

# Sandy's Aftermath

It turns out that a state of increasing anger at the demonstrated fragility of our energy infrastructure may not be the best place from which to write objectively about the subject; nonetheless that is what I'm going to attempt.\* Dark evenings huddled around a gas fireplace hoping the laptop's battery lasts the length of the movie before 9:30 bedtime (well what else is there to do?) can become boring pretty quickly – indeed, I can report that it has done so already for many people.

Such discomforts of course are trivial by comparison. We are fortunate in that everybody we know is safe. The stories of tragic deaths are heartbreaking and far too numerous. The flooding and destruction are way beyond our expectations.

We were mercifully spared water damage since we're not close to the ocean and rainfall was less than expected. We suffered only minor property damage from this 100 year storm even though the extended loss of power is testing in its own way. There may be a bulge in births nine months from now, but don't expect many babies to be named Sandra.

<b>Examples of Protection Standard (Source: A global ranking of port cities with high exposure to climate extremes, Springer Science+Business Media B.V. 2010)</b>		
<b>City</b>	<b>Approximate Protection Standard (Return Period in Years)</b>	<b>Current Assets Exposed (\$BN)</b>
New York	1:100	320
Osaka	1:300	216
London	1:1,000	N/A
Shanghai	1:1,000	73
Tokyo	1:1,000	174

Amsterdam	1:10,000	128
Rotterdam	1:10,000	115

Energy infrastructure has long been recognized as in need of greater investment. For our part we have focused on its impact on MLPs and in particular the need for new pipelines, storage facilities and so on to move shale natural gas and oil from where it's found to where it'll ultimately be consumed. Several months ago for example we added Oneok Partners (OKS) to our MLP portfolio based on the strong growth prospects from their exposure to the Bakken in North Dakota. We're also invested in the domestic natural gas theme through E&P names such as Range Resources (RRC) because of its abundance and low cost. While reliable delivery wasn't a consideration, it's ironic that 19<sup>th</sup> century-style gaslight never ceased for those quirky enough to use it. Gas lines are underground.

In August 2003, wide areas of the northeast U.S. and Canada suffered a loss of electricity as a result of cascading failures caused by an evident weak point in the grid. Cross-border interconnectedness and minimal redundancies are no doubt efficient most of the time, but like just-in-time inventory there's little room for error or Mother Nature. Much hand-wringing ensued about the aging U.S. power grid and need to upgrade its infrastructure. No doubt some work was done although the issue slipped from public attention soon after.

Nine years later the devastation wrought by Sandy has exposed a form of tail risk, though not the one familiar to investment professionals. Although the U.S. is in many ways the most advanced country on the planet, many Europeans express surprise at the 19<sup>th</sup> century technology that relies on aboveground delivery of power using wires strung between utility poles. It increasingly looks like an overly optimistic way to deliver a service that needs to be available 100% of the time. Many other rich countries have buried the wires underground, whereas one of the less attractive features of

suburban life in America includes the regular risk of power loss when a modestly vigorous wind blows down trees and cuts supply lines. It's so predictable that one wonders why such vulnerability persists.

Industry estimates are that putting power lines and transformers below ground and therefore out of harm's way (assuming they're also protected from flooding) can cost up to ten times the cost of aboveground infrastructure and presumably utility customers or taxpayers are unwilling to meet the cost. This type of analysis relies both on accurate estimates of the probability of unlikely events as well as both the cost of those events and of mitigating against them. In many cases there's more guessing than estimating involved. European population areas tend to be more dense, but not all of America is the wide open prairie and large metropolitan areas such as New York aren't much different from London in that regard.

As people move to population centers, the per capita expense falls and studies have found the cost to be closer to five times such as this one prepared in the UK last year by the Institution of Engineering and Technology (an organization that promotes the exchange of ideas on science, engineering and technology). Besides, we will be spending more to compensate for the current delivery system in at least two ways: insurance coverage for anything related to a disruption of power such as business interruption and property damage will assuredly become more expensive as the revised loss history and increased demand drive up rates. In addition, many more businesses and an increasing number of private homes will invest in back-up generators to assure the reliability they need that the public system currently cannot provide. Installing a generator in one's home is not a trivial undertaking, and yet the sound of their engines providing power to those neighbors whose risk assessment was accurate proves that reliable electricity is highly valued by many.

I've never visited Baghdad, but apparently the noise of generators is a familiar evening chorus there. Enough said.

Mike Cembalest of JPMorgan's Private Bank recently noted a London School of Economics study (evidently they think harder about this stuff in the UK) which revealed the relatively low threshold of New York City's flooding preparedness compared with other major cities, an issue picked up by New York State Governor Andrew Cuomo in the days immediately following Sandy. New York's standard of preparation is to withstand a 1 in 100 years flood. Contrast this with Osaka (1:300), London and Tokyo (1:1,000) or Amsterdam (1:10,000). New York's relatively low standard appears even less acceptable when compared with the value of assets exposed and higher per capita GDP (i.e. financial capacity) to improve protection. Inevitably when the rare event happens the ex-ante forecast appears flawed and yet statistically the sighting of one black swan doesn't imply another, unless the future won't reflect the history on which such forecasts are necessarily based. The black swan may have a family. Our weather appears to be changing in ways that make it less predictable and more volatile (yes, let's buy weather volatility). As a power refugee living in what seems like 19<sup>th</sup> century discomfort, it's hard not to embrace the idea that a more robust energy infrastructure will draw greater political attention and support than it has in the past, and correspondingly more investment.

One positive outcome at least for financial markets is that the hit to 4Q12 GDP (estimated as high as 0.5%) is likely to make at least a short term resolution of the fiscal cliff far more probable than it appeared pre-Sandy. The legislated tax hikes and spending cuts that are set to occur automatically on January 1<sup>st</sup>, 2013 without new legislation to avert them have been looming as an unresolved issue in recent months. There was little reason to be optimistic about a negotiated compromise to delay the sharp fiscal contraction that would result until Sandy showed up. Now, facing a regional economic

catastrophe big enough to produce a stumble even at the nationwide level of economic output, a lame-duck, post-election Congress is likely to put partisan wrangling aside for once. One weather-related tail event is likely to head off another, following the pattern of 2012 for financial markets in avoiding each of the shocks that lurked in the wings while confronting a natural disaster none of us contemplated. Predictability is a virtue in many things; as it relates to power deliverability it's probably now valued a little more highly.

*\*We regained power after six days, and as cold and miserable an experience as that was you quickly realize how much worse it has been for many others.*