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Powered for Patients Issues Hurricane Florence Guidance to Help Emergency Managers, Public Health Officials, Healthcare Facilities and Utilities Protect Patients

Government Officials, Critical Healthcare Facilities and Utilities Urged to Take Steps Now to Safeguard Emergency Power and Accelerate Prioritized Power Restoration for Critical Healthcare Facilities in Hurricane Florence's Path

Washington, D.C. – September 10, 2018 - As the threat of Hurricane Florence intensifies, Powered for Patients, a 501c3 non-profit created after Hurricane Sandy, is urging government officials, utilities and healthcare facilities in Florence's path to take important steps now to safeguard emergency power and accelerate prioritized power restoration for critical healthcare facilities impacted by Hurricane Florence.

Powered for Patients was created in the aftermath of Hurricane Sandy when the failure of emergency power systems at six New York City area hospitals prompted emergency evacuations. The non-profit's mission is to safeguard emergency power and expedite power restoration for critical healthcare facilities by fostering increased collaboration and information sharing between critical healthcare facilities, government and utilities when emergency power is threatened during disasters.

"Hurricane Florence can be expected to produce prolonged power outages that will seriously challenge the ability of emergency power systems to operate for the duration of the power outage," said Eric Cote, Project Director for Powered for Patients. "This reality makes it critically important for facility managers at hospitals, skilled nursing facilities and dialysis centers take steps now to ensure that their emergency power systems are as prepared as possible for extended operation. This preparation includes a careful review of critical system components, topping off fuel tanks and checking spare parts inventory."

Powered for Patients has published an Emergency Power System Resilience Checklist that details the key steps facility managers should take before, during and after a disaster to safeguard emergency power systems. This checklist, based on FEMA guidance, also includes a spare parts checklist to help facility managers inventory spare parts and address shortages prior to Florence's landfall. (See attached checklists) These checklist are part of *Protecting Patients When Disaster Strikes*, a Playbook for safeguarding emergency power and expediting power restoration published in 2017 with Department of Homeland Security funding by Powered for Patients and the Rhode Island Emergency Management Agency. While developed for use in the State of Rhode Island, much of the Playbook's content is applicable for any state impacted by a disaster.

Powered for Patients is also urging emergency managers, public health officials and utilities to review protocols for how threats to emergency power and prioritized restoration for critical healthcare facilities should be addressed. These protocols should detail how a facility should notify government officials and utilities of a threat to emergency power and how government, utilities and impacted facilities should communicate to address any unforeseen threats to patient safety due to power outages or a loss of emergency power. These protocols should be shared with all critical healthcare facilities before Hurricane Florence strikes.

“We’ve learned from previous disasters that there is often a lack of clarify around the steps critical healthcare facilities should take in terms of communicating with government officials and utilities if there is a threat to patient safety arising from the lack of utility power or the loss of emergency power,” said Cote. “This uncertainty can put patient safety at risk.”

In 2017, Powered for Patients introduced a new early warning protocol that calls on critical healthcare facilities in a disaster area to provide an early warning to a designated government official at the first sign of any threat to emergency power. This early warning can give government officials a critical head start in replacing generators if service crews are unable to resolve a mechanical threat and it also enables utilities to shift restoration priorities to restore power to a facility before emergency power is lost.

This new protocol was published in *Protecting Patients When Disaster Strikes* and in *Roadmap to Resiliency*, a white paper co-authored by Powered for Patients and the American Society for Healthcare Engineering (ASHE), a personal membership group of the American Hospital Association.

“Providing early warning of a threat to emergency power is the optimal best practice but this can’t happen if a healthcare facility doesn’t know who in government or at their utility they should contact and when once a threat to emergency power is detected,” said Cote.

Cote urged emergency managers, public health officials, utilities and critical healthcare facility administrators to address these critical communication protocols before Hurricane Florence strikes.

END

Table D-1 Checklist for Emergency Planning Prior to Emergency or Disaster for Emergency Power Supply System from FEMA P-1019 Guidebook

1. **Combustion Air Intake and Exhaust Systems**
   - ☐ a. Louvers Operational with no restricted movement and no obstructions
   - ☐ b. Rain cap has no restricted movement
   - ☐ c. Exhaust piping has no foreign object blockage, i.e., bird and rodent nesting, condensation drained
2. **Batteries**
   - ☐ a. Batteries installed in conditioned air space to avoid temperature extremes
   - ☐ b. Interconnecting cables sized to compensate for voltage drop
   - ☐ c. Charging system operational and alarms tested
   - ☐ d. Specific gravity and voltages checked and acceptable
   - ☐ e. Cable connections corrosion free and tight on both ends
3. **Generator set controller**
   - ☐ a. All lock-out faults investigated, corrected, and cleared
   - ☐ b. AUTO start engaged
4. **Output circuit breakers**
   - ☐ a. Closed or ready and able to close if electrically operated
5. **Load cables**
   - ☐ a. Clean and terminations checked for proper spacing and torque
6. **Engine block, generator space heaters, circulating pump(s)**
   - ☐ a. Operational and circulating warm coolant and oil (if equipped with pump)
7. **Fuel Delivery System**
   - ☐ a. Fuel quality tested and storage vessels maintained to prevent water accumulation and bacterial growth
   - ☐ b. Storage vessels, including day tanks, topped to appropriate levels
   - ☐ c. Fuel transfer pumps powered by emergency system and periodically tested
   - ☐ d. Preferred customer agreements in place with fuel suppliers to assure delivery
8. **Engine oil**
   - ☐ a. Low run time, capable of at least 48-hours continuous run time
   - ☐ b. Level proper
   - ☐ c. Scheduled Oil Sample results reviewed and proper actions taken
   - ☐ d. Spare oil and delivery methods, i.e. funnels, pumps, drum carts, etc. nearby
   - ☐ e. Leaks inspected and corrected
9. **Consumables - 10-day supply (minimum) in on-site storage**
   - ☐ a. Fuel filters
   - ☐ b. Oil filters
   - ☐ c. Air filters
   - ☐ d. Oil
   - ☐ e. Coolant
10. **Local, state, and federal authorities and service organizations**
    - ☐ a. Emergency plans developed
    - ☐ b. Road maintenance crews aware and in agreement that site's public access is critical and shall be maintained at all times to allow emergency vehicle passage
    - ☐ c. Aware and in agreement that fuel delivery and engine generator set parts and service organizations are to be considered and labeled as emergency vehicles with authorized site passage
11. **Communications**
    - ☐ a. Portable cell towers available and capable of being placed and made operational in short time
    - ☐ b. Site two-way radios and cell phones charged and fully operational
    - ☐ c. Site data reception and transmission systems inspected and proper operation tested with remote facilities and personnel
12. **Generator**
    - ☐ a. Windings clean
    - ☐ b. Space heaters operational
    - ☐ c. Bearings properly greased
    - ☐ d. Air intake and exhaust air paths cleaned of dirt, debris and obstructions
13. **Cooling System**
    - ☐ a. Proper levels
    - ☐ b. Leaks inspected and corrected as needed

checklist

D-2 Emergency Power Supply System Checklist for Operating During Emergency from FEMA P-1019 Guidebook

1. Combustion Air Intake

- ☐ a. Louvers Operational with no restricted movement and no obstructions

2. Output Circuit Breakers

- ☐ a. Closed or ready and able to close if electricity operated

3. Fuel Delivery System

- ☐ a. Fuel quality tested and storage vessels maintained to prevent water accumulation and bacterial growth
- ☐ b. Storage vessels, including day tanks, topped to appropriate levels
- ☐ c. Fuel transfer pumps powered by emergency system and periodically tested
- ☐ d. Water separators drained

4. Engine oil

- ☐ a. Level checked periodically and determined proper

5. Consumables – Restock to 10 day supply (minimum) in on-site storage

- ☐ a. Fuel filters
- ☐ b. Oil filters
- ☐ c. Air filters
- ☐ d. Oil
- ☐ e. Coolant

6. Local, State and Federal Authorities and Service Organizations

- ☐ a. Emergency plans implemented
- ☐ b. Road maintenance crews maintaining site's public access
- ☐ c. Fuel delivery and engine generator set parts and service organizations allowed site access
- ☐ d. Service organizations implementing emergency plans to assure effective support staffing is available and capable

7. Communications

- ☐ a. Portable cell towers available and capable of being placed and made operational in short time
- ☐ b. Site two-way radios and cell phones charged and fully operational
- ☐ c. Site data reception and transmission systems properly operating

8. Generator

- ☐ a. Winding temperatures acceptable
- ☐ b. Bearings properly greased
- ☐ c. Air intake and exhaust air paths cleared of debris and obstructions
- ☐ d. Stable output voltage and frequency
- ☐ e. Ensure safe and easy access to Generators, Switchgear, Transfer Switches & Fuel Systems. Make sure that all debris is cleared from around your emergency power generators. Also, move or remove vehicles, trash compactors, containers, and other items that may block access to personnel and service trucks, including fuel providers.
- ☐ f. Behind fuel system problems, cooling system failures are the second most common source of failure during extended run times. Be sure that coolant is topped off to the proper level and that all hoses are free of leaks. Ensure that radiators are free of debris and that the radiator fan is working properly.
- ☐ g. Make sure that generators, switchgear, transfer switches and pumps are all in the On and/or Auto setting.

9. Condition Monitoring

- ☐ a. Receiving data
- ☐ b. Results normal

Checklist

D-3 Emergency Power Supply System Checklist for Recovery Following Emergency from FEMA P-1019 Guidebook

1. Combustion Air Intake and Exhaust Systems
- ☐ a. Louvers closed and no obstructions
- ☐ b. Rain cap closed
- ☐ c. Exhaust piping inspected and drain condensation
- ☐ d. Inspect for wet stacking and develop corrective action plan

2. Batteries
- ☐ a. Charging system operational and alarms tested
- ☐ b. Specific gravity and voltages checked and accepted
- ☐ c. Cable connections corrosion free and tight on both ends

3. Generator set controller
- ☐ a. All lock-out faults investigated, corrected and cleared
- ☐ b. AUTO start engaged

4. Output circuit breakers
- ☐ a. Closed or ready and able to close if electrically operated

5. Load cables
- ☐ a. Cleaned and terminations checked for proper spacing and torque

6. Engine block, generator space heaters, circulating pump(s)
- ☐ a. Operational and circulating warm coolant and oil (if equipped with a pump)

7. Fuel delivery system
- ☐ a. Fuel quality tested and storage vessels maintained to prevent water accumulation and bacterial growth
- ☐ b. Storage vessels, including day tanks, topped to appropriate levels

8. Engine Oil
- ☐ a. Change oil and filter(s) and sample as needed
- ☐ b. Level proper

9. Consumables - Re-stock 10 day supply (minimum) in on-site storage
- ☐ a. Fuel filters
- ☐ b. Oil filters
- ☐ c. Air filters
- ☐ d. Oil
- ☐ e. Coolant

10. Local, State and Federal Authorities and Service Organizations
- ☐ a. Emergency plans reviewed and improved
- ☐ b. Road maintenance crews remove debris and repair damage to allow site access
- ☐ c. Service organization emergency plans reviewed and improved

11. Communications
- ☐ a. Portable cell towers retracted, maintained and properly stored
- ☐ b. Site two-way radios and cell phones charged and fully operational
- ☐ c. Site data reception and transmission systems inspected and proper operation tested with remote facilities and personnel

12. Insulation system test conducted and results analyzed to detect erosion
- ☐ a. Space heaters operational
- ☐ b. Air intake and exhaust air paths cleared of debris and obstructions
- ☐ c. Air gap between rotor pole and stator measured at 12:00, 3:00, 6:00, and 9:00 positions, recorded, and analyzed to detect bearing wear or misalignment
- ☐ d. Excitation system inspected and tested
- ☐ e. Voltage regulator connections inspected and properly torqued
- ☐ f. Insulation system test conducted and results analyzed to detect erosion properly operating

13. Cooling System
- ☐ a. Proper levels
- ☐ b. Drain, flush and replace coolant as needed
- ☐ c. Inspect and correct leaks

checklist

Inventory of Key Generator Parts & Fuel Consumption Rates

Key Part	Manufacturer	KW Rating	# of Units on Hand (as of ___/___/___) Pre-Disaster	Fuel Consumption per hour under full load	Size of tank supplying fuel	# of Units on Hand (as of ___/___/___) Post-Disaster
Generator # ___						
Thermostat (Engine)						
Thermostat (Water Heater Jacket)						
Motor Starter						
Fuse (multiple sizes)						
Water Heater Jacket						
Fanbelt(s)						
Heater Hose						
Fuel filter						
Fuel Water Separator Filter						
Oil filter						
Air filter						
Oil						
Coolant						
Generator # ___						
Thermostat (Engine)						
Thermostat (Water Heater Jacket)						
Motor Starter						
Fuse (multiple sizes)						
Water Heater Jacket						
Fanbelt(s)						
Heater Hose						
Fuel filter						
Fuel Water Separator Filter						
Oil filter						
Air filter						
Oil						
Coolant						
Generator # ___						
Thermostat (Engine)						
Thermostat (Water Heater Jacket)						
Motor Starter						
Fuse (multiple sizes)						
Water Heater Jacket						
Fanbelt(s)						
Heater Hose						
Fuel filter						
Fuel Water Separator Filter						
Oil filter						
Air filter						
Oil						
Coolant						
Automatic Transfer Switch						

Parts Ordering:

Parts Department Contact Information:

Point of Contact: ______________________________ Phone Number: ______________________________

Cell phone: ______________________________ Email: ______________________________

Secondary Point of Contact: ______________________________ Phone Number: ______________________________

Cell phone: ______________________________ Email: ______________________________

NOTE: For facilities with more than three generators, copy this form to document parts inventory for additional generators.