



E-PRO™
HANDBOOK

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EIS Council Proprietary

EPRO Handbook Overview and Motivation

An evolving, cooperative resource for infrastructure resilience and cross-sector recovery planning and coordination, addressing severe hazards to electric infrastructure.

The Handbook provides recommendations to help utilities and their partners reduce the scope and duration of outages that severe hazards can cause. The Handbook also proposes a “whole community” approach to manage the consequences of outages that do occur, and reduce loss of life and economic impacts that may otherwise be expected.

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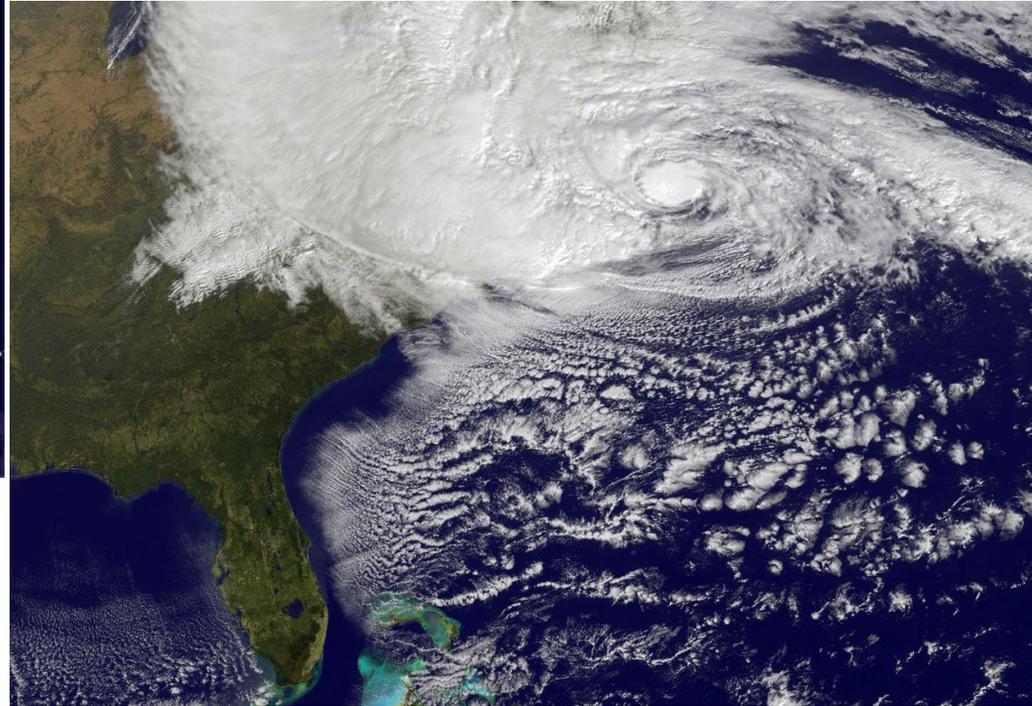
Concern is Black Sky Hazards: Widespread, Long-Duration Power Outages





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The Handbook as a decision support tool

- Infrastructure mitigation options and proposals for all-hazard consequence management - No “one size fits all” approach.
- Each utility and their partner organizations in government and beyond face unique circumstances and requirements for building resilience against catastrophic outages.
- Recommendations provide a set of especially promising, operator-oriented, actionable options for partners to utilize.
- Establish a framework for the multi-year collaborative process that will be required to build resilience through expanded partnerships.



The Handbook as a decision support tool

- Grid protection and restoration plans need to be sufficiently flexible to adapt to the operational surprises and unexpected problems that severe hazards will create.
- These hazards can damage or disrupt the grid in unanticipated ways.
- Likely failures of other infrastructures: communications, transportation, water, fuel, etc. that utilities and their partners depend to restore power.
- The Handbook examines architectures for grid hardening and restoration to help meet these “real world” challenges.

The Handbook as a decision support tool

- This first edition focuses exclusively on resilience and restoration options associated with the electric sector, and on opportunities for support from Federal, State and NGO partners that could be crucial in recovering from severe hazards.
- Future editions will propose initiatives to support coordinated resilience with other critical infrastructure sectors, including natural gas pipelines and other energy systems, communications, water and wastewater systems, and other sectors vital for public health and safety.

EPRO Handbook TOC

Executive Summary

Chapter 1 – Introduction

I. Manmade Hazards

II. Storm Warnings: Severe Weather Events, Earthquakes, and other Catastrophic Natural Hazards

III. Defining the Black Sky Challenge

IV. Towards Greater Resilience Against Black Sky Hazards

Chapter 2: Grid Protection - Electromagnetic Threats

I. A Strategic Framework for E-Threat Protection

II. E-Hazard Characteristics

III. Protection Measures: GMD Due to Severe Space Weather and EMP E3

IV. Protection Measures: EMP E1

V. Restoration Planning

VI. E-Threat Restoration Plan Module for a Hypothetical 30-Bus Power System



EPRO Handbook TOC

Chapter 3: Whole Community Preparedness for Black Sky Events

- I. Partner Support Missions: Industry Priorities for Assistance
- II. Whole Community, All-Hazard Preparedness Strategies
- III. Recommended Partnership Initiatives: Individuals, Families, and Communities
- IV. Non-Governmental Organizations: Recommended Support Missions
- V. State and Local Agencies: Recommended Support Requirements
- VI. Regional, Federal, and Nationwide Initiatives
- VII. Emergency Power: Implications for Partners and Utility Support Operations
- VIII. Conclusion: The Agenda for Action



EPRO Resource Family

- EPRO Handbook
- EPRO Executive Steering Committee (ESC)
- Black Sky Exercise Series
- EIS Summit Series



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Discussion

