

## APPENDIX 15

### (SOUTH CAROLINA LONG-TERM POWER OUTAGE PLAN) TO THE SOUTH CAROLINA EMERGENCY OPERATIONS PLAN

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#### I. INTRODUCTION

- A. The South Carolina Long-Term Power Outage (LTPO) plan provides a framework for response and recovery from the effects of a LTPO on the state's population and lifeline sectors.
- B. The SC LTPO plan defines roles and responsibilities for intergovernmental and State Emergency Response Team (SERT) members to save lives, protect property, assist energy providers in restoring the electric grid and aid in the recovery from the effects of a LTPO.
- C. The SC LTPO plan works in conjunction with the South Carolina Office of Regulatory Staff (SC ORS) Standard Operating Procedure (SOP). The SOP serves as a guide for state and local officials to monitor key energy data elements to coordinate with energy providers in restoring the balance between the supply and demand of energy (see Attachment 4).
- D. A Black Sky hazard is a catastrophic event that severely disrupts normal functioning of critical infrastructure in multiple regions for long durations. These conditions require black start, a process of restoring an electric power station or a part of an electric grid to operation without relying on the external electric power transmission network to recover from a total or partial shutdown. It is a deliberate and coordinated response to repair or restore the grid, as each of the state's lifeline sectors depend on electric power.
- E. Black Sky hazards and associated LTPO impacts can be the result of man-made or natural occurring events.
  - 1. Man-Made
    - a. Electromagnetic Pulse
    - b. Intentional Electromagnetic Interference
    - c. Terrorism/Significant Cyber Incident
    - d. Coordinated Physical Assault
    - e. Unintentional Human Error
  - 2. Naturally Occurring
    - a. High Magnitude Earthquake
    - b. Geomagnetic Disturbance

- c. Hurricanes
  - d. Other Severe Weather Events
  - e. Large Near-Earth Object
- F. South Carolina’s electric grid is vulnerable to each of the Black Sky hazards that could cause a LTPO.

**II. PURPOSE**

- A. Shape the impacted environment during the first 72 hours of an anticipated LTPO to facilitate continued support to the affected population in South Carolina.
- B. Identify key intersections of the state’s lifeline sectors to facilitate response and recovery efforts.
- C. Facilitate sustained commodity delivery during response and recovery.
- D. Address the unique information sharing and public information challenges resulting from a LTPO.

**III. SCOPE**

- A. LTPO response will involve two concurrent operational efforts, the restoration of power and lifesaving and life-sustaining efforts. Restoration of electric power resides with the utilities. If the need for state engagement arises, ESF-12 will coordinate those efforts.
- B. LTPO is defined as a persistent blackout exceeding the supply of backup energy necessary for grid restoration. This plan does not quantify a specific amount of time or the scope of the affected geographic area. The conditions, cascading effects, and impacts to population and the state’s lifeline sectors vary.
- C. South Carolina is serviced by four major energy providers, twenty electric cooperatives, and twenty-one municipal electric utilities.
  - 1. The state’s major energy providers and many of the cooperatives provide power to multiple jurisdictions.
  - 2. Wide-ranging effects impacting an entire or multiple utility grids will severely limit and/or degrade the ability of energy providers to share power and restoration resources.

**IV. ASSUMPTIONS**

- A. The effects on the electric grid will require energy providers to conduct black-start operations to re-energize the grid and restore electricity.

- B. Supply chain integrity will be compromised and existing processes for support to impacted populations will not be sufficient.
- C. Transportation management systems will be affected and will inhibit consumer and commercial movement.
- D. A LTPO of the scope and magnitude requiring interagency coordination will be caused by a major incident necessitating federal support.
- E. If an additional incident occurs during a LTPO, it will compound the effects and timeline for restoration of power.
- F. Response and recovery support and capabilities will be limited, forcing the State to determine resource priorities.
- G. Relocation of populations will occur during a LTPO.
- H. Individuals affected by a LTPO will lose their source of income and require social service support.
- I. Hospitals will have difficulty maintaining sufficient back-up power.
- J. Bulk Electric Systems (BES) outside of outage areas will be limited or degraded.
- K. Mutual aid resources among investor-owned, public power, and cooperative utilities will be overextended.
- L. Water and wastewater operations will be hindered and affect delivery of essential services.
- M. Back-up generators will fail at some facilities due to improper or infrequent maintenance.
- N. Impacted areas will observe large-scale economic disruption; some businesses will not recover from a LTPO.

**V. SITUATION**

- A. General.
  - 1. A LTPO poses a significant threat to the social, health, safety, and economic well-being of South Carolina.
  - 2. BES consists of generation, transmission, and distribution components.
  - 3. All energy providers have emergency and contingency plans that address short-term power restoration.

4. Damage to certain components of the electric transmission system could delay power restoration efforts and cause longer estimated restoration time-lines due to significant just-in-time supply chain issues.
5. A LTPO will affect the ability of mass care facilities to provide heating, ventilation, air conditioning, feeding, equipment sterilization, and sanitation.
6. The LTPO will affect the ability of federal, state, and local jurisdictions to provide basic government services.
7. Response to a LTPO will require coordination from all levels of government, volunteer organizations, and private sector partners. No single entity possesses the authority or expertise to act unilaterally.

**B. Risk Analysis.**

1. Attachment 1 (Lifeline Sector Impacts) to the LTPO Plan contains a focused risk analysis with emphasis on the following:
  - a. State-wide cascading impacts.
  - b. Impacts affecting the state's lifeline sectors.
2. The examination of risk also depicts:
  - a. Link analysis diagrams that represent the causal relationship of the anticipated cascading events.
  - b. Time Event Charts (TEC) that illustrate timeline events to identify the order of cascading effects.
  - c. A summation describing the diagram and chart assessments.

**VI. CONCEPT OF OPERATIONS**

- A. The South Carolina Emergency Management Division (SCEMD) and SERT partners coordinate state level response actions to emergent issues in support of counties and energy providers during a LTPO to mitigate risk to life and property and to facilitate the restoration of electricity for each of the State's interdependent lifeline sectors. As an enduring responsibility, SCEMD and SERT agencies additionally:
1. Conduct pre-incident mission analysis with primary and supporting state agencies, counties, and private sector energy providers to identify potential risks and resource gaps.

2. Provide updates to stakeholders based on recurring state and national level assessments to gain greater fidelity on potential impacts on the State's population and lifeline sectors.
3. During initial response operations, develop and assess the impacted environment and local jurisdictions to enable continuous and sustained commodity delivery to the affected population in South Carolina.

B. End-state is met under one or both of the following conditions:

1. Impacted electricity infrastructure is restored, facilitating continuous delivery of service to impacted jurisdictions and the interdependent community lifeline sectors, and to prevent the displacement of citizens.
2. Temporary service islands are established to provide the energy necessary for delivery of community lifeline sector services and the maximum level of sustainable support to the largest number of people and impacted communities.

C. Service Island Concept.

1. In coordination with systematic, timely, and prioritized utility company restoration efforts, service islands are established in the vicinity of power generation facilities.
2. Service islands provide the energy necessary for delivery of lifeline sector services and the maximum level of sustainable support to the largest number of people and impacted communities while simultaneously creating electric demand in support of utility restoration efforts.
3. The Service Island concept is graphically depicted in Attachment 3 of the LTPO plan.

D. Plan Activation.

1. This plan is activated when the following conditions are present:
  - a. At the direction of the Governor or Governor's designee.
  - b. By the SCEMD Director upon notification from ESF-12 that conditions consistent with a LTPO have or will be reached.
  - c. When South Carolina Law Enforcement Division (SLED), South Carolina Critical Infrastructure Cybersecurity (SCCIC) office, provides warning of a pending or cyber incident in progress aimed at the energy sector.

2. If not already initiated, the implementation of this plan will activate the State Emergency Operations Center (SEOC) and select members of the State Emergency Response Team (SERT).
3. This plan may be implemented alone or in conjunction with a plan written to address the specific hazard causing the LTPO (e.g., Hurricane Plan, Earthquake Plan).

## **VII. ORGANIZATION & ASSIGNMENT OF RESPONSIBILITIES**

### **A. SERT.**

1. Assess agency areas of responsibility to identify gaps associated with protection, response and recovery operations before, during and following a LTPO.
2. Assist in development and participate in LTPO/power-outage focused exercises.
3. Participate in the annual review of the LTPO plan.

### **B. ESF-1 (Transportation).**

1. Protection. Protect/harden transportation and transportation management system infrastructure from the effects of naturally occurring and man-made hazards.
2. Response.
  - a. Maintain situational awareness of transportation impacts, to include fleet petroleum supplies, and provide sector assessments to the SEOC.
  - b. Identify priority transportation assets for provision of back-up power generation and refueling.
  - c. In coordination with ESF-16, facilitate movement of electric restoration crews to impacted areas.
  - d. Provide personnel and traffic control equipment to assist ESF-16 and local law enforcement in the movement of evacuated citizens to established service islands.
  - e. Provide buses to support movement of evacuees from impacted communities to designated service islands.

- f. Coordinate with county school districts for bus transportation in the effort to establish K-12 educational facilities in designated service islands.
  - 3. Recovery.
    - a. Coordinate transportation assistance to State and local governments as well as voluntary organizations requiring transportation support.
    - b. Assist with the coordination of the repair and restoration of transportation infrastructure.
    - c. Coordinate requests for infrastructure and airspace restrictions.
- C. ESF-2 (Communications).
  - 1. Protection. Protect/harden communication and state command and control system infrastructure from the effects of naturally occurring and man-made hazards.
  - 2. Response.
    - a. Maintain situational awareness of state communications and public safety communication system impacts and provide sector assessments to the SEOC.
    - b. Identify priority communication assets and maintain situational awareness for provision of back-up power generation and refueling.
    - c. Provide communication support to private-sector restoration crews.
    - d. Facilitate communication requirements necessary to support establishment of service islands as situation dictates to support life safety.
    - e. In coordination with the State Fiscal Accountability Authority (SFAA), maintain situational awareness and report on the state's ability to process state contractual obligations.
  - 3. Recovery.
    - a. Coordinate alternate communication systems to augment damaged or inoperative systems.
    - b. Gather communications damage assessment information from public and private telecommunications providers and disseminate to ESF-14 (Initial Recovery and Mitigation).

- c. Coordinate prioritization and restoration of communications capabilities.
- D. ESF-3 (Utility Infrastructure Systems).
  - 1. Protection. Seek mitigation projects and ways to protect/harden water/waste-water systems and infrastructure systems against natural hazards and cyber/man-made threats and hazards.
  - 2. Response.
    - a. Maintain situational awareness of water and waste-water facility impacts and provide sector assessments to the SEOC.
    - b. Identify priority water and waste-water facilities for restoration in support of service island establishment for impacted and displaced citizens.
  - 3. Recovery.
    - a. Coordinate post-incident assessments of public works and infrastructure to help determine critical needs and potential workloads.
    - b. Maintain coordination with all supporting agencies and organizations on operational priorities for repair and restoration of affected infrastructure.
- E. ESF-4 (Firefighting)
  - 1. Protection.
    - a. Assess potential county impacts to identify areas of required support and shortfalls in response and recovery operations.
    - b. Participate in annual LTPO-focused exercises (EARTHEX, GRIDEX) to strengthen interagency relationships and identify gaps in LTPO response and recovery planning.
  - 2. Response.
    - a. Be prepared to augment local fire departments and conduct firefighting operations as requested.
    - b. Coordinate available interstate or federal assistance in support of response and recovery operations.
    - c. Anticipate an increase in local demands for service as power is restored.

- d. Support ESF-8 and ESF-10 as possible in regard to emergency medical services and hazardous materials management.
- 3. Recovery.
  - a. Track costs associated with state activation and response for potential reimbursement.
  - b. Participate in FEMA/SCEMD cost mitigation and recovery efforts (PA, etc).
  - c. Provide reimbursement support to local agencies as appropriate.
  - d. Support recovery priorities as identified by the SCRTF.
- F. ESF-5 (Emergency Management).
  - 1. Protection.
    - a. Assess potential county impacts to identify areas of required support and commodity shortfalls in response and recovery operations.
    - b. Conduct annual LTPO-focused exercises (EARTHEX, GRIDEX) to strengthen interagency and private-sector relationships and identify gaps in LTPO response and recovery planning.
    - c. Identify public service information and alternate delivery methods to provide public warning and information during a LTPO.
  - 2. Response.
    - a. Establish, maintain and share state-wide common operating picture with local, state, federal, tribal, VOAD, and private sector partners to facilitate situational awareness for all stakeholders.
    - b. Establish the Unified Coordination Group to provide executive oversight during LTPO response.
    - c. Convene the Joint Disaster Intelligence and Assessment Cell (JDIAC) to provide predictive modelling of cascading effects to lifeline sectors and other interdependent capabilities.
      - (1) Coordinate development of modeling products to support recovery and mitigation plans (incident source dependent).
      - (2) Provide weather analysis and forecasts to assist SERT LTPO response and recovery operations.

- d. Coordinate response operations and provide resources to local authorities to protect life and property.
  - e. In coordination with county emergency managers, Emergency Support Function (ESF) 12, and private sector energy providers, identify locations for the establishment of service islands to support needs of impacted citizens.
  - f. Coordinate evacuation of citizens from impacted areas to service islands.
  - g. Coordinate available interstate or federal assistance in support of response and recovery operations.
  - h. In coordination with the ESFs listed below, identify cascading lifeline sector impact and related interdependencies that could impact the population and impede restoration efforts.
3. Recovery. See ESF-14 responsibilities (Paragraph VII., Subparagraph N.).
- G. ESF-6 (Mass Care).
- 1. Response.
    - a. Identify mass care facilities in service island areas.
    - b. Maintain situational awareness of mass care impacts and provide facility/service assessments to the SEOC.
    - c. Coordinate with ESF-3 in ensuring provision and delivery of water and wastewater service in mass care facilities located within established service islands.
    - d. Coordinate with ESF-12 on power and fuel requirements for mass care facilities established in designated service island areas.
    - e. Coordinate with ESF-13 and ESF-19 for augmented security at mass care facilities as required.
  - 2. Recovery.
    - a. Coordinate with supporting agencies for the provision of food and water, with consideration to dietary needs, accessibility and accommodations, and garbage removal at Mass Feeding sites within impacted jurisdictions or designated service island areas.
    - b. Support long term mass care priorities as identified by the South Carolina Recovery Task Force (SCRTF).

- H. ESF-7 (Finance and Administration).
  - 1. Response.
    - a. In conjunction with the Logistics Section, coordinate contracts and procurement used to support the State’s emergency response.
    - b. Coordinate support with the General Services Administration (GSA) as required.
    - c. Track costs associated with state activation and response for potential reimbursement.
  - 2. Recovery.
    - a. Track costs associated with state activation and response for potential reimbursement.
    - b. Support recovery priorities as identified by the SCRTF.
- I. ESF-8 (Health and Medical Services).
  - 1. Response.
    - a. Maintain situational awareness of public health and healthcare impacts.
    - b. Coordinate with ESF-6 regarding public health services at mass care facilities located within established service islands.
    - c. Coordinate with ESF-12 on power and fuel requirements for healthcare facilities (e.g., hospitals) established within service islands.
  - 2. Recovery. Support the restoration of public and private healthcare systems.
- J. ESF-9 (Search and Rescue).
  - 1. Protection.
    - a. Assess potential county impacts to identify areas of required support and shortfalls in response and recovery operations.
    - b. Participate in annual LTPO-focused exercises (EARTHEX, GRIDEX) to strengthen interagency relationships and identify gaps in LTPO response and recovery planning.
  - 2. Response.

- a. Be prepared to augment local search and rescue teams and conduct search and rescue operations as requested.
- b. Coordinate available interstate or federal assistance in support of response and recovery operations.
- 3. Recovery.
  - a. Track costs associated with state activation and response for potential reimbursement.
  - b. Participate in FEMA/SCEMD cost mitigation and recovery efforts (PA, etc).
  - c. Provide reimbursement support to local agencies as appropriate.
  - d. Support recovery priorities as identified by the SCRTF.
- K. ESF-10 (Environmental and Hazardous Material Operations).
  - 1. Response.
    - a. In conjunction with ESF-3, coordinate with water and wastewater companies and share information regarding their plans to provide situational awareness to SCEMD and local emergency management agencies.
    - b. Coordinate with hazardous materials facilities and share information regarding their plans to provide situational awareness with SCEMD and local emergency management agencies.
  - 2. Recovery. Provide technical assistance and coordination for environmental remediation measures as required.
- L. ESF-11 (Food Services).
  - 1. Response.
    - a. In coordination with ESF-6, identify:
      - (1) Inventory and availability of food supplies in impacted areas and locations designated as service islands.
      - (2) Locations of fixed feeding and distribution sites.
      - (3) Number of persons in mass care facilities or service island areas in need of food.



- a. In coordination with ESF-12, local law enforcement and as requested by commercial fuel suppliers, provide augmented security for petroleum shipments to designated service islands and locations with lifeline sector back-up power systems.
  - b. Support ESF-16 and ESF-1 efforts in movement of citizens from impacted jurisdictions to established service island(s).
  - c. Augment local security as requested in areas identified as service islands.
2. Recovery. Provide augmented route security in return of displaced citizens from service islands to home of record.
- O. ESF-14 (Initial Recovery and Mitigation).
1. Response.
    - a. Coordinate with SERT partners and other SCRTF member organizations to prepare for rapid deployment of resources necessary to implement initial recovery actions.
    - b. Identify potential post-disaster mitigation strategies.
    - c. Initiate development of a Joint Incident Strategic Plan with defined objectives and outcomes to guide recovery operations.
  2. Recovery.
    - a. Collect and aggregate damage and impact assessment data to facilitate recovery mission scoping, decision making, and implementation of eligible recovery support programs.
    - b. Request and implement supplemental disaster assistance programs as appropriate.
- P. ESF-15 (Public Information).
1. Response.
    - a. Identify and implement alternate, contingency, and emergency forms of communication to provide timely public information and warning to impacted jurisdictions.
    - b. Develop and publish public information messages and themes to address measures to safe guard and inform the public a LTPO.
  2. Recovery.

- a. Continue public information activities to include providing updates on recovery efforts, including public health notices.
- b. Provide emergency information concerning safety and disaster assistance in coordination with each ESF utilizing available communications channels.

Q. ESF-16 (Emergency Traffic Management).

1. Response.

- a. In coordination with ESF-1, provide traffic management during evacuation of affected communities to designated service islands.
- b. In coordination with ESF-1, identify non-functioning traffic signals and transportation management systems and implement mitigating measures to facilitate non-disrupted traffic flow.
- c. In coordination with ESF-12, ESF-13, local law enforcement and as requested by commercial fuel suppliers, provide augmented security for petroleum shipments to designated service islands and locations with lifeline sector back-up power systems.

2. Recovery. Provide augmented route security in return of displaced citizens from service islands to home of record.

R. ESF-17 (Animal and Agriculture Emergency Response).

1. Response.

- a. Coordinate resources to support requests for assistance with animal, plant, and/or public health and agricultural issues during the LTPO.
- b. Collaborate with other food regulatory agencies in management of meat-poultry food safety issues to include programs to protect State animal product food production.
- c. Coordinate requests for outside resources which may include veterinary medical assistance teams, pre-designated humane organizations, and other qualified responders.
- d. Coordinate the State's eradication and control activities as required.

2. Recovery.

- a. Coordinate available USDA resources to support farmers in need of recovery support.

- b. Coordinate resources to support requests for assistance with animal and agriculture issues resulting from incident.
- S. ESF-19 (Military Support).
  - 1. Response. Coordinate all valid mission taskings in support of current operations and general State operations and coordinate mission requests in support of other ESFs and local jurisdictions.
  - 2. Recovery.
    - a. Continue coordinating Defense Support to Civilian Authorities (DSCA) during recovery period.
    - b. Support long-term recovery priorities as identified by the Recovery Task Force.
- T. ESF-24 (Business and Industry).
  - 1. Response.
    - a. Provide situational awareness with the private sector to facilitate risk-informed decision making.
    - b. Gather information on specific private sector impacts to provide situational awareness for SCEMD and local emergency management agencies.
    - c. Maintain situational awareness on the banking sector with particular interest in the institutions ability to process state contractual obligations.
  - 2. Recovery.
    - a. Assist in identification of insured, underinsured, and uninsured properties and businesses in impacted areas.
    - b. Monitor, develop, and submit economic injury report, including Tourism data, to the Governor's Office.
    - c. Assist in communicating Small Business Administration (SBA) and United States Department of Agriculture (USDA)/Farm Service Agency (FSA) eligibility criteria based on disaster and damage assessments.
    - d. Coordinate implementation of Disaster Unemployment Assistance.
    - e. Assist in providing supply chain connectivity between private sector allies.

- f. Request US Department of Labor Dislocated Worker Grant funding, as necessary.

## **VIII. FEDERAL SUPPORT**

- A. US Department of Homeland Security.
  - 1. Provide a liaison to the SEOC in support of state response and recovery operations as requested.
  - 2. Provide intelligence and threat information, consistent with operational security parameters, as requested.
- B. Federal Emergency Management Agency.
  - 1. Provide liaisons to the SEOC in support of state response and recovery operations as requested.
  - 2. Administer programmatic provisions of the Stafford Act for incidents that meet the scope of federally declared disaster.
- C. US Department of Energy.
  - 1. Provide a liaison to support ESF-12.
  - 2. Provide situational awareness and status of other Region IV state power outages.
- D. National Weather Service. In coordination with the state climatology office, provide analysis and weather forecasts to assist in risk mitigation to the public and incident restoration efforts.

## **IX. PLAN MAINTENANCE**

- A. SCEMD is the lead agency for the development, coordination, review and update of this plan.
- B. Agencies with designated responsibilities will review and update this appendix on an annual basis. The review will incorporate any updates from the National Response Framework (NRF), the National Incident Management System (NIMS), the Power Outage Incident Annex to the Response and Recovery Federal Interagency Operational Plans, and other relevant State and Federal guidance.

## **X. AUTHORITIES & REFERENCES**

- A. Authorities. See Attachment C of the South Carolina Emergency Operations Plan, May 2017.
- B. References.

1. US Department of Homeland Security, Energy Sector Specific Plan – 2015
2. FEMA, Power Outage Incident Annex to the Response and Recovery FIOP (Draft) – January 2017
3. FEMA, Risk Knowledge Database – 2014
4. EIS Council, Electric Infrastructure Protection (E-PRO) Handbook Volume 1 – February 2016

**XI. ATTACHMENTS**

- A. (1) Lifeline Sector Impacts
- B. (2) Generic Response Timeline Graphic
- C. (3) Generic Island Concept Graphic
- D. (4) SC Office of Regulatory Staff SOP