

A Katrina/Rita Postscript

The foregoing article was drafted long before the Katrina and Rita hurricanes fully exposed the vulnerability of the American energy economy, but the devastation wreaked by Katrina and Rita and the implications for energy policy suggest that a short postscript is in order. The underlying conclusions in that article remain intact, although the shortage of adequate refinery capacity has been the dominant driver in this latest shock.

The twin sisters of devastation that befell the Gulf Coast on August 29 and September 22-24 will have long lasting effects, most importantly on the residents who have lost homes, jobs and a way of life. Their losses will never be fully compensated, and their lives will be forever disrupted long after the energy shocks set off by the hurricanes. Nonetheless, on a less personal level, the energy shock induced by Katrina and Rita require some comment

While it is still early to draw a full assessment of the impact on the U.S. petroleum economy, the effects of Katrina and Rita will be long lasting, not unlike the aftermath of 9-11. The tenor of the most recent reports now suggests quite significant damage to GOM oil and gas production facilities and a very long period of recovery, particularly for full resumption of natural gas production. The loss of oil supplies from the GOM platforms can be made up, certainly in the short run, although substitute crude oil will be more expensive and more difficult to refine. Natural gas losses can not be easily be made up. The economy will just have to suffer unusually high natural gas prices, at least in the short run. Over the longer term, supplies of LNG may appear, but that is a forecast fraught with uncertainty. What stands out from these remarkable weather events is the precarious supply/demand balance in refining. Katrina and Rita have exposed this lack of capacity as the Achilles Heel of the U.S. petroleum economy and its impact will be noticeable even over an intermediate term.

Our previous analysis of supply and demand trends for crude oil remains intact, but the current refinery capacity squeeze will be felt both economically and politically. Over the intermediate term, refinery capacity can be expanded, but it will take more than a few years to fully implement such expansion. Whether the needed expansion will occur within or outside the continental U.S. remains unanswered at this moment, but energy insecurity is probably baked into the economic outlook for years to come. Despite the price increase, and recent talk of assisting oil companies to expand refining capacity in the U.S., we think that the permitting process will not be substantially accelerated. While we would expect to see “quick fix” legislative attempts to induce refinery expansion, sound economics will take a backseat to constituency politics, as is unfortunately the case with energy legislation. Energy is thought to be too important for politicians to leave to the market.

Actually, it was the ability of temporary U.S. policy measures to cope with the immediate supply threat to crude oil and refined products that proves that our energy problems are truly “long run” in nature. Despite the media focus on immediate price effects on transportation fuels, or perhaps because of that focus, government policy was directed

along a vector of “quick relief.” That relief was accomplished by “re-integration” of the U.S. petroleum industry with the worldwide petroleum economy. This was done by suspending existing pieces of the regulatory structure governing fuel quality and transportation in order to make (often imported) fuels available, fuels that would ordinarily have been banned by current environmental rules. This rule-suspension policy underscores the short run virtues of integration in the world petroleum economy, but these quick fixes are not long-term solutions. Somewhere in the system, capacity must expand to meet growing worldwide demands.

At this point, nearly all former production of crude oil from the GOM (about 1,000,000 barrels per day) has been shut in, yet current crude oil supplies have been more than adequate. This is due to the prompt release of crude oil by both the SPR and the IEA, and by the lessened domestic demands due to the refinery closings. In the longer run, the re-integration strategy will be insufficient if world demand continues to grow, and more crude oil production is required.

Shortages of domestically refined fuels will require more refinery capacity even if current relief is now being provided by supplies from the international market. It is highly unlikely that fuel shortages can be mitigated by permanent suspension of the existing regulations on the quality of transportation fuels. In the short run, a ‘re-integration’ strategy works precisely because other countries may have extra supplies not ordinarily used in the U.S. That is a short run fix unavailable in the long run. Environmental pressures will reassert themselves. Pressure to bring back the currently suspended regulatory structure will emerge, and the current “excess” supply of non-U.S. specification fuels will easily be absorbed by growing world demand for transport fuels. The problems of insufficient capacity can only be treated by new investment in refining facilities.

It is well to note that ‘re-integration’ is the very opposite to the oft-asserted need for ‘energy independence.’ We have not heard the last of the cry for independence, notwithstanding that the two hurricanes really showed how important it is for the U.S. not to cut itself off from the rest of the world petroleum economy. The world petroleum economy is short of capacity to produce crude oil and perhaps even more, short of the capacity to produce an adequate safety cushion for refining crude oil into petroleum products. International trade can work to mitigate individual country imbalances, but cannot cope with rapid world demand growth. Both crude oil production capacity and refining capacity have to increase in order to create an adequate margin of safety for the world as a whole.

As Katrina unfolded, some commentators noted that Houston, a much more extensive refining area was a mere 350 miles away from New Orleans and the hurricane season was hardly over. Rita’s rapid development came just as additional imported fuel (that could meet the loosened environmental restrictions) and crude oil were being made available to the market. At this point, we do not have a full assessment of the damage to the American refining industry. Beaumont and Lake Charles took large hits and the overall

Gulf Coast refining capacity losses exceed 2,000,000 barrels a day.¹ That is some 12% of U.S. refining capacity and the hurricane season is still not officially over.² It is hard to contemplate a third blow from a hurricane, but it is not beyond the realm of possibility as the storm season runs into November, but clearly vulnerability is an issue.

There is an upside and a downside to this entire scenario. The downside is obvious. We have stretched U.S. refining capacity to its limit. We are now even more dependent upon foreign supplies, not only of crude oil, but also for refined products and some of the refined products that are available will not meet the previously agreed environmental specifications.

With regard to natural gas, weather has played havoc in the Gulf. The East Coast has had a respite from late summer heat lessening demands for natural gas and allowing some summer fill to occur even though the extent and duration of the damage to production of natural gas in the Gulf of Mexico is still not known. The U.S. economy is now highly vulnerable to potential weather disturbances and to political disturbances that can shut either crude oil or refinery production on a world wide basis; Consumers and users of petroleum based energy are going to pay more for a longer period than had first been anticipated. That is also the good news, because in order to induce new crude production and refinery capacity, the economic returns to these activities are going to have to stay high.

Integrated oil companies have long feared making the investment necessary to expand refinery production, both here and worldwide as well. They have feared the consequences of excess capacity that existed for so long. With high product prices, incentives are going to be transmitted to these companies to expand refinery production. We should expect to see some supply response on the refinery side, but the additions to capacity will come slowly (perhaps over the next 3-5 years) and our vulnerability will not be significantly lessened until there exists substantially more capacity in place. On the contrary, time is not on our side because world demand will continue to grow, particularly for transportation fuels and that can make the international market less of a buffer.

Increasing crude oil production, at least in the short run, will largely be up to Saudi Arabia. Some increase appears to be taking place now, but it is unlikely that the Saudi's will produce sufficient "excess capacity" to make the world energy economy feel as comfortable as it once did. The fact that some of their available sour crude is still not being taken up is certainly going to weigh on their decisions to invest going forward. Still, coping with a 2% rate of growth in demand is a formidable undertaking. Moreover,

¹ EIA Daily Report for 9/27/05 http://tonto.eia.doe.gov/oog/special/eia1_katrina.html.

² EIA's "This Week in Petroleum" for 9/28 reported as follows: With Hurricane Rita making landfall near the Beaumont/Port Arthur, TX and Lake Charles, LA refining centers, 7 refineries, amounting to 1.7 million barrels per day of refinery capacity (10 percent of U.S. refinery capacity), were directly in the path or very near the path of the hurricane. Damage to some of these refineries, and the lack of electrical power supply to others, is preventing their immediate return to service. Combined with the 5 percent of refinery capacity near the New Orleans area that was still out following Hurricane Katrina, as much as 15 percent of U.S. refinery capacity could be out for at least another couple of weeks.

the additional crude supply is more likely to require extensive refinery modifications because it will tend to be more “sour” than the average crude barrel now being refined.

Natural gas has its own economics. With Hurricane Rita making landfall near the Beaumont/Port Arthur, TX and Lake Charles, LA refining centers, 7 refineries, amounting to 1.7 million barrels per day of refinery capacity (10 percent of U.S. refinery capacity), were directly in the path or very near the path of the hurricane. Damage to some of these refineries, and the lack of electrical power supply to others, is preventing their immediate return to service. Combined with the 5 percent of refinery capacity near the New Orleans area that was still out following Hurricane Katrina, as much as 15 percent of U.S. refinery capacity could be out for at least another couple of weeks. There are considerable potential supplies for producing LNG, but it will take time to build the production “trains” to liquefy these known supplies of natural gas, time for adequate LNG ships to be built and time for receiving terminals to be placed in service. Here again, we have a bad news-good news scenario. The very high price of natural gas (above \$12 per million cubic feet) will create very strong incentives to create LNG production facilities and degasification terminals in the U.S. However, if the price falls, those incentives can be undermined. The politics of high natural gas prices this winter will no doubt bring out the worst of the “blame” game. In that sense, Katrina and Rita reveal our energy conundrum in full color: high prices create production incentives and, at the same time, create the political incentives to regulate production and consumption activities that can well undermine market incentives to invest. The issues involve all the “usual suspects,” and the politics will often be less than enlightened.

Katrina and Rita brought darkness and despair to many. Whether the post storm days are enlightened by a more visionary energy policy is open to question. At this juncture, the bleat of Congress for ‘energy independence’ seems once again to be drowning out a rational call to take the interdependence of the world petroleum economy as the given and to design policy around it. At the same time, calls for voluntary “rationing” by consumers and industry are poignant calls for citizenship, but they do not constitute a long-term solution of capacity expansion. In the short run, petroleum companies that produce oil or natural gas or refine these supplies into more useable petroleum products are going to become much more profitable---and that will make them far more inviting targets of demagogic energy policy-makers. Katrina and Rita have made us poorer. Whether they have made us wiser is yet to be seen.