Emergency Support Function (ESF) #14a: UTILITIES: Central Electric & Steam

ESF Activation Contact: Cornell IPP Customer Service (607)255-5322

| Primary Department                  | Cornell IPP: Utilities and Energy Management, Energy and Sustainability  
|                                   | PH: (607) 255-5322 (Cust Service)  
|                                   | (607) 255-5674 (Control Room)  
|                                   | Contact: W. S. (Lanny) Joyce, Director, U&EM  
|                                   | Contact: Josh LaPenna, CEP Manager  
| Cornell Grounds Department         | PH: (607) 255-5322  
| Cornell Shops                      | PH: (607) 255-5322  
| NYSEG                             | 18 Link Drive, Kirkwood Industrial Park  
|                                   | Binghamton, NY 13902-5224  
|                                   | PH: 1-800-572-1131  
|                                   | NYSEG: Responsible for Emergency response for Cornell  
|                                   | 600psi natural gas line until 8/1/2017  
| Dominion Transportation:          | Interstate natural gas pipeline company serving Cornell  

I. Purpose:

a) This ESF lists the internal and external departments responsible for electric power and steam generation and distribution on campus.

b) This ESF lists the internal and external departments responsible to provide and coordinate resources (personnel, equipment, facilities, materials and supplies) to support power and steam generation and distribution needs during an emergency or disaster.

c) This ESF encompasses electrical power and heating resources, including the Central Energy Plant and NYSEG.

II. Scope:

a) May include the following, but is not limited to:

i) Infrastructure protection and emergency repair

ii) Damage assessments

iii) Emergency restoration of critical public services and facilities.

iv) Repair and maintenance of generation and distribution systems
v) Provide utility infrastructure related engineering support

b) May be activated by the Incident Commander to respond to incidents that are beyond the capabilities of the initial emergency response actions.

c) May be activated to respond to incidents that overwhelm normal Incident Command response actions.

III. Situation

a) Emergency Conditions and Hazards

i) The central energy plant (CEP) is a state of the art power facility with high energy production systems such as high pressure steam, high pressure natural gas, high voltage (13,200, 4160, 2400 volts) and 480 volt switchgear and motor control centers, high speed rotating equipment, combustion turbines, multi fuel boilers, bulk fuel oil storage.

ii) The CEP is fed by a Cornell owned 600psi natural gas supply line off the Dominion interstate pipe line. This is the primary source of fuel for heating of the campus. Natural gas is explosive.

iii) The site includes a 700,000 gal distillate oil storage facility with appropriate fire protection (foam) system. Distillate oil is flammable.

iv) Electricity is distributed to campus via 13,200 volt three-phase high resistance grounded wires which are overhead or underground. These wires can short out to ground causing localized arc flashes and high voltage releases to the surrounding environment. These incidents may also cause loss of electrical power supply to campus facilities.

v) Switching facilities on campus that distribute electricity to groups of buildings on campus can fail leaving portions of campus without electricity.

vi) Cornell owns its own 115,000 volt substation which is co-operated with NYSEG. This substation can feed campus with electricity in the event of a failure of electricity from the CEP turbines. Likewise, when NYSEG experiences a fault/outage, we can island to feed the campus if needed.

vii) Severe weather such as tornados, ice storms and blizzards can knock down overhead electric facilities.

viii) Cornell University may periodically experience emergency and disaster situations that will require restoration of essential services. Potential emergencies and disasters include both natural and human-caused incidents.
ix) The CEP is the sole source of heat for all of campus. Loss of the facility leaves the entire campus without heat. Impact on campus operations is fractions of hours to multiple hours depending on the weather and type of facility. Diesel emergency generators protect the plant from a power outage.

x) If the CEP is shut down, electricity can be fed to campus from NYSEG.

xi) Depending on the season, CEP electric generators can feed all or part of campus if NYSEG supply fails. Campus may experience a loss of power up to several hours of interruption in this eventuality. Depending on load, either part or all of campus can be fed by the CEP. Load shedding will automatically shed circuits to attempt to island on a NYSEG outage. If the CEP goes down due to a NYSEG outage and NYSEG does not reconnect to Cornell, an interruption of up to two hours can occur. Normally campus power if NYSEG comes back can be restored in less than an hour.

xii) Cornell University may periodically experience emergency and disaster situations that will require response by University resources and outside agencies and the restoration of essential services. Potential emergencies and disasters include both natural and human-caused incidents.

xiii) See Cornell’s Risk Assessment for a description of potential emergencies.

IV. Assumptions

a) Initial emergency response capabilities may be inadequate to manage the incident.

b) University resources will be quickly overwhelmed.

c) Communication systems may fail during a major incident.

d) Backup systems will be available but may take time to activate.

e) Shortfalls can be expected in both support personnel and equipment.

f) State and federal assistance may not be immediately available.

V. Concept of Operations:

a) General

ii) ESF Annexes define roles and responsibilities, planned concept of operation, and internal and external capabilities and resources.

iii) ESF annexes are designed to provide basic information to include points of contact in case additional resources or expertise is needed at the incident scene or on an Incident Management Team.

b) Organization

i) National Incident Management System concepts will be used for response to all incidents.

ii) Incident or Unified Command will be used by responding departments.

iii) When requested, ESF personnel will report to the Incident Command Post or other location, or will participate as members of an Incident Management Team.

c) Notification

i) Campus incidents involving requests for ESF-14a assistance are to be reported to the Cornell University Police Department (CUPD) Dispatch Center by calling 911 from a campus phone or (607)255-1111 from an off campus phone.

ii) The CUPD Dispatch Center will notify Cornell IPP Customer Service Center (607) 255-5322 of the incident or request for ESF-14a assistance.

iii) The Cornell IPP Customer Service Center or EMCS Operator will notify appropriate Utilities personnel.

iv) Requests for additional resources shall occur under the authority of the Incident/Unified Command.

d) Direction, Control and Authority to Act

i) The Incident Command System (ICS) is used by University personnel to respond to emergencies and incidents.

ii) During the emergency response phase, all responders will be under the direction and control of the incident’s Incident/Unified Command.

iii) Responders reporting to the incident scene will report to the Incident Commander at the Incident Command Post unless otherwise directed by the Incident Commander.

iv) The Incident/Unified Command is authorized to take actions necessary to contain and control the incident to protect and reduce impact to lives, research, property, the environment, and campus operations.
e) Actions

i) Preparedness

(1) Cornell Utilities and Energy Management shall develop and maintain response plans and procedures, a cadre of trained personnel, equipment and supplies to respond to and manage incidents that impact campus utility service.

(2) Cornell Utilities and Energy Management shall maintain continuity of operation (COOP) plans for the scope of capabilities identified in the ESF. Service recovery priorities and resources shall be identified in the C-COOP planning tool and further detailed through plans and procedures.

(3) Cornell Utilities and Energy Management shall develop and maintain a list of campus, community, and vendor resources that could be requested during an emergency.

(4) Cornell Utilities and Energy Management shall maintain a list of personnel (at least one primary and one back-up) that can be called to serve on an Incident Management Team to manage utility related support functions.

(5) Develop procedures to document costs for any potential reimbursement.

(6) Participate in exercises and training to validate this annex and any supporting plans and procedures.

ii) Response

(1) Manage impacts to the campus power and steam generation and distribution system including but not limited to:

   (a) Obtaining, prioritizing and allocating equipment and resources.

   (b) Providing damage assessments of the utility systems.

   (c) Identifying and procuring services and equipment from private contractors and outside companies.

   (d) Prioritize restoration of utility services to campus facilities.

(2) When requested, provide personnel to respond to the incident command post or other location to serve on an Incident Management Team to manage utility related support functions.
(3) In conjunction with the Incident Commander, coordinate emergency information for public release through ESF-17 Communications.

iii) Recovery

(1) Prioritize and implement the restoration of utilities to critical university facilities and services, including but not limited to: electricity and steam service.

(2) Coordinate assistance as needed by the Incident Commander, Incident Management Team, and/or Incident Executive Leadership Team.

(3) Ensure that ESF-14 personnel, departments or agencies maintain appropriate records of costs incurred during the event.

VI. Responsibilities

a) Primary Department: Cornell IPP: Utilities and Energy Management

i) Responsible for the supply of electricity and steam (heat) to all on campus facilities.

ii) Serve as the lead agency for ESF-14a supporting the response and recovery operations for utilities steam and electricity supply after ESF activation.

iii) Develop, maintain, and update plans and procedures for use during an emergency including a steam load shedding program and “total loss of steam” procedure in collaboration with Facilities Management.

iv) Identify, train, and assign personnel to serve as ESF-14a representatives at an Incident Command Post or on an Incident Management Team (IMT) when a University IMT is assembled.

v) General Responsibilities

(1) Provide technical Information and direction for any work needed for the steam and electricity production systems.

(2) Assist with and guide shutdown and startup of all system components

(3) Assist with all recovery efforts to assure safe and reliable operation.

(4) Provide operations personnel and maintenance personnel during emergencies.
b) Support Departments

i) Develop, maintain, and update plans and procedures for use during an emergency.

ii) Identify, train, and assign personnel to assist the primary department at the Incident Command Post or on the Incident Management Team as needed.

iii) Support the primary department as needed.

VII. Capabilities

a) Refer to Cornell Utilities' Emergency Plans

VIII. Resource

a) Refer to Cornell Utilities' Emergency Plans

IX. Policies and Procedure

a) CEP Emergency Plans and Procedures

b) Cornell Utilities' Emergency Plans

X. Attachments

a) None
## Plan Review and Revision History

<table>
<thead>
<tr>
<th>Summary of Changes</th>
<th>Date</th>
<th>Completed By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full ESF review and update to version 2.0</td>
<td>3/23/2017</td>
<td>W. Joyce</td>
</tr>
<tr>
<td>Version 2.0 updates</td>
<td>9/12/2017</td>
<td>Office Emg. Mgmt.</td>
</tr>
</tbody>
</table>