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Natural Gas Sector Climate Resilience CCRM Comments on a Forthcoming Solicitation

Additional submitted attachment is included below.

Natural Gas Sector Climate Resilience
CCRM Comments on a Forthcoming Solicitation

Submission from John Radke, CCRM
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Over the past decade our Center for catastrophic risk management (CCRM) has worked on several projects with investor owned utilities such as PG&E, SCE, SDGE and SMUD. We discovered that investor owned utilities, along with private sector infrastructure managers, are not only interconnected but they are heavily interdependent on support infrastructures, both upstream and downstream. What we also discovered that due to the nature of the utilities and industry, there is little incentive to disclose their vulnerabilities to those interdependent entities. The complex interconnected, interdependent infrastructure and the implications and chain reactions from a catastrophic event are not known system wide. Yet they remain California's greatest risk.

If we focus on the gas industry, from our past studies we see that above ground infrastructure that supports system control in the gas pipeline systems in California is vulnerable to extreme events such as flooding and wildfire. Our climate change and sea level rise research on flooding revealed areas where the gas pipeline system for PG&E was at risk. Through interaction with the stakeholder we were able to understand their vulnerabilities, map them, and receive their mitigation strategies to armor and retreat from future sea level rise and storm surge.

From our stakeholder, we learned that the above ground infrastructure that supports the gas pipeline system is of great concern and critical in the function of the network. Predicting above ground infrastructure that is at risk as sea level rises and under extreme storm surges, and developing armoring and retreat mitigation strategies is location dependent. In other words, a pipeline with the aboveground infrastructure higher up on a landscape is less likely to be impacted by sea level rise and storm search.

Wildfires, unlike flooding is not tied to a landscape feature, such as a coastline, and at first appears to be ubiquitous in California. Further research shows the heterogeneity of landscape regions and even further research should reveal local conditions that are anything but ubiquitous. For risk to wildfire, a retreat mitigation strategy for infrastructure does not seem realistic. A better mitigation strategy against wildfire is to armor infrastructure, especially aboveground infrastructure. In order to proceed we need to first understand and map the complete gas system in California. This includes analyzing the hierarchical nature of gas infrastructure and its network, and bringing to this current and future (based on climate change assessments) analysis of at risk wildfire landscape conditions. This should also included a more effective wildfire modeling strategy to map at very high spatial resolution what conditions are necessary around these infrastructures to armor against being overrun by wildfire. Rather than

retreating, a mitigation effort driven by ‘shelter in place’ will likely prove more effective and in time, realistic.

Working with the various stakeholders on a technical advisory committee, it should be possible to develop a computer based modeling system that can assess risk and suggest mitigation strategies that will allow shelter in place and defend against current and the future wildfire for all the investor owned utilities. Such a system could be used by all IOUs and developed in such a way that they could share ‘at risk’ assets without turning over their proprietary asset schematics.

John Radke 5/29/2019