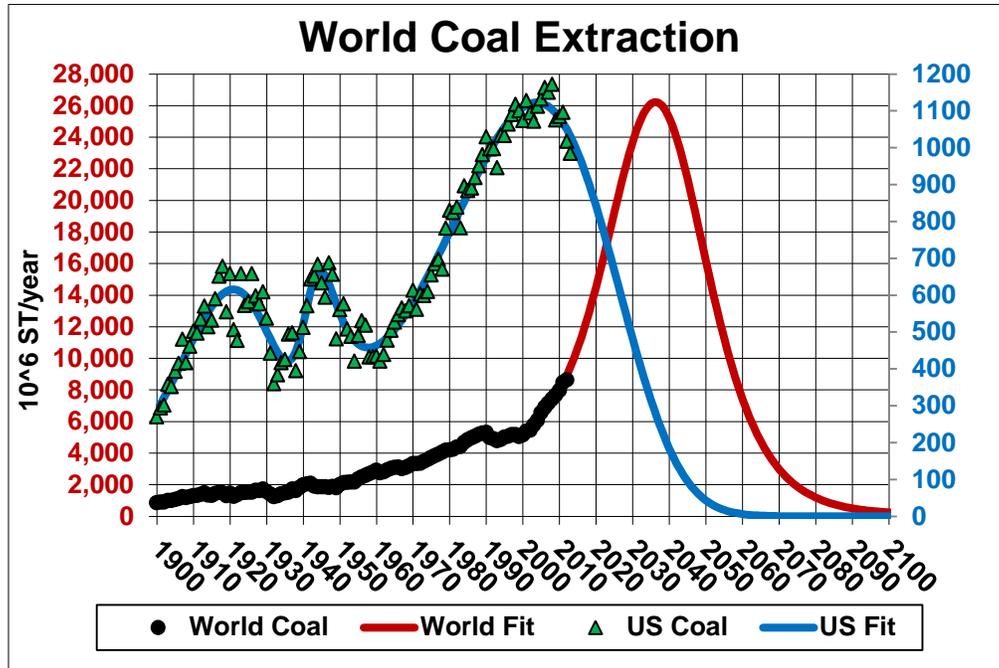


Availability of Coal in the United States and the World

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The area under the curve is the total amount that will be extracted.

The left red axis is for the World and the right blue axis is for the United States.

Crucial information for the future of the United States and the world is how much coal can be extracted each year in the future. Coal is the fossil fuel that puts the most carbon dioxide in the atmosphere when it is burned for fuel. It is widely used as fuel to generate electricity. For a viable future of humans it is abundantly clear from climate science that humans must quit burning coal.

Collecting reasonable extraction data for coal is complicated by the fact that there are several different kinds of coal which produce widely different amounts of energy when burned. Those differences are neglected in the graph.

Accurate extraction data for previous years back to 1829 for the United States and 1900 for the world are available online from the federal Energy Information Agency (EIA). The EIA also estimates mines reserves, proven reserves and unproven resources for coal. One can fit a depletion function to the extraction data and project the fit into the future if a reasonably accurate estimate of the amount to be extracted in the future is known.

The EIA estimated value of proven mines reserves for 2012 is 18.7 billion tons for the United States. Using this value to fit the data yields a very good fit as shown by the blue curve in the graph. There is much more coal for which mines do not exist to extract it. Hopefully, no more coal mines will be created

in the United States. The decline in coal extraction for the United States is encouraging for reducing global warming.

The EIA estimated value of proven world reserves for is about 948 billion tons. Using this value yields the red curve in the graph. This curve is very discouraging because if it happens as shown, burning that huge amount of coal will greatly increase global warming. There is much more coal for which mines do not exist to extract it; if more mines are created the danger will be even worse.

If we were wise we would greatly slow down coal extraction so that we have it longer and that it will not contribute to global warming so much.

There is movement among power companies to convert coal-burning plants to natural-gas plants. That is a short-term solution. When the national infrastructure is in place for charging electric cars and electricity is generated mainly from renewable energy sources, both of which are underway, it will be necessary to have all cars being powered by electricity.

There are many environmental problems with extracting coal; the two main ones are huge amounts of pollution in the atmosphere and in waterways.

To learn more about extraction of coal see

<http://www.roperId.com/science/minerals/WorldCoalFuture.pdf> and

<http://www.roperId.com/science/minerals/CoalExtractionUS.pdf>, and about extraction of all fossil fuels worldwide see <http://www.roperId.com/science/minerals/FossilFuels.htm>.