

RAPID: Socio-Technical Restoration of Hurricane Isaac Power Outages

1. Intellectual Merit

This RAPID proposal is aimed at researching the impacts, responses, and recovery related to the power outages caused by Hurricane Isaac. This project will not focus on direct impacts, such as related to flood or wind damage. The power outage in the New Orleans metro area represents the second largest event for Entergy -- the utility service provider -- next to Hurricane Katrina (126,000 vs. 172,000). We will conduct our work in Jefferson and Orleans Parishes, which suffered the greatest number of outages in Louisiana -- 171,890 (83%) and 161,204 (86%) customers without power, respectively (Louisiana Public Service Commission). By Monday, September 3, 2012 Entergy had restored power to 90 percent of the homes and businesses in New Orleans, leaving 16,772 without power. By that time, only 69 percent of power had been restored in Jefferson Parish, with 52,566 without power. The outage and restoration process has led to broad, vocal criticism of Entergy with respect to their preparedness, time to restore, public communication, and prioritization protocol, like several other widespread power outages in the past two years. This criticism has come from customers, elected officials and utility regulators.

The proposed project seeks to research the following question: How did power restoration patterns, power utility actions, and socio-technical contexts influence the perceptions and reactions of customers, emergency managers, and government decision makers with respect to social, economic, and ecological impacts of Hurricane Isaac?

This research question will be answered by meeting four objectives:

1. Document the outage patterns and identify the social, economic, and ecological impacts related to them
2. Characterize the implicit and explicit restoration decisions of Entergy, as well as organizational, political, and economic contexts related to these decisions
3. Explore whether restoration patterns and decisions affected Entergy customers disproportionately with respect to demographic variables and, if so, how this occurred
4. Solicit and analyze the expectations, perceptions, needs, and reactions of customers and government decision makers with respect to the power outage and restoration

The PI and a research assistant will travel to the field to collect data in Jefferson and Orleans Parishes. The field trip will occur during the first or second weeks of November, 2012, depending on pending pre-existing commitments of the PI. We will use a mixed-methods data collection strategy. Collected data will include interview transcripts, Likert and short answer responses from surveys, content from news media, content from social media, government documents, press releases, situation reports, and publicly available data. Data from this proposed project will be augmented by data collected by Dr. Dorothy Reed as part of NSF RAPID award 1263710 "Collection of Perishable Hurricane Isaac Data on Weather-Related Damage to Power Infrastructure." This damage pattern data will be synthesized with the spatio-temporal data compiled from this project in order to complete the picture of restoration logistics and challenges.

2. Broader Impacts

This research will contribute to knowledge about the social and economic aspects of the complex interactions between infrastructure networks, hazard impacts, and disaster recovery. Utility providers and emergency management agencies will benefit from this research through eventual improvement to restoration practice with respect to non-technical metrics and the public's understanding of restoration requirements. Alternatively, consumer strategies can be developed based on knowledge from this work to avoid negative impacts, particularly if deprioritization of their restoration is deemed necessary, for example, for overall economic recovery of a region. This work will establish a basis for other researchers to investigate the merits of decision support tools and evaluate practices and policies for reducing the impacts of energy disruption to long-term community recovery. Elements of this project will be integrated into curricular activities of Western Washington University's (WWU). The results of this work will be disseminated through participant consultation, a technical report, conference papers, and journal articles.