

APPENDIX 18
(SOUTH CAROLINA WINTER WEATHER PLAN)
TO THE SOUTH CAROLINA EMERGENCY OPERATIONS PLAN

I. INTRODUCTION

- A. As required by state and federal law, South Carolina's policy is to be prepared for any emergency or disaster, including winter weather. Winter weather includes snow, sleet, freezing rain (ice), and/or extreme cold temperatures.
- B. South Carolina State Regulations 58-1 and 58-101 require contingency plans and implementing procedures for major hazards, such as winter weather, coordinated by the State with Counties that have a potential of being impacted.
- C. The South Carolina Winter Weather Plan provides a framework methodology for the coordinated and efficient response to, and recovery from, the effects of a winter weather event within the state of South Carolina.
- D. The Winter Weather Plan defines the roles and responsibilities for intergovernmental and State Emergency Response Team (SERT) personnel to save lives, protect property, and assist the private sector in facilitating their ability to recover from a winter weather event.

II. PURPOSE

- A. To provide coordinated emergency response and to reduce potential loss of life within the affected communities during a winter weather event.
- B. Endeavor to maintain essential services during a major winter storm.
- C. Identify duties and responsibilities by Emergency Support Function (ESF) for the response to a winter weather event.

III. SCOPE

- A. The South Carolina Winter Weather Plan addresses winter weather operations to be conducted in coordination with the South Carolina Emergency Operations Plan (SCEOP) and Appendix 6 (South Carolina Recovery Plan) of the SCEOP.
- B. A significant winter storm could cause widespread power outages, leading to this plan being implemented alongside the SC Long-Term Power Outage Plan (Appendix 15 to the SCEOP) and/or the Emergency Refuel Plan (Appendix 9 to the SCEOP).
- C. This plan complements the SCEOP and identifies responsibilities, processes, and actions specific to winter weather events.
- D. This plan provides guidance to departments and agencies involved in winter weather response activities.

IV. FACTS AND ASSUMPTIONS

- A. South Carolina is vulnerable to winter storms. The western part of the state bounded by the North Carolina /Georgia borders is particularly vulnerable.
- B. An ice storm occurs when rain falls and freezes immediately upon impact with the ground or other structures. South Carolina is particularly susceptible to ice storms which can lead to extended power outages and hazardous travel conditions.
- C. Even without winter precipitation, periods of extreme cold could lead to intermittent power outages.
- D. Winter storms will differ in size and intensity, and may affect only part of a county, the entire state, or the region.
- E. Large-scale loss of life and property does not normally occur because of a winter storm; however, any person exposed to a winter storm may be in danger. Isolated farms and individual residences are also threatened. Power outages can result in a lack of communication and the failure of heating sources. Medical assistance may become critical.
- F. County response will differ in accordance with communication and transportation capabilities and the availability of snow/ice removal resources.
- G. Past winter weather events have resulted in county resource requests for generators, law enforcement assistance, personnel and military support.
- H. Livestock losses will vary depending upon shelter, power outages, and availability of feed.
- I. Citizens and authorities will be advised of winter weather conditions through a variety of means; e.g., smart phones, social media, National Oceanic & Atmospheric Administration (NOAA) weather radio, standard radio and television.
- J. All winter storms make driving and walking extremely hazardous. Snow can trap motorists in their cars for prolonged periods.
- K. The aftermath of a winter storm can affect the region, state and our communities for days, weeks, and even months. Storm impacts such as extreme cold, ice and snow accumulation can cause hazardous conditions for people in the affected area.
- L. Freezing temperatures can cause breaks in water lines, both on the utility and customer side. Extensive or severe line breaks can cause disruptions in water distribution/wastewater collections. These disruptions can be localized or widespread depending on the extent on the line breaks. Power outages can also disrupt water and wastewater utility operations.

- M. Extensive or severe freezing temperatures can disrupt biological wastewater treatment operations.
- N. Efforts to restore roads and airport transportation will be an ongoing effort but may be hindered by continued precipitation.

V. SITUATION

- A. Some winter storms may be large enough to affect several states while others may affect only a single community.
- B. A winter storm can last for several days and be accompanied by freezing rain, sleet, snow, high wind, and cold temperatures. People can become stranded on roads or trapped in homes without utilities or other services.
- C. Winter Weather Impacts
 - 1. Freezing Rain (Ice): Ice is the most crippling type of winter weather for the state. The presence of ice in amounts of a 1/10 inch or less creates hazardous driving conditions. Accumulations of a 1/4 inch or greater impact energy infrastructure that results in power outages and can disrupt the flow of natural gas and propane. Other impacts include falling debris that may affect roads and, in some cases, cause damage to homes. Wind, temperature, and antecedent conditions will affect the overall impacts.
 - 2. Snow and/or sleet: Snow and sleet can affect operations across the state. Accumulations of greater than 2 inches will affect the energy sector due to falling limbs and trees. Any snow accumulation could affect transportation. Wind, snowfall rate, temperature, and antecedent conditions will affect the overall impacts of snow and/or sleet.
- D. Geography: The state routinely has snow (Figure 1). Areas most likely to see annual snowfall events are in the higher elevations of Oconee, Pickens, and Greenville counties. The average annual snowfall in these areas is 4 – 7 inches (Figure 2). These events typically do not interrupt government services, commerce, or require additional state assets to support county response.

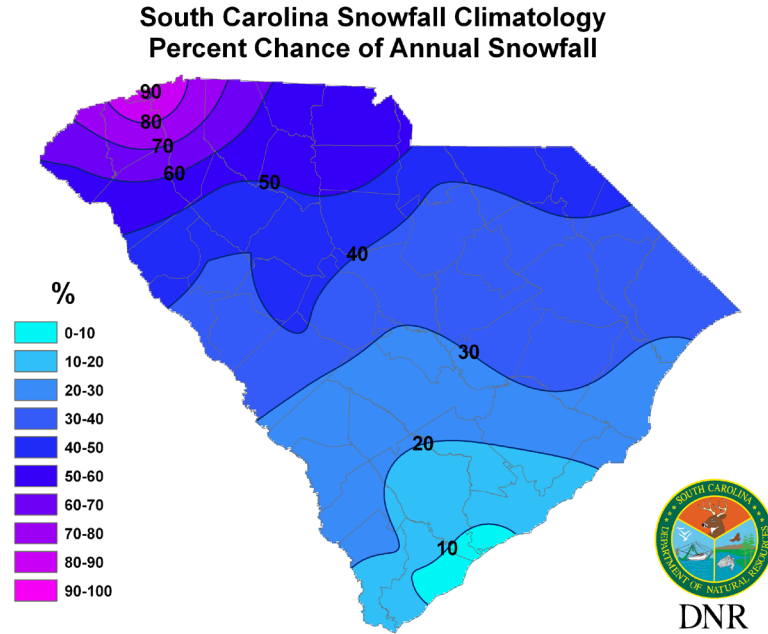


Figure 1: South Carolina Snowfall Climatology Percent Change of Annual Snowfall
(Credit: SCDNR)

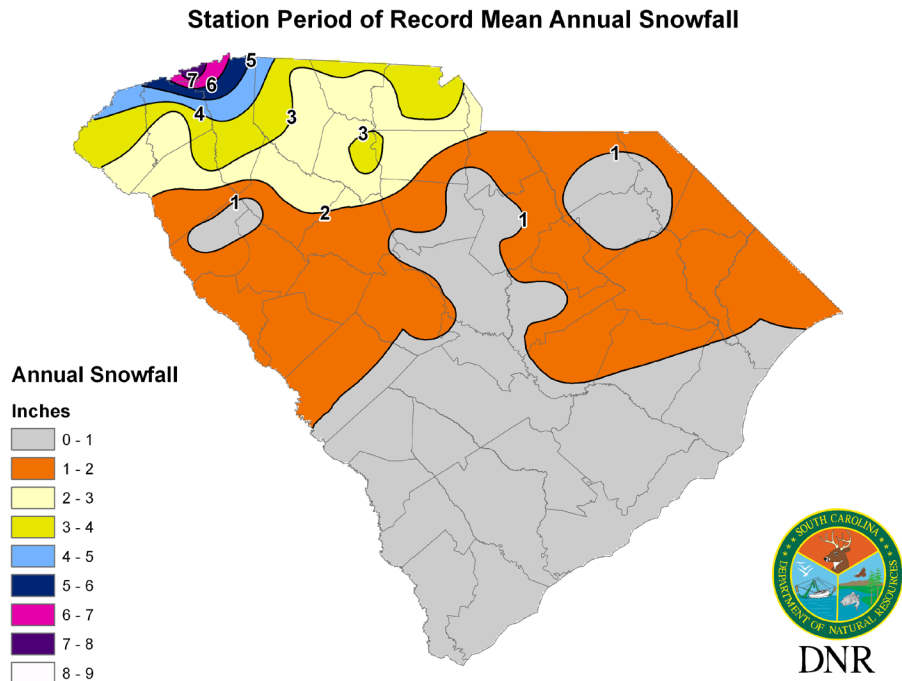


Figure 2: Station Period of Record Mean Annual Snowfall
(Credit: SCDNR)

VI. CONCEPT OF OPERATIONS

- A. A **winter storm watch** means that snow, sleet and/or freezing rain is possible. Watches are usually issued 36 to 48 hours prior to the start of the storm.
- B. A **winter storm warning** means that snow, sleet and/or freezing rain is expected. Warnings are usually issued 12 to 36 hours prior to the start of the storm.
- C. An **ice storm warning** means that freezing rain is expected. Warnings are usually issued 12 to 36 hours prior to the start of the storm.
- D. A **winter weather advisory** means that snow, sleet, and/or freezing rain is expected, but will not exceed warning criteria or reach high enough severity levels to warrant a warning. Advisories are usually issued 12 to 36 hours prior to the start of the storm.
- E. This information is passed to counties and appropriate response agencies (i.e., law enforcement, fire districts, medical services, search and rescue organizations, American Red Cross, school districts, etc.).
- F. Plan Activation Thresholds
 1. This plan could be activated when the following conditions are present:
 - a. Upon the issuance of a winter storm warning, ice storm warning, or winter weather advisory for the state; or
 - b. At the direction of the SCEMD Director or his/her designee based on the level of requested county support.
 2. National Weather Service warnings and advisories: The following accumulation threshold amounts are used to establish South Carolina winter weather warnings and advisories.

Region	Winter Storm Warning	Ice Storm Warning	Winter Weather Advisory
Upstate (NWS GSP)	3" of Snow	1/4" of Ice	1" of Snow/Trace of Ice
Midlands (NWS CAE)	2" of Snow	1/4" of Ice	1" of Snow/Trace of Ice
Pee Dee (NWS ILM)	2" of Snow	1/4" of Ice	1" of Snow/Trace of Ice
Lowcountry (NWS CHS)	2" of Snow	1/4" of Ice	1" of Snow/Trace of Ice

Statewide/Cold Roads	2hr Period < 2" at rush hour	1/4" of Ice	1" of Snow/Trace of Ice
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3. Upon notification of a winter storm watch or advisory, the State Warning Point (SWP) will immediately notify the Duty Officer, the Director, Chief of Operations, duty Public Information Officer and select ESFs, and a determination will be made if a State of Emergency needs to be drafted.
4. When the National Weather Service issues a winter storm warning or ice storm warning that will potentially impact South Carolina, SCEMD will:
 - a. Request a State of Emergency Declaration. A State of Emergency will provide additional time to organize, deploy and stage required resources to mitigate impacts to transportation, energy, communications, and mass care and water and wastewater services.
 - b. Consider moving the State Emergency Operations Center (SEOC) to OPCON 2 (partial activation) and partially activate key elements of the SERT: ESFs 1, 2, 4/9, 6, 8, 12, 13, 16, 17, 19, and 24.
 - c. Deploy SCEMD Regional Emergency Managers to county Emergency Operations Centers as requested.
5. The Emergency Management Division will activate the SEOC at OPCON 1 (full activation) when conditions warrant. ESF-1 (Transportation) and ESF-16 (Emergency Traffic Management) will determine which components of their snow response/removal plans will be activated. Should a life-threatening situation arise, law enforcement, local search and rescue teams and snow removal crews will work to reach stranded individuals. Emergency shelter locations may be opened. A working group to coordinate tree removal/entanglement with power lines may be established if needed.

G. State Government Office Status Reporting


1. It is a documented, codified practice that when winter storms occur in South Carolina, state government offices and their employees will follow the same weather hazard decisions made by county government officials where the state offices are located. When county officials make an office schedule change determination, SCEMD serves as the coordination agency to notify state employees and residents through established state reporting tools and the commercial media.
 - a. County office schedule changes are reported by the Regional Emergency Managers through the closings & delays function in Palmetto.






- b. Unless otherwise noted, any change in county office opening status can be automatically interpreted as a change in state office open status.
 - c. Any closing/delay status is confirmed in Palmetto automatically appears live online at scemd.org/closings and in the SC Emergency Manager mobile application.
 - d. SCETV and SC Public Radio then broadcast the information that appears at scemd.org/closings via on-air text and over-the-air announcements.
 - e. SCEMD PIO or ESF-15 representatives communicate any closings or delays involving state government offices to commercial media outlets through traditional communication methods or through the unique closings systems that some media have established.
2. When state and county office statuses differ, SCETV, scemd.org and the SC Emergency Manager mobile app will serve as the primary means of informing both residents and state employees of any change in openings of state government offices.



VII. DISASTER INTELLIGENCE AND COMMUNICATIONS

- A. See Section VIII (Disaster Intelligence and Communications) of the SCEOP Base Plan.
- B. Lifeline Sector Analysis

The table below lists possible impacts to the state's lifeline sectors associated with winter weather. While not all-inclusive, this list assists the SERT's ability to respond effectively by proactively identifying possible areas of concern before impacts occur.

Lifeline	Scope of Possible Impacts
	<ul style="list-style-type: none"> • Ice/snow accumulation and vegetative debris may impede first responder operations. • Hazardous road conditions could lead to increased emergency calls for assistance. • Government offices and schools could close due to hazardous travel conditions.

	<ul style="list-style-type: none"> • Extended power outages could require the opening of warming centers and/or shelters. • Food suppliers/retailers may be closed or inaccessible because of snow or ice accumulations on roadways. • Power outages may impact poultry and swine houses which require electricity. This could cause significant economic damage and lead to loss of animals. • Power outages could result in food spoilage. • Freezing temperatures and winter weather conditions may damage crops.
	<ul style="list-style-type: none"> • Damage to water systems could result in disruption of water supply to healthcare facilities. • Road conditions may impact Emergency Medical Transport response times. • Road conditions, slip and fall injuries, and cold weather's impact on respiratory and cardiovascular diseases may cause an increase in the number of patients seeking emergency care or requiring hospitalization. • Distribution and dispensing of medical materials may be interrupted due to road conditions.
	<ul style="list-style-type: none"> • Power transmission and distribution equipment, lines, and systems may be damaged by ice accumulations and/or vegetative debris, resulting in power outages. Some power outages could be prolonged due to access issues and power infrastructure repairs. • Limited impacts to fuel supply, distribution, or pipeline operations are expected.
	<ul style="list-style-type: none"> • Ice/snow accumulation may damage communication infrastructure, leading to service disruptions and outages. • Power outages and hazardous road conditions may hinder repair efforts, prolonging communication disruptions. • Secondary damage to communication infrastructure may occur during the restoration of other lifelines, causing additional communication disruptions. • Increased demand for emergency services due to the event may overload communication systems, leading to potential service disruptions.
	<ul style="list-style-type: none"> • Ice/snow accumulation and vegetative debris are expected to impede transportation, power restoration, and first responder operations. • Difficult to near impossible driving conditions are possible, especially on bridges and overpasses. • Delays at affected airports are possible. • Hazardous road conditions may hinder repair efforts, prolonging water and/or wastewater utility operations.

	<ul style="list-style-type: none"> Freezing temperatures and winter weather conditions could damage fittings and valves associated with hazardous material storage and transport.
	<ul style="list-style-type: none"> Freezing temperatures and winter weather conditions could damage water and/or wastewater utility systems by causing pipes to burst or by disrupting treatment operations. Power outages may impact water and/or wastewater utility operations.

VIII. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

A. General

- Select state agencies involved in winter weather response will provide representatives to staff the SEOC and employ plans to address the event as required.
- See the SCEOP, Section VII (Organization and Assignment of Responsibilities) for the general roles and responsibilities of County, State, and Federal agencies in preparation, response, and recovery from a disaster affecting the State.
- Roles and responsibilities found in this plan are specific to responding to a winter weather event. For roles and responsibilities for all hazards, refer to the SCEOP Base Plan and specific Emergency Support Function annexes.

B. South Carolina Emergency Management Division

- Serve as the primary agency for the coordination of all winter weather efforts.
- Coordinate operations to assist local government resources when they exceed their capacity to respond to the effects of winter weather.

3. Coordinate with state and federal agencies and the private sector to develop a shared common operational picture.
 4. Establish the Unified Coordination / Executive Group to provide executive oversight of winter weather response and recovery efforts if required.
 5. Coordinate with other state agencies to develop public information messaging.
- C. Emergency Support Functions. Coordinating agencies will conduct an annual review of their respective winter weather-specific responsibilities with primary and supporting agencies.
1. ESF-1 (Transportation)
 - a. South Carolina Department of Transportation
 - 1) Prior to the storm's anticipated arrival, confirm and support SCDOT's efforts to pre-treat elevated bridges and roads that are in the expected impacted area with salt, chemical treatment, etc.
 - 2) Identify and monitor impacted highway infrastructure.
 - 3) Identify and monitor impacted rail infrastructure.
 - 4) Identify and monitor impacted aviation infrastructure.
 - 5) Confirm and support the clearing of affected highway infrastructure by appropriate means (salt, chemical treatment, etc.)
 - 6) Coordinate with ESF-16 to confirm the activation of the wrecker contract and support the provision of wrecker support as needed.
 - 7) Assist private sector restoration crews and ESF-12 in their movement of key critical electric infrastructure to re-establish electric service.
 - 8) Support ESF-16 operations regarding emergency traffic management.
 - 9) Support ESF-13 operations to secure hazardous travel areas.
 - 10) Support ESF-4/9 operations regarding life safety.

2. ESF-2 (Communications)
 - a. South Carolina Department of Administration, Division of Technology Operations
 - 1) Share forecast information and lifeline sector analysis with wireline and wireless communication providers regarding potential storm impacts.
 - 2) Coordinate with communication providers to ensure pre-storm inventory and provision of fuel for emergency backup power as required.
 - 3) Coordinate with local jurisdictions in forecasted impact areas to assess potential communication/radio augmentation requirements.
 - b. Auxiliary Communication (AUXC) Amateur Radio Emergency Services (ARES)
 - 1) SKYWARN-trained Amateur Radio Operators will establish communications with the National Weather Service during a NWS call up for winter weather situations.
 - 2) Respond to the SEOC and county EOCs upon activation and as requested.
 - 3) Radio Operators will assist with and provide backup for overall communications, as well as health and well-being messages.
3. ESF-3 (Public Works and Engineering)
 - a. South Carolina Water & Wastewater Response Network (SCWARN) / South Carolina Rural Water Association (SCRWA)
 - 1) Share forecast and threat information with water/wastewater utilities through SCWARN program.
 - 2) Identify, monitor, and report water lifeline disruptions.
 - 3) Coordinate with water/wastewater utilities to determine needs and provide material support through the SCWARN program.
 - b. United States Army Corps of Engineers (USACE)
 - 1) Once activated, coordinate staffing with State EOC (LNO Representation).

- 2) Activate and staff USACE EOC
- 3) Prepare for possible FEMA mission assignments.
- 4. ESF-4 (Firefighting)
 - a. South Carolina Forestry Commission
 - 1) Support Firefighter Mobilization activities regarding resource requests and equipment pre-staging.
 - 2) Support resource requests related to personnel support for debris clearing as it pertains to life safety.
 - b. South Carolina Department of Labor, Licensing, and Regulation
 - 1) Support Firefighter Mobilization activities regarding resource requests and equipment pre-staging.
 - 2) Support resource requests related to personnel support for debris clearing as it pertains to life safety.
- 5. ESF-9 (Search and Rescue)
 - a. South Carolina Department of Labor, Licensing, and Regulation
 - 1) Support and coordinate search and rescue activities to include possible activation of the search and rescue planning cell (SARCELL).
 - 2) Support four-wheel drive transportation capabilities for critical infrastructure employees.
- 6. ESF-12 (Energy)
 - a. Office of Regulatory Staff
 - 1) Share information with fuel providers and utilities on potential cascading effects from the winter weather event.
 - 2) Share information on private sector utility and Fuel Company plans to address the event that will provide situational awareness to the SEOC.
 - 3) Provide winter weather information as it relates to the impacts other states are experiencing that could create negative effects within South Carolina.

- 4) Monitor and report on power and pipeline outages due to winter weather.
- 7. ESF-13 (Law Enforcement)
 - a. South Carolina Law Enforcement Division
 - 1) Develop plans and procedures for responding to traffic control duties related to winter weather to include, but not limited to, maintaining current rosters of assigned equipment and personnel.
 - 2) Provide vehicle and personnel support as designated by SC Department of Public Safety.
- 8. ESF-16 (Emergency Traffic Management)
 - a. South Carolina Department of Public Safety
 - 1) Implement and coordinate traffic control and management measures during and after the winter weather event.
 - 2) Coordinate the patrolling of impacted highways among supporting agencies (State Law Enforcement Division, SC Department of Natural Resources, SC Forestry Commission, and SC National Guard's Vehicle Recovery Teams).
 - 3) Coordinate with SC Department of Transportation (SCDOT) to ensure the monitoring of road conditions on impacted highway infrastructure and the timely clearance of affected highway infrastructure. Activate wrecker contract if needed.
 - 4) Coordinate any necessary aviation support and/or assets with support agencies.
- 9. ESF-17 (Agriculture and Animals)
 - a. Clemson University Livestock Poultry Health
 - 1) Coordinate resource needs for the livestock and poultry industry, trade stakeholders, and agribusiness to mitigate effects on industries or any secondary effects due to impacted energy sectors.
 - 2) Maintain situational awareness within agriculture and conduct agricultural damage assessments.

- 3) Coordinate resources for local jurisdictions to respond to any affected animal populations as appropriate and when requested.
- 10. ESF-19 (Military Support)
 - a. South Carolina National Guard
 - 1) Develop plans and procedures for responding to traffic control duties related to winter weather to include, but not limited to, maintaining current rosters of assigned equipment and personnel.
 - 2) Provide vehicle and personnel support as designated by SC Department of Public Safety (SCDPS).
 - 3) Provide Wrecker Team support as designated by SCDPS.
- 11. ESF-24 (Business and Industry)
 - a. South Carolina Department of Commerce
 - 1) Publish communiques to private sector partners, trade groups, and related associations on potential storm impacts to manufacturing and small business.
 - 2) Monitor and report disruptions to supply chain integrity and be prepared to assess potential economic injury across the lifeline sectors.

IX. PLAN DEVELOPMENT AND MAINTENANCE

- A. This Plan is the principal source of documentation concerning the State's winter weather activities.
- B. The SERT will review this Plan prior to the start of each winter weather season either as part of a dedicated review or in conjunction with the annual winter weather workshop. Recommended changes will be sent to the SCEMD.
- C. SCEMD will coordinate the efforts of all responsible departments and agencies for plan revisions and updates.
- D. At a minimum, SCEMD will review this plan on a biennial basis prior to the beginning of winter weather season.

X. ADMINISTRATION, LOGISTICS AND FINANCE

- A. See the SCEOP Basic Plan, Section VIII (Administration, Logistics and Finance).
- B. See SCEOP Basic Plan, Attachment A (SC Logistics Plan).

XI. AUTHORITIES AND REFERENCES

See the SCEOP Basic Plan, Attachment C (Authorities and References).

XII. ACRONYMS AND GLOSSARY

See SCEOP Base Plan, Attachment B (Acronyms and Glossary).