



Case Study in System Resilience

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Public Utility Research Center

Research

Expanding the body of knowledge in public utility regulation, market reform, and infrastructure operations (e.g. benchmarking studies of Peru, Uganda, Brazil and Central America)



Education

Teaching the principles and practices that support effective utility policy and regulation (e.g. PURC/World Bank International Training Program on Utility Regulation and Strategy offered each January and June)



Service

Engaging in outreach activities that provide ongoing professional development and promote improved regulatory policy and infrastructure management (e.g. in-country training and university collaborations)





Crisis Load Management Programs

- Many regions implement programs to reduce grid access or shed load in the event of a threat to damage the grid
- Public safety power shutoff programs in the western United States
- Rapid Earth Fault Current Limiter program in Australia
- Controlled fire-response shutdowns in Brazil¹
- Load shedding in response to insufficient generation

¹ <https://www.bnamerica.com/en/features/blackout-exposes-vulnerabilities-and-reignites-debate-over-the-stability-of-brazils-electrical-system>



Case Study Introduction

- You are the regulator of EnerCo, a vertically integrated electric utility that serves 500,000 customers in a diverse geographic area
- EnerCo has a power shutoff program to de-energize certain segments of the grid in response to damage or cyber threats



A Damage Event

- Company forecasts predict an impending severe storm
- Company's vice president for transmission and distribution de-energizes a part of the grid
- 100,000 customers lose power
- Storm is less severe than forecast



Some Questions

- Given that the utility bases its preparations on its damage predictions, what if any controls might you place on the company's forecasting methods?
- What controls or conditions would you place on the company for implementing power shutoffs?
- Talk with your neighbors



But What If?

- Same damage event, but now the shutoff decision is implemented by an AI algorithm
- How does the company's use of AI in this way change your policies with respect to the company's program?
- Talk with your neighbors (or Claude, maybe?)



Thank You!

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