GSA Guidance on Public Utility Service Emergency Planning

Ken Shutika

GSA, Energy Center of Expertise

ken.shutika@gsa.gov

GSA: Who Are We

- GSA manages Federal real property/leases and purchases various products and services needed by the Federal Government
- GSA's Energy Center of Expertise in conjunction with GSA Regional associates provides expertise to GSA and other agencies in the various energy related areas such as energy efficiency, energy use tracking, energy procurement, and utility areawide contracts

Background

- Executive Order 12656 – Assignment of Emergency Preparedness - tasks GSA with:
- Developing national security emergency operational plans and procedures for the use of public utility services (other than telecommunications services) by Federal departments and agencies, except for DOE-operated facilities

Background

- FEMA is primary agency tasked with responding to Federal emergencies/disasters
- Each local area coordinates with FEMA in the development of a local emergency response plan
- DOE is the lead Federal agency for Support Function #12 (Energy) in local response plans
- Under the guidance of FEMA and the locality, the Army Corps of Engineers supports DOE in supplementing the locality's effort to provide temporary electrical service
- Neither FEMA nor the locality are charged with providing assistance to Federal agencies

Planning Scenarios

- Post 9/11, GSA began to plan for the most likely(?) man-made threats to Federal buildings
- Plans for man-made threats would be applicable to natural disasters
- GSA has not assigned probability to any threat
- GSA came up with 3 likely man-made threat scenarios that must be planned for with respect to utility service

Scenario One: Single Site Attack

- A single site/building attack would be where a single building/site is targeted with destructive force.
- Examples are: Murrah Fed. Bldg attack in OK in 1995; Pentagon & World Trade Center in 2001; and numerous overseas car/truck bomb attacks
- Probability: Highest of three scenarios

Scenario Two: Utility Source of Supply Attack

- In this scenario a utility source of supply is attacked with destructive force with the goal of interrupting service over a wide geographic area.
- Targets could be: power plants, transmission lines, pipelines, substations, water/sewer lines, pump stations
- Probability: Difficult to determine
- Probability of natural disaster or severe supply imbalance probably greater

Scenario Three: Attack District Heating Systems

- In this scenario a Govt.-owned district heating/cooling system is attacked with the goal of interrupting agency-provided services
- Targets could be: heating/cooling plants, supply lines
- Probability: Difficult to determine

Scenario One Response

- Place bldg in emergency operational mode
- Assess level of damage to bldg utility systems
- When necessary, shut off utility service(s) to the bldg
- If appropriate, drain water systems to prevent freezing
- Work with local utilities to restore service(s)
- Work to provide temporary utility service until such time as permanent service can be restored. (generators, temp. heat, portable toilets, drinking water)

Scenario Two Response: Electric

- Communicate with electric utility to assess impact on grid reliability
- If stability threatened, then institute Govt-wide load curtailment measures
- If rolling brownouts are anticipated, close non-essential Federal buildings
- If grid is shut down, shut down all buildings that do not have self-generation
- Determine length of outage, if prolonged, secure temporary generators for essential Federal buildings
- Coordinate with electric utility when grid is re-energized

Scenario Two Response: Natural Gas

- Communicate with natural gas utility to assess impact on system reliability
- If stability threatened, then switch all interruptible Govt. accounts to back-up fuel
- If supplies are inadequate even after fuel switching, close non-essential Federal buildings without adequate back-up fuel
- If essential buildings do not have back-up and gas supplies are cut off, and outage determined to be prolonged, secure temporary source of heat (bodies, lights, and plug load)
- Coordinate with gas utility when supply is restored

Scenario Two Response: Water

- Communicate with water utility to assess impact on water supply
- If water supply insufficient, institute maximum conservation measures
- If supplies are still inadequate, close non-essential Federal buildings
- If the supply interruption will be prolonged, secure temporary water supplies for essential buildings
- Coordinate with water utility when supply is restored

Scenario Two Response: Sewage

- Communicate with sewage utility to assess impact on wastewater treatment services
- If wastewater treatment capability is insufficient, close non-essential Federal buildings
- If the treatment interruption will be prolonged, secure portable toilets for essential buildings
- Coordinate with sewage utility when wastewater treatment services are restored

Scenario 3 Response: District Heating Plants

- As with gas/steam utilities, severity of impact would be greatest in winter
- Length of interruption would depend on destruction level
- Response would be similar to electric/gas response
- An ounce of prevention is worth a pound of cure so the Govt. should understand its system vulnerabilities and take appropriate actions to minimize vulnerabilities and ensure reliable service
- Take particular care when receiving alternate fuel deliveries

Basic Preparations

- Obtain and keep up to date utility provider contact information
- Become familiar with utility emergency/disaster operational priorities (Will my bldg have priority for service restoration? Am I protected from rolling brownouts?)
- Obtain and keep up to date municipal, state, and Federal emergency response agency contact information – Will they help me?
- Obtain and keep up to date building equipment vendor reps
- Have a bldg communication plan in place in case “normal” means of communication are interrupted

Basic Preparations cont.

- Put contracts in place for items needed on demand (i.e. generators, boilers, oil supply, portable toilets, bottled water)
- Identify electric, gas and water shut off valves
- Put plans in place to prevent water systems from freezing or drain them
- Educate building operators and tenants on your emergency response plan

Basic Preparations – Building Evaluation

- Evaluate the following areas identifying: key system elements; actions should system fail; & procedures needed to restore system operation
- Building/Site Access
- Utility Services
- Life Safety Systems
- Transportation Systems (elevator/escalator)
- Computer Rooms/Communications Center (24/7)
- Environmental Climate Control Systems

Basic Prep. – Building Evaluation Checklists

- For each key system element develop a checklist to determine all inspection procedures and items
- Environment Climate Control Systems
  - HVAC (incl. Humidification)
  - Energy management system
  - Chiller & Boiler
  - Carbon Dioxide Level Monitor
  - Programmable Thermostat, etc.

Conclusion

- Basic message is to plan ahead for utility interruptions
- Probability of events occurring may be low, but man-made and natural threats do exist
- Planning for utility interruptions can also help prepare a building to pursue active energy load management with both environmental and economic benefits