



IEA: Japan Will Need 85 MPG Cars to Survive

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This is a guest post by Morgan Downey, author of Oil 101 and of the [Scarce Whales](#) blog.

The OECD International Energy Agency (IEA) is the [taxpayer-funded](#) energy advisor to the 28 most developed countries. The agency was created in 1974 by large oil consuming nations in response to an oil supply embargo which began in late 1973.

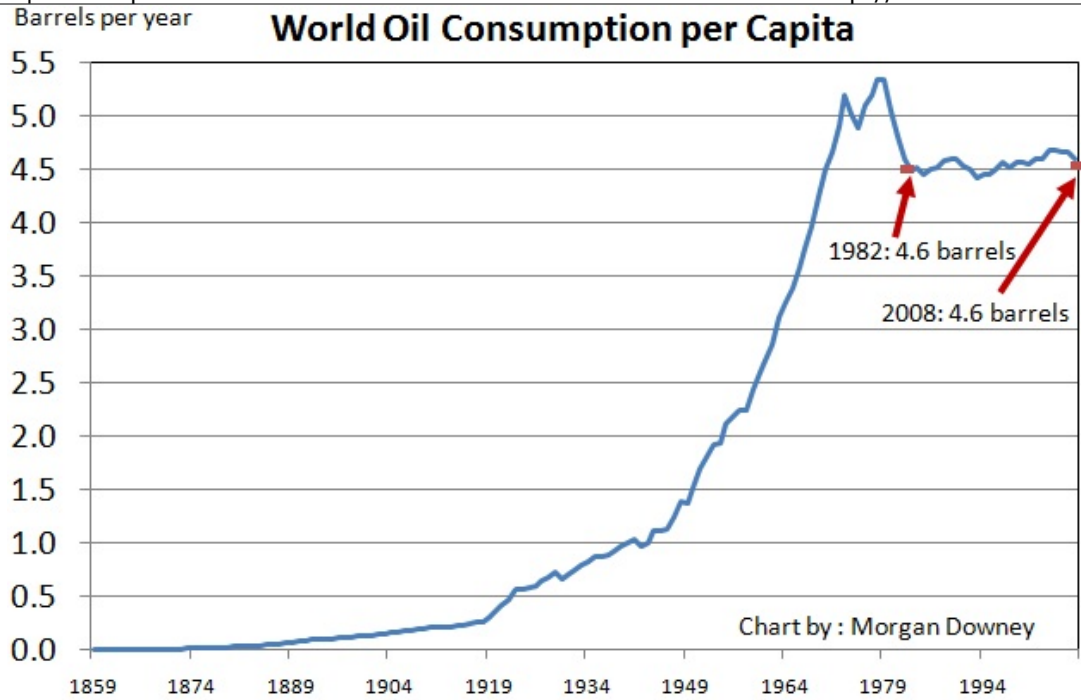
The IEA publishes an annual World Energy Outlook ([WEO](#)) each November. See a video of the 2009 WEO press conference [here](#).

One of the conclusions which can be drawn from deconstructing the 2009 WEO, the IEA's forecast of energy supply and demand out 20 years to 2030, is that the IEA estimates that the average new vehicle sold in Japan in 2030 will have to attain on average 85 miles per gallon. Even small motorcycles cannot get close to that level of efficiency in everyday use today. Those 2030 Japanese vehicles will have to be plug in hybrids and Japan will have to build electrical capacity to handle this demand.

Oil supplied to the global market in 2009 is just over 84 million barrels per day (Mbpd). The big headline grabbing number in the WEO report this year is that the IEA believes global oil supply in 2030 will be around 105 Mbpd. Although the IEA's 105 Mbpd 2030 supply forecast is [down significantly](#) from previous WEOs, it will still require the discovery and development of at least four Saudi Arabian sized oil producing areas before 2030. This huge challenge is the IEA's basic "reference scenario".

What most people are interested in from a modeling perspective is the logic and assumptions the IEA uses. In this regard, this years IEA supply side estimate methodology appears to have a certain predictability.

In fact, let me pull up an [old chart of mine](#) showing oil supply at 4.6 barrels per year per capita over the past 27 years (see chart below). What does the IEA 2009 WEO forecast for 2030? You will not be surprised that it is almost exactly 4.6. Plug in the current global population and UN population growth estimates between now and 2030 et voila: IEA global oil supply estimates almost to the barrel.



(click chart to enlarge)

There is nothing wrong with using 4.6. Using 4.6 is a reasonable starting point for modeling *required* oil supply. Remember that the IEA's basic supply side case to get to the 4.6 number assumes at least four Saudi Arabias will be among those discovered and developed over the next 20 years - a whopper of an assumption. Estimating *actual* oil supply out 20 years is much more challenging given that most of the oil which will be supplied in 2030 has not yet been discovered.

The IEA goes on to estimate how the 4.6 barrels per year per person globally will be broken out by geographic region on the demand side of the oil equation. Their conundrum is that if China, India and other non-OECD countries continue to grow as expected then someone else has to reduce oil consumption through voluntary or forced efficiency. The IEA is forecasting per capita oil consumption efficiency improvements of just over 20% in each of the US and OECD Europe. Amazingly the IEA is forecasting a per capita efficiency improvement of around 40% for Japan. This is after taking into account population changes. These efficiency numbers are the IEA requirements under their basic "reference scenario".

Another interesting point to note is that the IEA WEO forecasts non-OECD (which includes China and India) per capita oil demand to only increase by a total of 14% between now and 2030 despite forecasting compound annual economic growth of around 5% per year for non-OECD countries. This implies extremely large per capita oil demand efficiency, greater than Japan's 40%, in the non-OECD developing world.

What will cause this efficiency: climate change legislation, slower than expected economic and/or population growth, availability of niche alternatives such as CNG and electric vehicles or persistently high oil prices? It will be a combination of all these--but most likely will be as a result of high oil prices. The IEA WEO report forecasts oil prices rising to an average of US\$100 by 2020 and US\$115 by 2030 (in year-2008 dollars). However, based on an analysis (see pages 15 and 16 of [Oil 101](#)) of rare past periods of oil consumption efficiency it is unlikely that the IEA's price forecasts are sufficiently high by a long shot to create the required efficiency.

What to do? It cannot be stressed any more how the winners in the IEA reference scenario to

2030, which many outside the IEA see as too optimistic, will be those that get ahead in terms of efficiency. Reacting to oil prices is by definition too late. That is why a [Vehicle Efficiency Market](#) is the least painful way for individual countries to gain advantage. We have to create an economic incentive to become more efficient independent and ahead of oil prices.



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