

A Sobering Perspective on Fuel Security

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It seems that most everyone would agree that fuel security reduces resilience risks. If a power plant has fuel on site or is certain it can obtain fuel during a high impact, low frequency event, that's one less thing to worry about, right?

Because of the importance of fuel security, PJM began an exercise in March to value fuel security.^[i] As part of this exercise, PJM said it “needs to understand the fuel-supply risks in an environment trending towards greater reliance on natural gas supply and delivery.”^[ii] PJM plans to simulate fuel disruptions due to physical attacks, cyber-attacks, extreme weather, and possibly other extreme events.

Security expert Dr. Paul Stockton sent several recommendations to PJM; these recommendations included the kinds of disruptions to natural gas infrastructure that PJM should simulate.^[iii] (Dr. Stockton served as Assistant Secretary of Defense for Homeland Defense during the Obama administration.^[iv]) His paper includes some sobering thoughts you might find interesting. Here are a few:

- “U.S. reliance on natural gas for power generation has been increasing along with adversary capabilities to attack pipelines and storage sites in the PJM region and beyond.”
- “It is not credible that a potential adversary such as Russia or China will attack a single pipeline and/or storage facility. If those nations are going to strike the U.S. energy sector, and risk an overwhelming military response, they are much more likely to attack as many pipelines and/or storage facilities as possible to disrupt the flow of power to defense installations and other national security-related assets.”
- “... it is far more likely that adversaries will attack on a larger scale. If a crisis with the United States is so dire that an adversary will launch cyber or physical attacks on gas systems, despite the risk of provoking an overwhelming response by U.S. forces, we should expect that the enemy will seek to deal us a crippling blow.”
- “... given the critical military installations and other national security facilities in the PJM service area, this area will be *ground zero* if Russia, China, or other potential adversaries launch comprehensive attacks to disrupt the flow of natural gas for power generation.” (emphasis in original)
- “If adversaries conduct coordinated high explosive attacks against critical gas infrastructure, many months could be required to repair pipelines and restore the flow of gas.”
- PJM should model scenarios that assume (1) adversaries interrupt the flow of gas on two major pipelines for three months and (2) disrupt 80 percent of the gas pipelines in the PJM region for six months.
- “Manmade and weather threats ... are not mutually exclusive ... PJM may want to consider

adding a dual-disruption scenario, i.e., cyber or physical attacks occurring in the midst of a severe, extended winter freeze ...”

- “ ... because of the massive damage that vehicle-borne improvised explosive devices and other kinetic devices could create, adversaries seeking to maximize disruption to power generation will have strong incentives to conduct such attacks against critical gas infrastructure.”

These sober warnings by Dr. Stockton underscore the importance of fuel-secure electricity sources ? such as the coal fleet ? and the risks of overreliance on a single fuel.

[i] <http://www.pjm.com/-/media/library/reports-notice/special-reports/2018/20180430-valuing-fuel-security.ashx>

[ii] <http://www.pjm.com/-/media/library/reports-notice/special-reports/2018/20180430-valuing-fuel-security.ashx>

[iii] Paul Stockton, *Valuing Fuel Security: Recommendations on Study Scope and Simulated Disruptions*, Sonecon LLC, June 8, 2018. All quoted text is from this paper.

[iv] Stockton is Managing Director of Sonecon, LLC. Before joining Sonecon, Dr. Stockton served as the Assistant Secretary of Defense for Homeland Defense and Americas’ Security Affairs from June 2009 until January 2013. He currently serves on the Homeland Security Advisory Council for the Department of Homeland Security and is Co-Chair of the Council’s Cybersecurity Subcommittee. He is a Senior Fellow at the Johns Hopkins University Applied Physics Laboratory and a Senior Advisor to the Center for Strategic and International Studies. He also serves on the Board of Directors for Analytic Services Inc., and on advisory boards for the Idaho National Laboratory, the Center for Cyber and Homeland Security Studies at the George Washington University, and other organizations.