ENERGY (ESF-12)

2025

I. INTRODUCTION

A. PURPOSE

The purpose of this appendix is to establish a systematic approach for addressing disruptive energy events that threaten or affect the citizens, economy, or government of North Carolina. Additionally, this appendix strives to reduce the impact of disruptive energy events and support a timely recovery.

B. SCOPE

This appendix provides a framework for addressing disruptions to any sector of the state's energy portfolio. During a disaster, energy is required to support immediate response operations, maintain the functionality of critical infrastructure, and facilitate recovery.

II. SITUATION AND ASSUMPTIONS

A. SITUATION

Energy disruptions threaten commerce, transportation, communications, government, and the health of the state's citizens. During any given year, North Carolina faces the possibility of an energy disruption through accidental, natural, systematic or deliberate incidents. An energy emergency has the potential to produce substantial cascading effects and adversely affect the delivery of essential needs such as food, water, shelter, and medical treatment.

B. ASSUMPTIONS

1. The energy system is complex by nature, with multiple cross-sector interdependencies. A disruption in one sector is likely to affect other parts of the system and involve multiple providers.

2. Each sector and commodity within the state's energy portfolio is vulnerable to disruption.

3. Energy industry entities are responsible for repairing their privately owned infrastructure and restoring energy supplies.

4. Energy industry entities have internal plans to respond to energy disruptions.

5. Federal resources and expertise will be mobilized when energy disruptions exceed the capabilities of state and local governments.

6. Affected areas may be inaccessible via ground transportation.

7. Coordination of energy industry representatives may be required.

III. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

A. LEAD STATE AGENCY

1. NC DEPARTMENT OF PUBLIC SAFETY (NCDPS)

NORTH CAROLINA EMERGENCY MANAGEMENT (NCEM)

a. Provide a communications link with local and federal government for the exchange of status information and resource requests.

b. Coordinate damage assessment within the disaster area and on-scene recovery efforts.

c. Maintain communications with the Nuclear Regulatory Commission (NRC) and nuclear facilities in responding to and recovering from radiological nuclear power plant emergencies.

B. LEAD TECHNICAL AGENCY

1. NC DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ)

STATE ENERGY PROGRAM (SEP)

a. Upon activation, report to the State Emergency Operations Center (EOC) and staff the ESF-12 cell within the Operations Section Infrastructure Support Group.

b. Gather information about the condition of the state's energy supply and infrastructure from commercial news sources, government information sharing systems, industry information services and private sector contacts.

c. Share pertinent information with the SEP, North Carolina Emergency Management, federal ESF-12, and energy industry partners as appropriate.

C. SUPPORTING AGENCIES

1. NC DEPARTMENT OF PUBLIC SAFETY (NCDPS)

NORTH CAROLINA NATIONAL GUARD (NCNG)

a. Provide manpower and equipment for clearing debris where electrical service restoration is taking place.

b. Provide other support to local governments as resources and tasking allow.

2. NC STATE HIGHWAY PATROL (NCSHP)

a. Coordinate all law enforcement and traffic control measures.

b. Provide security support for critical infrastructure as needed.

c. If required, facilitate applications to the Federal Motor Carrier Safety Administration (FMCSA) for waivers of driver hour limits.

3. NORTH CAROLINA UTILITIES COMMISSION (NCUC)

a. Monitor private electrical and natural gas utilities.

b. Provide guidance, instruction, and oversight to all governmental and private organizations involved in power distribution systems.

c. Maintain effective communications with agencies and organizations during response and recovery operations.

d. Provide guidance on curtailment plans submitted to the Commission by utilities and fuel providers.

4. NC DEPARTMENT OF TRANSPORTATION (NCDOT)

a. Provide manpower and equipment for clearing debris on state-maintained roadways to areas where electrical service restoration is taking place based on available resources and priorities.

5. NC DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ)

DIVISION OF AIR QUALITY (DAQ)

a. Facilitate applications to the U.S. Environmental Protection Agency (EPA) for waivers of environmental requirements for motor vehicle fuels in response to a disruption of petroleum supplies.

6. U.S. DEPARTMENT OF ENERGY (DOE)

OFFICE OF ELECTRICITY DELIVERY AND ENERGY RELIABILITY, INFRASTRUCTURE SECURITY AND ENERGY RESTORATION (ISER)

a. Coordinate federal information gathering and promulgation on the condition of energy supplies and distribution systems, restoration efforts and recovery.

b. Assist with requests for federal emergency response actions.

c. Locate fuel sources for transportation, communications, emergency operations and national defense.

d. Coordinate with local and tribal governments to assess the condition of energy infrastructure and prioritize restoration activities.

e. Facilitate Jones Act waivers or other waivers under the Department's jurisdiction.

7. U.S. ARMY CORPS OF ENGINEERS (USACE)

a. In coordination with the U.S. Department of Energy and the 249th Engineer Battalion, supply emergency electrical generation capacity.

8. LOCAL GOVERNMENTS

a. Identify a local ESF-12 coordinator and develop a plan.

b. Develop a list of critical infrastructure for priority restoration to be referenced in the local ESF-12 plan and include energy requirements for each facility.

c. Establish contacts with local energy providers for coordination prior to and during disruptive energy events.

d. Municipalities that operate their own electric distribution systems are responsible for restoring the functionality of their own infrastructure.

e. Provide status reports to the State Emergency Response Team (SERT) on service outages and restoration activities.

9. PRIVATE SECTOR PARTNERS

Electricity	Natural Gas	Petroleum	Propane
Dominion Duke Energy Progress Energy Electricities Electric Cooperatives	Williams Pipeline Piedmont Natural Gas PSNC Energy	Colonial Pipeline Kinder-Morgan Pipeline Charlotte Terminal Greensboro Terminal Selma Terminal American Petroleum Institute NC Petroleum & Convenience Marketers Association Local Distribution Companies	Dixie Pipeline Apex Terminal NC Propane Gas Association Local Distribution Companies

ELECTRIC UTILITIES

a. Assess the extent of damage to transmission and distribution systems and provide status reports to the ESF-12 partners.

b. Coordinate with state and local government to establish an electrical service restoration listing of critical facilities.

c. Provide specially trained personnel and equipment for efficient restoration of the electrical distribution systems. An operator may choose to exercise Memorandums of Agreement with other companies to bring in the resources needed for timely restoration.

NATURAL GAS PARTNERS

a. Assess the extent of damage to natural gas infrastructure and the availability of resources and provide a status report to the ESF-12 partners.

b. Identify and address safety hazards caused by damaged pipelines.

c. Restore functionality of the natural gas distribution system.

PETROLEUM PARTNERS

a. Pipeline operators will assess the extent of damage to hazardous liquid and gas pipelines and the availability of resources and provide a status report to the ESF-12 partners.

b. Terminal operators will assess the extent of damage to terminal infrastructure (racks, manifolds, storage and breakout tanks) and the availability of resources and provide a status report to ESF-12 partners.

c. Pipeline and terminal operators will make repairs and restore pipeline functionality.

d. Local propane distribution companies will assess the extent of damage to propane distribution infrastructure and the availability of resources and provide a status report to ESF-12 partners.

e. Local propane distribution companies will coordinate with local emergency management personnel to recover displaced propane tanks.

IV. CONCEPT OF OPERATIONS

A. GENERAL

The SEO continually monitors emergent or potential disruptions to the state's energy supply. Upon detection of an energy disruption, the SEO will notify NCEM, partner agencies, and energy industry partners as appropriate. The SEO will monitor the disruption's impact on the state's energy infrastructure, conduct analyses, and provide recommended actions.

The energy industry (electrical utilities, natural gas, propane, petroleum) provides for the production, transmission, and distribution of energy. The vast majority of energy infrastructure is privately owned, and the responsibility for restoration of service rests with the operator of the system.

The SEO and the SERT benefit from the cooperation of privately owned energy industry partners to understand the impact of disruptive energy events on their operations, the potential degradation of service delivery, and provide subject matter expertise depending upon the situation. The SEO and the SERT work with members of the energy industry and

government agencies to coordinate response activities and prioritize restoration for critical infrastructure.

The Electric Membership Cooperatives and Electricities of North Carolina serve as liaisons between their member providers and the SERT. Individual municipal power systems or cooperatives are responsible for restoring the functionality of their own infrastructure.

State, county, and local governments will pre-identify critical infrastructure that should have priority for energy restoration. These priorities will be communicated to the appropriate energy industry partners for incorporation into their internal restoration planning processes.

The ESF-12 cell will coordinate energy industry response and restoration activities with other ESFs in order to facilitate a timely recovery.

CLASSIFICATION OF ENERGY SHORTAGES AND TRIGGER POINTS

Energy shortages are classified as mild, moderate, or severe depending on their duration, the amount of supply reduction, and the area or number of citizens affected. Additional information on the classification process, criteria, and Energy Office response actions are available in Section 2.2 of the North Carolina Energy Assurance Plan. Information on types of energy shortages is available in Section 2.3.

These triggers are guidelines. Factors such as weather, expected duration, affected area, population or critical infrastructure will determine the appropriate level of response. Much of the data used to classify an energy shortage is produced on a monthly basis, and the preliminary classification of a specific shortage may be revised as more data becomes available.

- Mild Shortage: a 5-10% supply reduction lasting up to one week due to an isolated incident or degradation of service reliability. Commodity spot prices will increase rapidly, driving up retail energy prices.

- Moderate Shortage: a 10-15% supply reduction lasting up to three weeks due to an escalating incident or prolonged degradation of service reliability. Energy suppliers may declare force majeure, go on allocation, or request government assistance. Distributors may have difficulty meeting contract obligations, and there may be shortages at the retail level. Energy providers may implement curtailment plans.

- Severe shortage: a 15% or greater supply reduction that persists for several weeks. Commodities may be unavailable on the spot and

retail markets. Utilities may implement protective action plans to maintain grid integrity. Government agencies may be called upon to provide relief.

DEMAND REDUCTION MEASURES

Demand reduction measures are intended to reduce the consumption of a specific energy resource. Lower consumption may be required to extend available supplies or to restore stability to a distribution system. Measures can be implemented on a voluntary or mandatory basis depending on the severity, cause, and expected duration of an energy emergency. Section 5.4 of the North Carolina Energy Assurance Plan describes each measure in detail and provides estimated demand reductions for individual measures.

1. Electricity

    a. Public/Government Measures. The following measures reduce the overall demand by curtailing non-essential consumption:

        - HVAC temperature set-back;
        - Reduce hot water temperatures;
        - Operating hours reductions/closings; and
        - Limit the use of electronic signage/advertising and other non-essential lighting.

    b. Utility Protective Actions. Utilities may act in order to preserve the integrity of the integrated electrical grid.

        - Curtailment of non-firm service
        - Voltage reductions
        - Load shedding

2. Natural Gas

    a. Public/Government Measures. The following measures reduce the overall demand by curtailing non-essential consumption:

        - Reduce temperature of heat spaces;
        - Reduce hot water temperatures;
        - Compressed work weeks for facilities heated using natural gas; and
        - Operating hours reductions/closings.

b. Industry Actions. Providers may act to maintain line pressure and continuity of service. Curtailment of customers with interruptible service contracts.

3. Petroleum

a. Public/Government Measures. The following measures reduce the overall demand by curtailing non-essential consumption:

- Reduce or restrict non-essential travel;
- Implement no-idling policy;
- Encourage use of multi-passenger travel;
- Highway Speed Reductive;
- Fuel purchasing restrictions;
  - Odd/Even Schema
  - Minimum Fuel Purchase
  - Maximum Fuel Purchase
  - Priority End Users
- Speed Enforcement; and
- State Fuel Set-Aside Program.

b. Industry Actions. Disruptions may result in supply shortages.

- Petroleum suppliers may declare force majeure.
- Terminal operations may go on allocation.

4. Propane

a. Public/Government Measures. The following measures reduce overall demand by curtailing non-essential consumption:

- Reduce temperature of spaces heated with propane; and
- Reduce hot water temperatures.

b. Industry Actions. Disruptions may result in supply shortages. Curtail delivery of fuel for non-essential purposes.

B. NOTIFICATION

Upon notification of an emergency or when the potential exists for a disaster, NCEM will notify agencies tasked in this appendix. Upon identification of a disruptive energy event that affects or has the potential to affect the state's energy supply or distribution infrastructure, the SEO

will notify NCEM. Upon declaration of an energy emergency, the ESF-12 Cell will notify the stakeholders listed in the ESF-12 Notification Checklist in Enclosure. Should communications systems become inoperable, the State Energy Office will send representatives to the State EOC.

C. RESPONSE ACTIONS

1. INITIAL

a. Gather information on the current energy situation including:
   - The cause and extent of the disruption;
   - Realized or potential effects on the state energy supply;
   - Realized or potential impact to energy consumers;
   - Estimated time to repair / replace infrastructure and restore service;
   - Current restoration priorities;
   - Potential sources of alternative supplies; and
   - Requests for government assistance.

b. Provide energy industry stakeholders with information that may assist their response operations, track restoration progress and collect situation updates for SERT leadership.

c. Establish a reporting schedule for updates on industry restoration activities.

d. Provide information to the SERT Public Information Officer to inform the public about the disruption and government response efforts.

2. CONTINUING

a. Provide SERT leadership with a practical analysis of the situation that includes a short-term projected outlook, potential mitigation measures and restoration of energy supplies.

b. Communicate state restoration priorities to energy providers in accordance with the North Carolina Energy Security Plan.

c. Assist local and state entities with resource requests.

d. Administer statutory authorities pertaining to energy conservation as directed by SERT leadership.

e. Track the availability, pricing, and usage of energy within the state.

f. Communicate with local government officials to verify that recovery is progressing.

g. Assist in the coordination of resupply efforts.

ENERGY CHECKLISTS (ESF-12)

2025

ENERGY EMERGENCY TRIGGERS AND CHECKLISTS

ESF-12 CELL ACTIVATION CHECKLIST

Note: The following are guidelines. Factors such as weather, expected duration, affected area, population or critical infrastructure will determine the appropriate level of response.

ACTIVATION LEVEL		ACTIONS TAKEN
Level 5 – Level 4 **Trigger: N/A***	☐	**+ Normal operations; monitor phase by all stakeholders**

*** The ESF-12 cell will prepare for activation when the National Hurricane Center advises that a tropical cyclone threatens the southeastern or mid-Atlantic coastline.**

ACTIVATION LEVEL		ACTIONS TAKEN
Level 3 (Mild Shortage) ☐ **Trigger:** **Isolated incident/degradation of service reliability.** **5 to 10% Supply reduction lasting up to one week.**		**+ Review operating guidelines, continue monitoring and review/analyze results**
	☐	**+ Communicate with energy providers to determine extent, cause, and expected duration of the disruption**
	☐	**+ Communicate with affected jurisdictions to identify energy shortages**
	☐	**+ Coordinate public information efforts with NCEM JIC**
	☐	**+ Provide situation updates to NCEM**
	☐	**+ Recommend voluntary demand reduction Measures**

ACTIVATION LEVEL		ACTIONS TAKEN
Level 2 (Moderate Shortage)	☐	**+ Continue all Mild Shortage actions**
Trigger: **10-15% Supply reduction lasting up to three weeks**	☐	**+ Coordinate with energy providers to identify and recommend voluntary conservation measures**
	☐	**+ Advise NCEM regarding declaration of Energy Emergency**
	☐	**+ Recommend mandatory demand reduction measures**

ACTIVATION LEVEL		ACTIONS TAKEN
Level 1 (Severe shortage)	☐	**+ Continue all Moderate Shortage actions**
Trigger:	☐	**+ Recommend declaration of Energy Emergency**
>15% supply reduction lasting more than three weeks	☐	**+ Recommend implementation of Petroleum Set-Aside Plan**

PETROLEUM SHORTAGE (NC ENERGY EMERGENCY)

USAGE PROFILE

Petroleum is primarily used as a transportation fuel, as well as for heating, auxiliary electric generation and industrial purposes. North Carolina's petroleum supply originates along the Gulf Coast, where crude oil is refined and finished product is inserted into the Colonial and Plantation interstate pipelines. The two interstate pipelines bring fuel to terminals in Charlotte, Greensboro, and Selma. Both interstate pipelines operate as common carriers and serve additional markets. Some distillate products are imported via the Port of Wilmington. An insignificant amount is imported to border communities via truck. Trucks transport petroleum products from the three terminals to distributors and retailers.

TRIGGERS

Note: The following are guidelines. Factors such as weather, expected duration, affected area, population or critical infrastructure will determine the appropriate level of response.

The ESF-12 cell will prepare for activation when the National Hurricane Center advises that a tropical cyclone threatens petroleum refining or transportation infrastructure along the Gulf Coast.

Level 3 (Mild Shortage) Up to 10% supply reduction lasting up to one week

Response actions:	Continue monitoring and determination actions. Communicate with suppliers and provide situation update to NCEM. Coordinate public information announcements with NCEM JIC. Coordinate with other ESFs to address energy requirements. Recommend voluntary conservation measures.

Level 2 (Moderate Shortage)	10-15% supply reduction lasting up to three weeks
Response actions:	Continue all mild shortage actions. Recommend mandatory conservation measures.

Level 1 (Severe Shortage)	>15% supply reduction lasting more than three weeks
Response actions:	Continue all moderate shortage actions. Recommend implementation of Petroleum Set-Aside plan. Notify U.S. Department of Energy, ESF-12.

RESOURCES

List of Stakeholders	**NC Energy Assurance Plan 1.2.5**
Types of Shortages	**NC Energy Assurance Plan 2.3.3**
Infrastructure Summary	**NC Energy Assurance Plan 3.3.4**
Transportation Summary	**NC Energy Assurance Plan 3.4.4**
Conservation Measures	**NC Energy Assurance Plan 5.4.4**

ELECTRICITY SHORTAGE (NC ENERGY EMERGENCY)

USAGE PROFILE

Reliable and affordable electricity is essential to the health, safety, and welfare of the people and economy of North Carolina. All sectors of the economy rely on electricity. Approximately 90% of electric power used in North Carolina is generated in state or at plants operated by the three principal investor-owned utilities (IOUs), Duke Power, Progress Energy and Dominion North Carolina. As of 2009, North Carolina's primary sources of energy for electricity generation were coal (62%), nuclear (32%), natural gas (3%) and renewables (3%). There are three nuclear generating stations in the state, in Southport, New Hill, and Mecklenburg County.

TRIGGERS

Note: The following are guidelines. Factors such as weather, expected duration, affected area, population or critical infrastructure will determine the appropriate level of response.

Level 3 (Mild Shortage)	Isolated outage or service degradation affecting >2500 customers, restoration anticipated within 48 hours.
Response actions:	Continue monitoring and determination actions. Query utility about expected duration and grid-protective measures. Identify any affected critical infrastructure. Coordinate with other ESFs to address energy requirements. Coordinate public information announcements with NCEM JIC.
Level 2 (Moderate Shortage)	Region-wide outage or service degradation affecting >10,000 customers, restoration anticipated within 168 hours.
Response actions:	Continue all mild shortage actions. Recommend voluntary conservation measures.
Level 1 (Severe Shortage)	Widespread and persistent outage or service degradation affecting >20,000 customers, restoration not expected within 168 hours.
Response actions:	Continue all moderate shortage actions. Recommend mandatory conservation measures. Notify U.S. Department of Energy, ESF-12.

RESOURCES

List of Stakeholders	**NC Energy Assurance Plan 1.2.1**
Vulnerabilities	**NC Energy Assurance Plan 2.1.3**
Types of Shortages	**NC Energy Assurance Plan 2.3.3**
Infrastructure Summary	**NC Energy Assurance Plan 3.3.1**
Conservation Measures	**NC Energy Assurance Plan 5.4.2**

NATURAL GAS SHORTAGE (NC ENERGY EMERGENCY)

USAGE PROFILE

North Carolina imports natural gas via the Williams-Transco pipeline, which originates in Mont Belvieu, TX. The pipeline is a common carrier, serving additional markets. Natural gas is primarily used for electrical generation, climate control, water heating, and cooking. Gas is a growing segment of the state's energy profile and is increasingly used for electrical generation. It is transported throughout the state via transmission, distribution, and service pipelines. Natural gas is marketed by Piedmont Natural Gas, PSNC Energy, and several local distribution companies.

TRIGGERS

Note: The following are guidelines. Factors such as weather, expected duration, affected area, population or critical infrastructure will determine the appropriate level of response.

Level 3 (Mild Shortage) Up to 10% supply reduction lasting up to one week

Response actions:
- Continue monitoring and determination actions.
- Communicate with suppliers and provide situation update to NCEM.
- Coordinate public information announcements with NCEM JIC.
- Coordinate with other ESFs to address energy requirements.
- Recommend voluntary conservation measures.

Level 2 (Moderate Shortage) 10-15% supply reduction lasting up to three weeks

Response actions:
- Continue all mild shortage actions.
- Query electric utilities about the potential for cascading effects.
- Query gas providers about expected duration and curtailment measures.
- Recommend mandatory conservation measures.

Level 1 (Severe Shortage) >15% supply reduction lasting more than three weeks

Response actions:
- Continue all moderate shortage actions.
- Notify U.S. Department of Energy, ESF-12.

RESOURCES

List of Stakeholders	**NC Energy Assurance Plan 1.2.3**
Vulnerabilities	**NC Energy Assurance Plan 2.1.4**
Types of Shortages	**NC Energy Assurance Plan 2.3.2**
Infrastructure Summary	**NC Energy Assurance Plan 3.3.2**
Conservation Measures	**NC Energy Assurance Plan 5.4.3**

NCESF-12

ENERGY DISRUPTION REPORTING WORKSHEET

TRACKING INFORMATION

DATE: __/__/__ TIME: _____	NEXT REPORT EXPECTED: _____
EVENT: _____	REPORT TAKEN BY: _____
REPORTING ORGANIZATION: _____	
CONTACT NAME: _____	
CONTACT INFORMATION:	

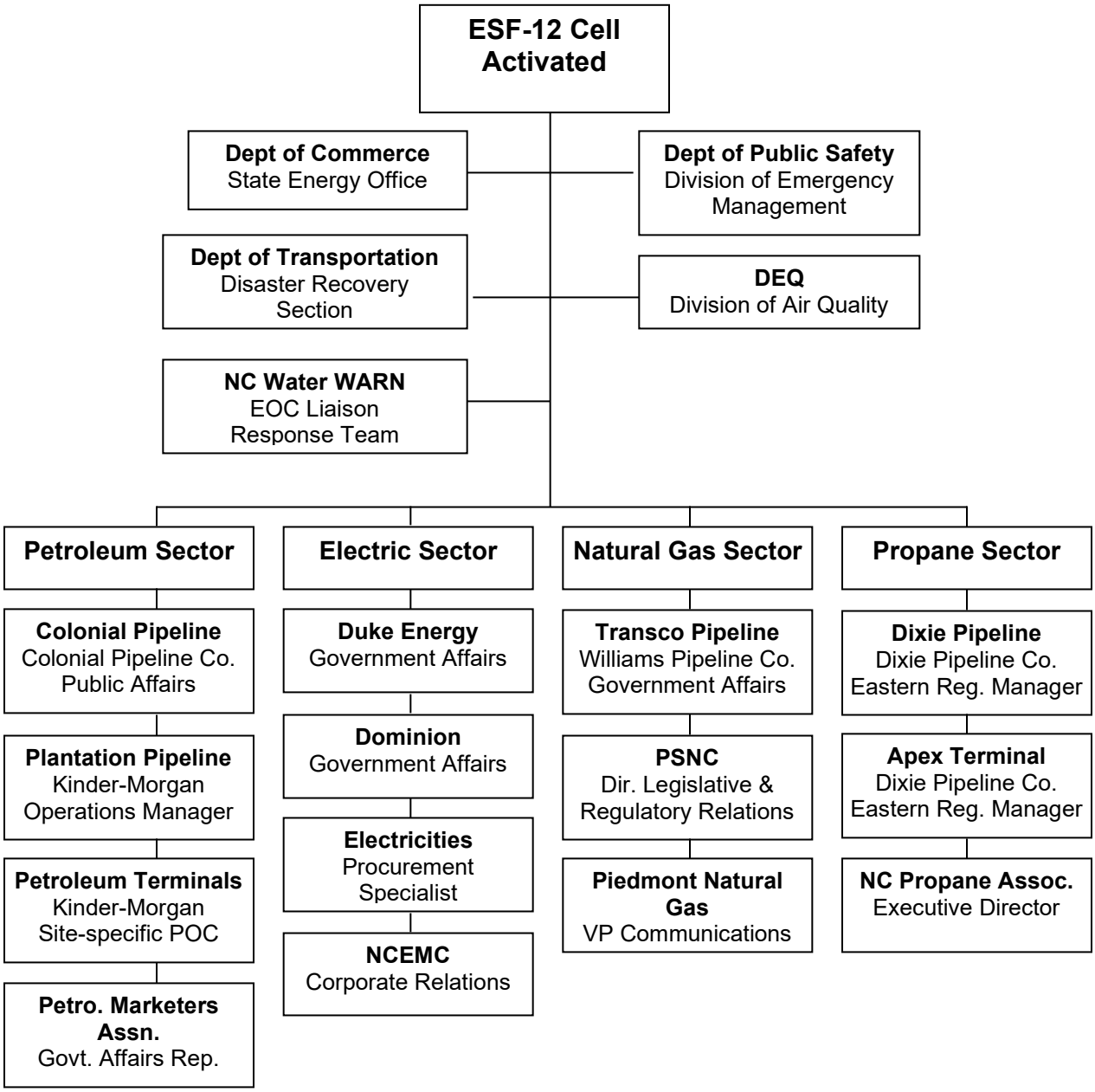
EVENT SUMMARY

CAUSE (IF KNOWN):
AREA AFFECTED:
POPULATION(S) AFFECTED:
ENERGY SUPPLY IMPACT(S):
CRITICAL INFRASTRUCTURE(S) AFFECTED:
CONSUMER IMPACT(S):

RESPONSE ACTIVITIES

CURRENT RESPONSE/RESTORATION ACTIVITIES:
ESTIMATED TIME TO REPAIR/RESTORE:
ALTERNATIVE SOURCES OF SUPPLY:
SUPPORT REQUEST(S):

ESF-12 CELL NOTIFICATION CHECKLIST FOR ENERGY EMERGENCIES



The entities listed on this notification chart are responsible for major sections of energy infrastructure serving North Carolina. It is not an exhaustive list, and additional notifications may be required due to the characteristics of a specific event.

Refer to the ESF-12 Emergency Contact List for the specific names, phone numbers, and/or email addresses of listed entities.