The Oil Drum
DISCUSSIONS ABOUT ENERGY AND OUR FUTURE

Tech Talk - Considerations of Chinese Demand Growth

Posted by Heading Out on August 14, 2012 - 10:59pm

Three years ago I took my third trip to China, flying this time to Qinghai Province and then taking the train back down from Xining City through Xian to Shanghai. One of the more striking parts of the trip was the first day of the train travel, where the tracks cut down from the Tibetan Plateau to the plains of the East. The valleys are narrow and it is often difficult for the train tracks and roads to find an easy route, so this led to many tunnels, and in places, one or the other running on piers up the valley.

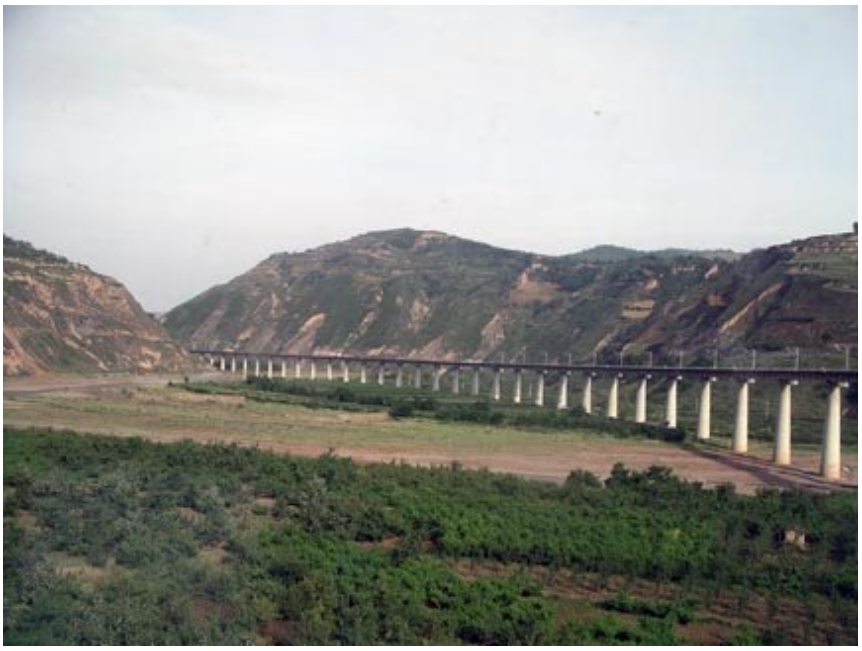

Figure 1. Railway causeway set across a valley carrying a second line (photo taken from the first, about to go into a tunnel) the river crosses under the line and runs along the left hillside.

The countryside was redolent with new highway construction and the tunnels necessary to bring additional communications into a hinterland that had few good roads (or any other method) reaching into remote communities in the past.

Figure 2. Further down the valley it is much narrower and the road and rails run in tunnels on each side of the river. The current narrow road is being widened but whenever there was a hold-up, the line of trucks waiting grew by miles (very few cars).

A historian once commented on the major impact to the American economy and social infrastructure created with the development of the road network and the addition of the Interstate system. When I first went to China in 1987, poverty was rampant; the main method of transportation was by bicycle though I travelled by train and minibus. By my second visit in 2002, the economy was undergoing rapid changes. Their interstate network was being developed, although I remember noting that the train passed many miles of freeway that had very little traffic. They are now seeing this gain, but it is a work still in progress, and in turn, it is driving growth in Chinese oil demand.

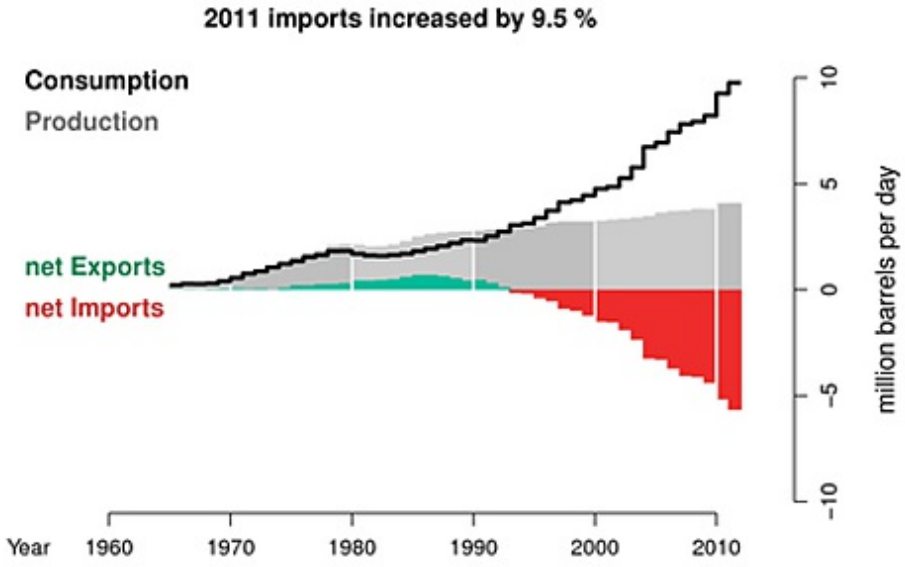

Figure 3. Changes in Chinese oil consumption and imports over the past decades (Energy Export Databrowser)

It is important to recognize that there are many parts of the country where these interconnections and improvements to the infrastructure are still going on. As those changes occur, the increasing use of power-driven vehicles continues to rise, and with it the need for increased supply. The risk of exacerbating popular unrest if that change were to stop is just one reason why it is bound to continue, and with it China's continued need for additional supplies of all forms of fossil fuels, as well as the rest of those supplies from the Earth that we all need. That includes water, a vital resource, but one whose limit restricts some of the options that the Chinese government can adopt.

In the July Monthly Oil Market Report, OPEC note that automobile sales in China were up for May by 22% y-o-y, though this is not expected to change the rate of growth in overall oil demand for the country. In total they expect, as they noted in August, China's economic growth forecast remains at 8.1%, with an 8% projection for 2013.

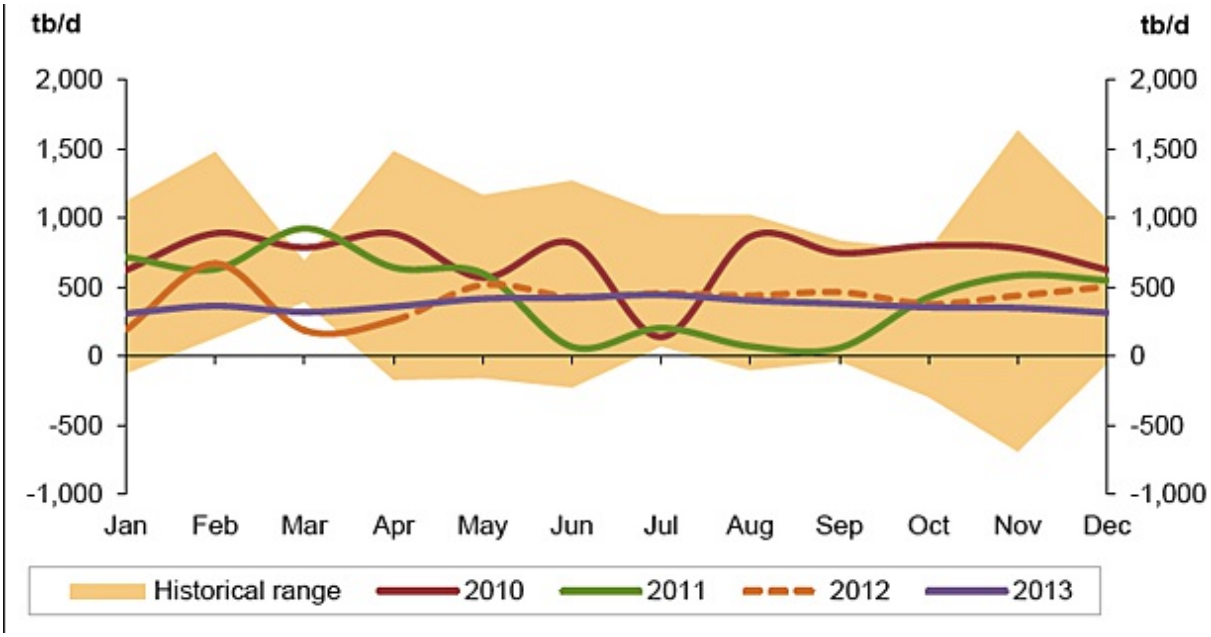

Figure 4. Changes in apparent oil demand for China (OPEC August MOMR)

Within that overall demand, the relative proportions of the mix change over time, though it must be remembered that China is still building a Strategic Petroleum Reserve of its own, and up to 1 mbd can be fed into this when judged appropriate.

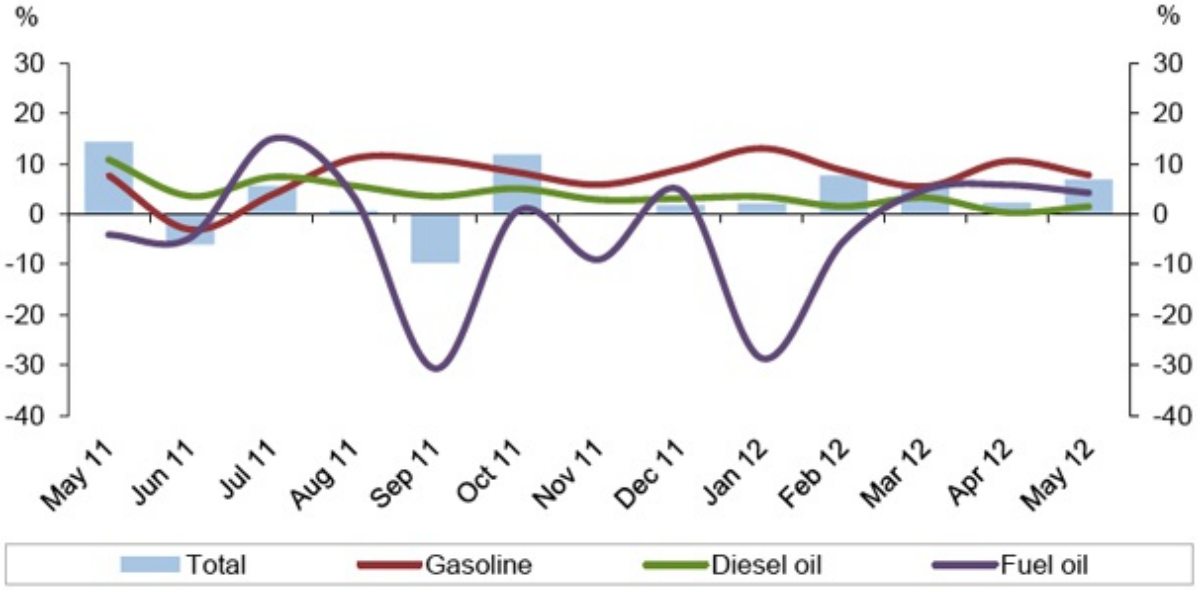

Figure 5. Change in apparent oil consumption in China (OPEC August MOMR)

The problems of traffic congestion, exemplified by the 11-day Beijing traffic blockage in 2010 is leading to some restrictions within the cities. Four cities, Beijing, Shanghai, Guiyang and Guangzhou, are now said to restrict car sales (OPEC August MOMR) and electrical vehicles and taxis are being introduced, with a target of half-a-million vehicles by 2015. This is now seen as an area of growth, especially in battery development, and a target of 5 million cars has been set for 2020. And while this might seem to be a market opportunity for the Volt, domestic tax protection has made it a difficult sale to the present.

A recent report by the Economist indicates that sales of these vehicles have not taken off as hoped, with only 8,000 being sold, largely to government agencies. As in the United States, there is an element of "chicken and egg" to the story, in that without a network of charging stations there is a certain amount of caution in committing to a higher than normal investment without the assurance of benefit in the very near future. The suggestion is that China may backtrack to a greater emphasis on hybrids before returning to push for the purely electrical car.

This is not to say that there is no recognition of the need for alternate sources of energy. But in China, the general populace has a much better understanding of the limited nature of energy supplies, a lesson the rest of us will likely have to learn another way. Thus one finds a much wider use of solar power in China, especially for more mundane uses such as making tea. It was instructive to see, as we drove down a street in one of the tourist resort towns near a lake, that each house along the street had a large kettle sitting outside on a solar collecting dish.

Figure 6. Solar heating of a kettle (30 min to boiling)

Many had solar water heaters on the roof also, and while somewhat more unsightly than many systems (for example, mine has black plastic solar pipes that blend into the roof) they take up less space and serve their purpose.

Figure 7. Solar water heater (cost around $1,000 installed)

I came away convinced that China is nowhere near the point where it can meet the growing

demands that a developing society will have for energy, and that their government will be driven to find creative ways of meeting that increasing demand.