ESCC

Electricity Subsector Coordinating Council

Assessing and Mitigating the Novel Coronavirus (COVID-19)

A RESOURCE GUIDE

Version 7: Updated April 27, 2020

Planning for a health emergency, such as the novel coronavirus (or COVID-19), is unique from other business continuity planning because it requires businesses to prepare to operate with a significantly smaller workforce, a threatened supply chain, and limited support services for an extended period of time at an unknown date in the future.

The business continuity and pandemic plans developed by investor-owned electric companies, electric cooperatives, and public power utilities are designed to protect the people working for them and to ensure energy operations and infrastructure are supported properly throughout an emergency.

This document is a resource for electric power industry leaders to guide informed localized decisions in response to the COVID-19 global health emergency. It highlights data points, stakeholders, and options to consider in making decisions about operational status, while protecting the health and safety of employees, customers, and communities.

Sharing practices and expertise will allow participants to make better-informed independent, localized decisions that will help reduce the negative impacts to the country's electric power supply during the COVID-19 global pandemic. The ESCC and its members are committed to complying fully with all applicable federal and state antitrust laws. The activities of the ESCC are not intended, and do not constitute an agreement, to influence markets or prices for goods or services.

This document will evolve as public health officials and other government sources provide additional data and more is known about COVID-19.

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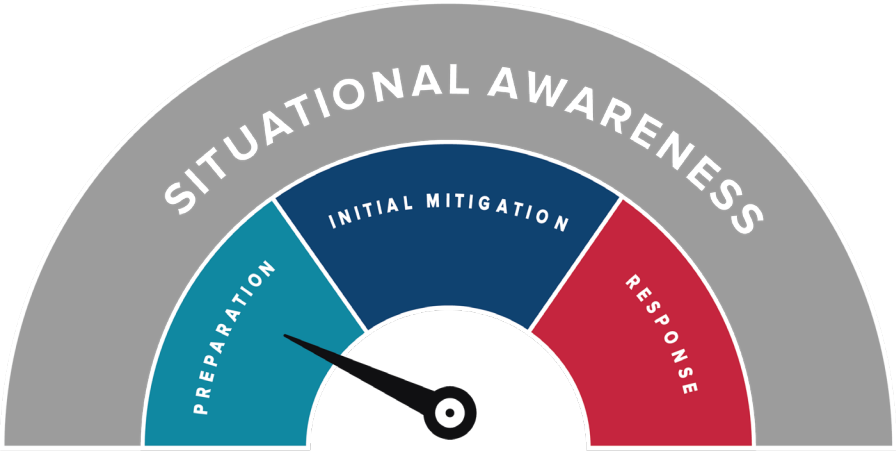


Stages of COVID-19 Mitigation and Response

Situational Awareness

Investor-owned electric companies, electric cooperatives, and public power utilities should maintain regular situational awareness of critical information that may inform preparation, mitigation, and response actions, including:

- COVID infection rates, including number of current cases and deaths impacting:
  - local communities served
  - employees or immediate family members
  - contractor or vendor operations, personnel, or immediate family members
- Public health emergency declarations in service territory
- Centers for Disease Control and Prevention (CDC) travel guidelines for service territory
- School closures, including impacts to personnel with job duties that limit telework and other flexibility options
- Key accounts posture/closures
- Contractor and vendor posture
- Access to, and availability of, testing and vaccines
- Access to health care facilities and the changes in capacity of these facilities
- Industry trends based on tracking by trade organizations (APPA, EEI, NRECA), the North American Electric Reliability Corporation (NERC), and the Electricity Information Sharing and Analysis Center (E-ISAC)

Investor-owned electric companies, electric cooperatives, and public power utilities should coordinate with:

- State/local elected/appointed officials and designees
- State/local health offices

- Key accounts, vendors, and contractors
- Local union and labor officials
- Federal government officials through the Electricity Subsector Coordinating Council (ESCC)

Preparation

Assuming there are **no confirmed cases of coronavirus among employees or within the service territory**, investor-owned electric companies, electric cooperatives, and public power utilities should consider:

- Increasing hygiene measures
- Planning for all employee telework
- Planning for sequestering at critical facilities
- Assessing stockpiles of critical materials, including food, personal protective equipment (PPE), and critical equipment or materials
- Instituting foreign travel restrictions (CDC level 2 and 3 countries)
- Increasing the frequency of messaging internally (employees) and externally (community, customers, other partners)

Initial Mitigation

If there are **no confirmed cases of coronavirus among employees, but confirmed cases within the service territory/community**, investor-owned electric companies, electric cooperatives, and public power utilities should consider:

- Increasing hygiene measures
- Instituting non-essential employee telework and continue planning for all employee telework
- Sequestering as appropriate at critical facilities
- Instituting domestic and foreign travel restrictions (CDC level 2 and 3 countries)
- Limiting attendance to large group events
- Maintaining internal/external messaging
- Planning for facility decontamination and remediation

Response

If there are **multiple employees with confirmed coronavirus**, investor-owned electric companies, electric cooperatives, and public power utilities should consider:

- Instituting employee telework for all appropriate employees
- Sequestering at critical facilities

- Instituting domestic and foreign travel restrictions (CDC level 2 and 3 countries)
- Maintaining internal/external messaging
- Planning for facility decontamination and remediation

General Planning Considerations

As part of their business continuity planning, investor-owned electric companies, electric cooperatives, and public power utilities should consider the following:

Enterprise-Wide Planning

- Refreshing all business continuity plans and assessing whether the plans are robust enough to deal with workforce shortages considering loss of workers, facilities, and critical vendors and possibly technology.
- Establishing a cross-functional team to identify roles and responsibilities for stakeholder engagement and tracking of key planning indicators.
- Assessing what level of leadership should meet, and how often, to discuss recommendations and decisions.
- Identifying factors that might lead to declaring an organizational emergency, and the consequences of declaring an emergency.
- Determining who is considered an essential employee, whether employees can be required to stay at work, and what the HR/ legal considerations are.

Work-Related Domestic and International Travel

- Determining at what point the organization:
  - Restricts international travel to, or transit through, CDC level 2 and 3 countries
  - Restricts or discourages all non-essential international travel, regardless of CDC assessment
  - Restricts or discourages non-essential domestic travel
- Determining whether the organization should require self-quarantine for travelers returning from CDC Level 2 and 3 countries, and when should the self-quarantine be enforced.
- Determining whether travel restrictions are limited to situations where any social distancing is difficult (i.e., train travel, metro travel, etc.).

Information Technology

- Benchmarking current IT capabilities to address:
  - How many log-ons can the network support at once?
  - How many people require VPN access to perform their jobs?

  - Do employees who do not normally telework need to be issued additional equipment, such as laptops?

- Determining the plan if the organization should significantly increase network capability to support more telework and how long it would take to complete the necessary upgrades.

Assessing Employee Health and Wellness

- Considering what testing guidelines/information can be provided to workers.
- Determining whether the organization may test potentially exposed employees prior to returning to work.
- Deciding how the organization will identify and inform potentially exposed co-workers, vendors, or contractors if an employee is confirmed to have COVID-19.
  - Will those who are potentially exposed be required to self-quarantine?
  - How will the organization inform local health officials?
- Determining what family support resources currently are in place and whether they need to be enhanced.

Facility Management

- Identifying what the basic daily cleaning requirements are and whether the frequency of cleaning should be increased.
  - How many times a day?
  - Where should hand-sanitizer/disinfectant wipes be placed?
- Deciding when it is appropriate for the organization to cancel or restrict large group gatherings, both internally and externally, and how a large group should be defined.
- Determining when the organization limits access to, and employs protective measures for, critical facilities.
- Deciding what type of decontamination should occur if an affected employee/vendor/ contractor reports to a work location and whether the immediate area or entire facility should be shut down.
- Determining when an organization should consider implementation of employee/visitor screening at building entrances, and when visitors should be restricted from entering facilities.

Management of Vendors/Contractors/Supply Chain Disruptions

- Determining when an organization would consider suspending in-person vendor meetings, particularly if vendors travel internationally.
- Defining what types of materials and services are critical.
- Assessing the current stockpiles of critical materials and the course of action if the stockpiles become low or are depleted.

- Identifying what plans vendors/contractors/suppliers have in place to ensure continuity of operations.

External and Internal Messaging

- Determining what messaging would be provided to:
  - General employees/managers/supervisors
  - Affected employee(s)
  - Managers/supervisors of affected employee(s)
  - Co-workers of affected employee(s)
  - Others at work location of affected employee(s)
  - Externally affected/exposed stakeholders
  - Internal stakeholders
  - Media
- Deciding what additional information needs to be included in messaging and whether there are any additional notifications that need to be made.
- Establishing the frequency and cadence of communications and consideration of multiple modes of communications (e.g., emails, FAQs, portals, facility-specific messaging, etc.).

Review of Grid Reliability and Mutual Assistance Networks

- Identifying whether decisions to increase/suspend/reduce operations at key accounts will impact load balancing.
- Determining whether the organization has identified facilities critical to the operation of the energy grid and has made accommodations for sequestering at those facilities (on-site food/water/hygiene/medical, family services, personal protective equipment, etc.).
  - What enhanced facility management needs to occur to make the environment as safe as possible?
- Determining whether the organization has made accommodations for line crews that may need to respond to grid disruptions (family services, PPE, etc.).
  - What type of personal protective equipment should be provided to crews operating in areas with high numbers of infections?
- Determining whether the organization is in contact with mutual assistance networks to assess the availability of additional resources if there are not enough workers to perform critical work.
  - Could the organization support a request for assistance, and has the company shared its status with the mutual assistance networks?

COVID-19 Access Considerations

This document provides guidance that investor-owned electric and/or natural gas companies, public power utilities, and electric cooperatives may want to consider when accessing buildings or areas with COVID-19 contamination. It includes three sections:

- Guidance before entering a home/building with known or suspected COVID-19 contamination.
- Guidance to consider when attempting to access, and operate in, an entire community or region that has been restricted by a state/local government entity due to COVID-19.
- Guidance for accessing military or federal government facilities.

The guidance in this document was collected from organizations across the industry. The intent is to serve as a general information resource and not to set any industry standards. This document is evergreen and will be updated regularly to reflect additional or revised guidance as it is received.

Access to Contaminated Homes/Buildings

Prioritizing Work in Contaminated Areas

Recognizing circumstances differ across different service territories and different communities, investor-owned electric and/or natural gas companies, public power utilities, and electric cooperatives may consider the following in prioritizing work required to be completed in a contaminated area:

- Organizations should develop a list of essential and non-essential services and discuss those with appropriate government officials (including, but not limited to, the public utility commission) for feedback and appropriate waivers, if needed.
- Natural gas utilities should discuss leak response time requirements with the public utility commission and how/if responses can be prioritized, if applicable.
- Organizations should identify essential vs. non-essential services specific for in-home/building service (most applicable to appliance servicing) to inform prioritization of work orders/requests.

Supporting the Workforce Operating in Contaminated Areas

To support the workforce, investor-owned electric and/or natural gas companies, public power utilities, and electric cooperatives should consider the following practices to identify a contaminated home and mitigate exposure to field personnel:

- Conduct daily safety briefings prior to field workers going on service calls and develop an internal website with Frequently Asked Questions (FAQs) that are updated once a day on Personal Protective Equipment (PPE) guidance and other mitigation requirements. *(See Q&A on using a respirator.)*

- Develop a process workflow with questions and talking points for employees to use at the customer's door to identify suspected COVID-19 concerns. The workflow will give employees the flexibility to gauge the situation and to employ voluntary social distancing when the response requires entering a home/building.

  If a customer reports he/she has symptoms, the workflow document should include direction for the employee to call a supervisor to decide if the work is essential or non-essential. If essential, the employee follows the workflow document using upgraded PPE. *(See example of COVID-19 Workflow & Biohazard Assessment.)*

  Questions/directions to consider for a workflow document include:

  - Employees ask three pre-entry questions to validate status of COVID-19 at the location:
    - Is anyone in the residence, location, or establishment self-quarantined or self-monitoring for COVID-19 within the past 14 days?
    - Has anyone in the residence, location, or establishment had a possible exposure to COVID-19 within the past 14 days?
    - Is anyone in the residence, location, or establishment sick with a respiratory illness, cough, fever, congestion, or experiencing shortness of breath?
  - Employees who enter a customer location with an active case of COVID-19 should consider the following protective measures:
    - Ask that the sick person go to another room.
    - Practice social distancing (at least 6 feet) from healthy people in the location.
    - Avoid touching surfaces whenever possible.
    - Avoid touching your face, nose, mouth, or eyes.

- Allow field personnel to call a "safety stop" when they are reluctant to enter a dwelling. A field worker should call his/her supervisor and discuss essential vs. non-essential work and proper precautions to take.

- After the work is completed, refer to CDC and OSHA for proper handling and disposal of contaminated PPE. OSHA issued specific guidance on COVID-19, which can be found online at:

  https://www.osha.gov/Publications/OSHA3990.pdf

- Ensure employees are aware of the COVID-19 symptoms, and provide a mechanism (e.g., confidential hotline) for personnel to contact an organization's internal/external medical provider.

- Consider the importance of providing family services' support for employees who may need to self-quarantine after potentially coming in contact with COVID-19 cases or have symptoms of an infection.

Access/Operations in Restricted Areas

In addition to the considerations above for work within a home or building, below are additional steps for organizations to consider when accessing and maintaining operations within an entire community or region that has been restricted by a government entity due to COVID-19. There is no one-size-fits-all approach given the number of variables, which include, but are not limited to, differences in state and local governments, community densities, regional weather conditions, and service territory nuances. For example, the community of New Rochelle, New York, had a one square mile containment zone; however, the local authorities did not restrict travel through or business in/out. Different local jurisdictions may impose different restrictions. As a result, the following guidance is intended to assist operators with advance planning for access and continuation of safe and reliable service to a restricted area.

Travel Into/Through Restricted Areas

- Public health quarantine and isolation statutes vary by state. A state-by-state summary of these statutes can be found online at:

  https://www.ncsl.org/research/health/state-quarantine-and-isolation-statutes.aspx

- Decisions to restrict access generally are made by local governments. Note, those decisions likely will be made in coordination with state officials. Enforcement of restricted access typically will be done by local law enforcement, state police, or the National Guard with authority from the governor.

- While not explicitly restricting access to a community or region, state or local governments may take actions to reduce density (such as enhanced social distancing) around COVID-19 hotspots. These actions typically come in waves, for example: instituting a 1-mile or 2-mile radius; shifting from increased telework to mandatory telework; or limiting the workforce to essential-only personnel and then sequestering essential personnel.

- Organizations should engage with their state Emergency Operations Centers (EOC) on a regular basis to:
  - Obtain an authorization letter, or similar documentation, that will help facilitate transportation across the state.
  - Ensure that the EOC staff has visibility on crew movements and operational priorities.

- Organizations should use the EOC to engage local authorities to discuss:
  - How an organization will be informed of a decision to restrict access to a community or region.
  - The process that will be used to grant access to the restricted area. This process may allow cleared workers to enter and exit the restricted area at will, or it could require daily or regular screening.

- When accessing a restricted area, organizations should consider using vehicles with company logos and advise personnel to carry appropriate company/utility IDs, government-issued IDs, and work orders. Organizations also may consider issuing badges, cards, or letters that identify employees who serve critical functions. They also should work proactively with local authorities to ask that they accept such credentials to grant timely access. These additional credentials could help facilitate access to restricted areas. A credential can reference guidance released by the U.S. Department of Homeland Security to help state and local officials determine the businesses and workers that are essential for sustaining critical infrastructure operations. That guidance can be found online at:

  https://www.cisa.gov/publication/guidance-essential-critical-infrastructure-workforce

- Organizations should monitor restricted areas across their service territory to consider how those restrictions may impact transportation routes.

- Organizations also should consider that some local jurisdictions may decide to restrict access to an area to prevent the coronavirus from entering their community. As noted above, early engagement with the state EOC and local authorities is suggested to ensure that organizations are aware before a restriction is announced. This should allow staff, equipment, and materials to be prepositioned within the restricted area. However, if a restriction is put into place before resources are prepositioned, organizations should consider:
  - Prioritizing the types of repairs and maintenance work that will need to continue within the restricted areas and discussing the importance of this work with local authorities.
  - Developing a process to 1) inform local authorities when work is required within the restricted area; and 2) gain permission to access the area to perform the work.

Maintaining/Monitoring Staffing Levels

- As state and local governments make decisions on restricted areas and/or containment zones, organizations should plan for how those decisions could impact the workforce and the ability to maintain business and operational continuity. Organizations should consider:
  - Geographic mapping of employee home addresses and work locations using IDs to protect worker privacy.
  - Developing an understanding of the high-risk population within the workforce, while following ADA and other applicable laws and regulations.
  - Including HR, legal, and labor relations in the planning process.

- Once restricted areas and/or containment zones are announced, an organization should consider:
  - Identifying and communicating with the employees who live or work in the impacted area.
  - Communicating with the full workforce to explain the impact to the organization.
  - Providing an outside medical resource for employees to call with medical questions.

- To maintain adequate staffing levels, organizations should consider:
  - Bringing recently retired or separated employees with specialized training back to the organization.

  - Training and certifying current employees for some specialized work, in coordination with labor unions.
  - Transferring employees who typically provide non-essential services into an essential service area, provided they have the proper qualifications, in coordination with labor unions.
  - Establishing a flexible staffing contingency plan to accommodate restrictions (such as age) that are imposed by government authorities on the workforce.

Social Distancing in the Work Environment

- Regardless of whether a facility is in a restricted area or containment zone, organizations should consider social distancing steps to minimize exposure in the work environment: They should:
  - Minimize person-to-person contact.
  - Minimize interaction between employees.
  - Split critical employees into different shifts and/or different locations.
  - Increase the frequency and level of cleaning and disinfection in critical work areas.
- For field workers operating in a restricted area or containment zone, organizations should consider:
  - Offering alternate lodging, such as mobile homes and RVs equipped with washer/dryers, showers, and kitchens.
  - Dividing workers into small teams and keeping those teams separated with assigned vehicles and different base camp / staging area locations. Consider rental options to keep the number of workers in a single vehicle low.
  - Instituting triple wellness checks with mandatory temperature readings at arrival, at mid-shift, and when going off-duty, with a health survey.
- If an employee tests positive for COVID-19, consider:
  - Tracing the individual's steps to determine who that individual worked with in close proximity, as defined by the CDC:

    https://www.cdc.gov/coronavirus/2019-ncov/prepare/transmission.html
  - Notify the employees who came in contact with the individual.
  - Clean and disinfect the area where the individual works and consider options for notifying, monitoring, and potentially quarantining workers who had been in close contact as each situation dictates using CDC guidance:

    https://www.cdc.gov/coronavirus/2019-ncov/prepare/disinfecting-building-facility.html

Access to Military and Federal Government Facilities

- Organizations should engage directly with military facilities and federal government buildings to determine if and when access is required.

- For visibility, the Department of Defense (DoD) has released some department-wide guidance, which can be found online at:

  https://www.defense.gov/Newsroom/Releases/Release/Article/2121122/partnering-with-the-us-defense-industrial-base-to-combat-covid-19/

Additional Resources

Example Q&A for Using a Respirator for COVID-19 Mitigation

When do I need to wear a respirator?
A respirator (N-95 or higher-level) only should be used if you are entering a customer's premises where there is a confirmed or suspected COVID-19 case, and you cannot maintain 6 ft social distancing.

How do I get a respirator?
Contact your supervisor with justification to use a respirator. Your supervisor will arrange to get you a respirator after ensuring that you have been fit tested, medically cleared, and properly trained on the use of the respirator.

Do I need Medical Clearance and Fit Testing before wearing a respirator?
Yes, you must complete respirator medical clearance and fit testing within two years before use. Employees must be fit tested to all makes, models, and sizes of the respirator(s) to be used. Unless it has been waived by OSHA, an employee's medical condition must be evaluated before fit testing. There are different N95 respirator models that may be in use in the company – you must be fit tested for the model you will be using. (NOTE: Some safety procedures require OSHA-approved training on the use of PPE prior to entering a hazardous environment. A respirator cannot protect an employee if he/she does not know how to use it properly. Check with your company policy and follow any training requirements.)

What types of respirators are effective against COVID-19?
Disposable respirators (also known as N95 respirators), half-face respirators, and full-face respirators. All respirators must be NIOSH approved. Class and stock details are provided at the end of this Q&A.

How do I use an N95 respirator correctly in a COVID-19 situation?
Follow this N95 Respirator use guidance:

- Use hand hygiene/sanitation when donning and doffing.
- Use a pair of clean latex or nitrile gloves when donning an N95 respirator and performing a user seal check. Employees should understand that beards and other facial hair may reduce the effectiveness of a respirator substantially.
- Discard gloves after donning and making any adjustments to ensure the respirator is sitting comfortably on your face with a good seal.
- Avoid touching the inside of the respirator.
- Inspect the respirator again after cleaning.
- Contact lenses may be worn; however, the employee must have experienced success in wearing contact lenses with a respirator. Consider the environment before doing so

Can I reuse an N95 respirator?
Yes. You may reuse an N95 respirator. As with any respirator, inspect it before each use and ensure all components of the respirator are intact, and perform a user seal check. Reuse can be done for up to one shift, as long as the N95 was used as per above guidance. Filtering facepiece respirators can be reused by the same worker, but ***only*** if the respirator is working properly, its shape remains unchanged, and the filter material is not physically damaged or soiled.

How do I store and dispose of an N95 respirator?
A: Store respirators in a bag labeled with your name. Dispose of the storage bag after each use. Discard spent gloves, respirators, and storage bags as regular trash.

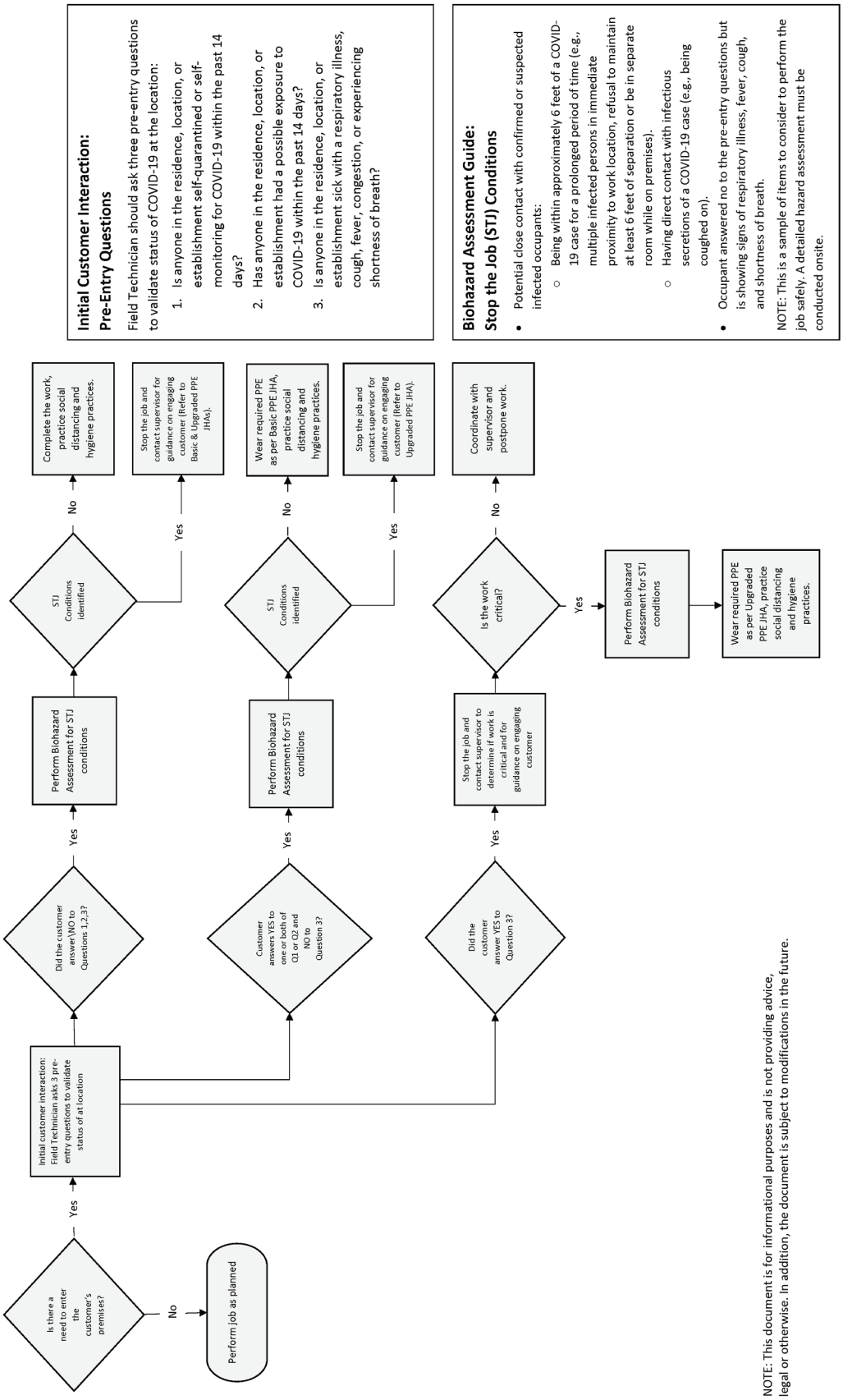
Can I use half-face and full-face respirators instead of N95 respirators?
Yes. If N95 respirator supplies are low, you can use half- or full-face respirators with P100 magenta cartridges, which will provide adequate protection. Follow all donning and doffing, hand hygiene, storage, and disposal procedures described above. Half- and full-face respirators may be reused if they pass the pre-use inspection.

What cleaning instructions apply to half- and full-face respirators?
Half- and full-face respirators must be cleaned using an approved towelette or cleaning solution after each use. Wipe down all surfaces of the respirator, including the cartridges.

What do I do if my respirator is damaged?
Do not use any damaged equipment. Discard all damaged respirators and components and request a new one from your supervisor.

Additional information from OSHA respiratory protection standards can be found at:
https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134

Example of COVID-19 Workflow & Biohazard Assessment



NOTE: This document is for informational purposes and is not providing advice, legal or otherwise. In addition, the document is subject to modifications in the future.

Control Center Continuity

This document provides guidance to investor-owned electric companies, public power utilities, electric cooperatives, and federal government-owned utilities responsible for the safe and reliable operation of transmission and distribution control centers during and throughout the COVID-19 pandemic. This document develops credible scenarios that could impact control center operations, identifies mitigation options, supports information sharing across the industry, and outlines needed government actions.

The guidance in this document was collected from organizations across the industry. The intent is to serve as a general information resource and not to set any industry standards. This document is evergreen and will be updated regularly to reflect additional or revised guidance as it is received.

Regulatory Relief and Governmental Support Needs

The mitigation strategies for the scenarios described below cannot be executed unless: **(1)** COVID-19 testing is available and streamlined for essential personnel who work in shift environments, i.e., control center personnel; **(2)** relief from certain regulatory obligations is obtained to ensure the continued availability of control room operators; **(3)** travel restrictions for the general public exclude personnel essential to the reliable operation of control centers; and **(4)** supplies for cleaning/hygiene are readily available.

Following is a summary of specific government actions needed to ensure successful mitigation of risk to control center continuity:

- **High-Priority Actions Needed**
  - Governmental authorities should direct medical facilities to prioritize testing for asymptomatic control room operators (and treat them comparable to first responders) in advance of sequestered, extended-duration shifts. State regulatory approval should be given to corporate health services organizations to administer testing for coronavirus to essential employees, if applicable.
  - If local, regional, state, or federal government authorities enforce a populace-wide quarantine/curfew or other travel restrictions, operators of critical facilities still should be able to move freely outside of hours.
  - NERC should waive the certification requirement for system operating personnel if minimum staffing levels cannot be maintained. *(This issue was addressed by FERC/NERC on 3/18/20.)*

  - NERC should allow the deferment of maintenance activities that require support from control center staff (e.g., contingency analysis and switching instructions). *(This issue was partially addressed by FERC/NERC on 3/18/20.)*

- **Medium-Priority Actions Needed**
  - Control center facilities should be authorized to receive a priority supply of sanitizing supplies and PPE.
  - Non-medical professionals (such as control center managers and supervisors) should be given state approval to administer health questionnaires and temperature checks using appropriate PPE while following EEOC guidelines:

    https://www.eeoc.gov/facts/pandemic_flu.html
  - NERC temporarily should suspend regional entity audits of all registered entities. *[This issue was partially addressed by FERC/NERC on 3/18/20.]*

Identifying Critical Control Center Personnel

The personnel needed to staff the control centers of electric transmission and distribution facilities, reliability coordinators, and balancing authorities are essential to the reliable operation of the energy grid. The facilities needed to perform these functions are generally well-isolated and physically secure, or at least conducive to the sequestration of on-site staff as needed. However, given the long lead times required to train personnel to properly utilize the Information Technology (IT) and Operations Technology (OT) tools used to maintain control center functionality and grid visibility, the limited number of people with these qualifications places a higher risk to reliable operations and requires a higher priority for protection from the spread of COVID-19 than the general population.

To categorize these personnel accurately across the electric industry, a common method for identifying essential personnel is needed. This will allow for a better understanding of the number of people involved so that effective strategies for mitigating their risk of infection and resulting removal from the workforce can be developed. Individual investor-owned electric companies, public power utilities, electric cooperatives, and federal government-owned utilities still will have discretion to identify essential personnel unique to their organization, but a more uniform approach to categorizing staff will support the communication of likely areas of government support at the local, state, and federal levels.

Specific to energy grid operation, each organization has employees who fit into two categories: Control Room Operators and Direct Support Personnel. Each of these categories can be broken down into individuals who can perform their functions remotely, and those who must be physically present at their control center workstations in order to perform their required duties. For the purpose of this analysis, only those who cannot work remotely will be prioritized for continuity of operations.

The job titles of people in each category will vary by organization, but Control Room Operators generally include reliability engineers, dispatchers, area controllers, and their shift supervisors. Direct Support Personnel consist of those employees who maintain and secure the functionality of the IT and OT tools used by Control Room Operators.

Organizations also should consult guidance on Mission-Essential Workers developed by the ESCC at:

https://www.electricitysubsector.org/-/media/Files/ESCC/Documents/ESCC_Mission_Essential_Workforce_2020.ashx?la=en&hash=7618009ED20A06A987105A0817A180202406AFDF

Scenario Development

Given the extensive work within the electric industry to develop business continuity plans supported by redundant physical and IT infrastructure, many organizations already have taken steps to utilize their ability to operate from more than one location. Accordingly, the emphasis now must be on the development of risk scenarios that can identify potential gaps in existing plans given the unique nature of a pandemic's effect on personnel availability.

Each scenario was developed to describe an escalating impact to control room personnel at their primary and secondary location (or both). The scenarios will test the effectiveness of social distancing and quarantine, the availability of mutual assistance, and the need for proactive testing of priority employees to quantify the current risk level explicitly. The scenarios are accompanied by corresponding mitigation strategies that represent existing industry and government policies, standards, and capabilities, as well as suggested actions going forward.

Many investor-owned electric companies, public power utilities, electric cooperatives, and federal government-owned utilities took proactive steps to isolate their control center facilities from external visitors and non-essential employees early in the pandemic, leveraging the presence of back-up control centers, self-quarantining of employees, and multiple shifts to maximize social distancing.

Accordingly, the scenarios are designed to anticipate the logistical and operational challenges associated with the following conditions:

- Single operator impacted (either site)
- Single operator impacted (both sites)
- Shift compromised (either site)
- Shift compromised (both sites)
- Site compromised (either site)
- Site compromised (both sites)

Possible Mitigation Strategies for Scenarios

This section first describes universal preventive measures that should be considered prior to having any control center personnel diagnosed with COVID-19, in addition to measures that would apply in most scenarios where employees are diagnosed with the virus. Thereafter, specific recommendations for the escalating impacts of the above scenarios are provided.

Universal Mitigation Strategies

- Union leadership should be involved in discussions around possible mitigation strategies from the beginning to ensure transparency and collaboration.
- Compensation, attendance and reliability, PTO, and related polices that will apply during these conditions should be developed and communicated proactively.
- Social distancing at work and on personal time should be encouraged; opportunities to create greater physical separation of control room operator workstations should be identified; adjacent rooms should be utilized where possible; and interactions across shifts should be eliminated. Additional guidance on social distancing practices can be found in the "Social Distancing for Control Center Personnel" section of this Resource Guide.
- Good personal hygiene practices should be reinforced, and employees should self-administer wellness checks at home prior to departure for his or her shift. CDC and state health department information should be posted at the entrance to control rooms and pre-shift safety-hygiene message(s) should be delivered.
    1. Minimize direct contact (maintain 6' distance) and indirect contact, where possible leveraging gloves prior to contacting non-sanitized shared surfaces.
    2. Routine handwashing, leveraging soap & water for at least 20 sec or leveraging an alcohol-based hand sanitizer (containing 60+% alcohol).
- Provide clear symptom reporting guidance to employees around at-home self-administered wellness checks and/or observations while on-shift:
    1. Fever (person feels warm to the touch, reports having been feverish since last report, or has an actual measured temperature of 100.4°F) that has persisted for more than 48hrs.
    2. Or, fever AND one of the following:
        - Persistent cough;
        - Difficulty breathing;
        - Appears obviously unwell.
- The CDC's most current travel advisories should be built into event planning and travel arrangements, and practices to increase awareness of employees' personal travel plans to areas with active advisories should be considered.
- Employees who travel to a location with a CDC Level 3 Travel Health Notice should be required to adhere to a 14-day self-quarantine at home and should be cleared by organization health services, if applicable, before they return to work.
- COVID-19 testing of asymptomatic control room operators and support staff should be required to the extent available. Additional information on testing can be found at:

    https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/testing.html

    https://www.fda.gov/medical-devices/emergency-situations-medical-devices/faqs-diagnostic-testing-sars-cov-2
- The frequency and extent of cleaning and disinfecting surfaces and equipment that comes into routine contact with multiple people should be increased.

- In the event exposure occurs, resources should be secured, and processes established for further sanitizing and segregating work areas. Suggested cleaning procedures should include the following within 6 feet of the exposure in all directions:
    1. Cleaning porous (soft) surfaces near workstation (e.g., cloth, leather, faux leather seats within manufacturers guidelines);
    2. Cleaning non-porous (hard) surfaces near work-station (e.g., desk, peripherals, communication devices, hard-chairs, etc.) with disinfectant products with EP-approved emerging viral pathogens claims that are expected to be effective against the virus that causes COVID-19 (SARS-CoV-2) and ensure these products are compatible with surfaces and components. All products should be used according to label instructions.
    3. Cleaning lavatories used by the symptomatic employee, including door handle, locking device, toilet seat(s), faucet(s), washbasin(s), adjacent walls, and counter.
    4. Properly disposing of any items that cannot be cleaned. Paper procedures, maps, etc.)

    Additional guidance from the CDC on cleaning and disinfecting a facility can be found online at:

    https://www.cdc.gov/coronavirus/2019-ncov/prepare/disinfecting-building-facility.html

- Individually assigned peripheral equipment (mice/keyboards/handsets/chairs) should be provided.
- A dedicated building entrance that is a significant distance from all other employees should be provided for all personnel working in the control center.
- Outside visitors should not be allowed in control centers (e.g., no tours or non-essential personnel from the same organization).
- Additional access restrictions, such as limiting visitors or non-essential meetings within spaces in proximity to control centers, should be implemented.
- Non-badged contractors/vendors should be screened with a health questionnaire and temperature check before being allowed onsite for deliveries, repairs, etc., and access during this time should be limited to critical activities only.
- Crews on shift work schedules should be segregated. System operators should be split (days/nights or split individual shifts) between primary and backup control centers. Operating night shifts and day shifts in different locations will provide a 12-hour window between occupation (e.g., allow for enhanced cleaning).
- Control room operators should be reduced to minimum (active desks), and they should be rotated in and out on a 7-day or 14-day schedule. (Be cautious of length of shifts when considering length of time.)
- Business continuity plans should have clearly defined thresholds and procedures for initiating organization shelter-in-place, sequestration, and quarantining of control center personnel as defined in the “Sequestration Guidelines and Considerations” section of this Resource Guide.
- A complete healthy shift should be sequestered and held in reserve for extreme scenarios such as when minimum staffing levels cannot be met.

- A resource plan should be developed for potential use of retirees, supervisors, managers, and engineers with the requisite skills to backfill control room operator and support staff in the event staffing is reduced due to COVID-19 infections.
- Control center support staff (engineering, transmission scheduling, compliance, etc.) should be allowed to work remotely (e.g., VPN) to the extent permissible within remote access and cybersecurity requirements of the organization.
- Information and communications technology resources should be appropriate to accommodate increased use of remote work arrangements consistent with business continuity plans, without compromising security. Consider conducting planned stress tests for these arrangements. The Electricity Information Sharing and Analysis Center (E-ISAC) developed guidance on remote operation of control center systems/assets, which can be found on the Center's online portal at:

  https://www.eisac.com/portal-home/cyber-bulletin-detail?id=123891
- Organizations should anticipate and prepare for coronavirus-themed opportunistic social engineering attacks. Spearphishing, watering hole, and other disinformation tactics commonly are used to exploit public interest in significant events. Steps to ensure continued visibility and maintenance of cyber assets should be taken in the event of staffing disruptions.
- Logistics to house operators onsite, including bedding, hygiene facilities, entertainment, and food accommodations, should be developed.
- Mutual assistance and sharing of operators should be considered.
- If staffing levels are reduced due to COVID-19 and organizations cannot follow NERC Reliability Standards requirements, they should contact their NERC Regional Entity and NERC.

Scenarios 1&2 (single operator impacted at one or both sites)

Control Room Operator or Direct Support Personnel in the primary or secondary control room is confirmed with COVID-19. Both categories of employees work in tightly controlled shifts in terms of working hours, skill sets, and physical proximity during work. A positive case in any shift comes with a high risk of infection for other personnel in the same shift if the infected individual is not identified quickly.

While there is some amount of redundancy in skills sets on a single shift allowing for a degree of interchangeability, this option does not apply to all positions and is limited in both the quantity of people available and the duration of operational tempo. Having at least one confirmed case at both locations potentially compromises the standard redundant-site model of continuity, but still allows for proactive quarantine and reallocation of shift personnel if possible.

Mitigation Strategies

- All staff on shift should comply with CDC guidelines for critical infrastructure workers who may have had exposure to COVID-19. According to current CDC guidelines, employees who are asymptomatic may return to work but should wear a mask or face covering for 14 days. Symptomatic employees should be sent home immediately. CDC guidelines for critical infrastructure workers can be found here:

  https://www.cdc.gov/coronavirus/2019-ncov/community/critical-workers/implementing-safety-practices.html

- A body temperature screening process should be used, or symptoms reviewed before admission into control rooms. This is typically required to be performed by licensed medical professionals and may require relief from HIPAA requirements for supervisors/managers to perform if necessary. Appropriate PPE should be used.
- Conservative/reduced field operations should be implemented to reduce the workload of control room staff (reduce the number of switching orders to process).
- A supplemental staffing plan should be implemented, and refresher training and simulations offered for supervisors, managers, engineers, and retirees with the requisite skills to backfill control room staff in the event control center staffing is further reduced due to COVID-19 infections.
- The family situations of operators impacted by quarantine should be considered and assistance/support offered where needed to ensure quarantined operators do not feel they are placing their family at risk (e.g., transportation, housing, childcare, eldercare, video chats).
- Organizations should consider sequestering employees in their homes rather than in a separate location away from their families (address individual employee personal circumstances).

Scenario 3&4 (shift compromised at one or both sites)

Multiple Control Room Operators and/or Direct Support Personnel in any single shift at both the primary and backup control rooms have been confirmed with COVID-19. This scenario assumes at least one shift in both facilities is infected, or multiple shifts in the case of an organization that only has one functioning control center. This will limit the value of social distancing between the staffs of the two control centers and raises the likelihood of close physical contact with infected individuals at both locations. These circumstances also quickly overextend the ability to reallocate personnel between shifts since at least one complete shift at each location has been compromised.

Suggested mitigation strategies for these scenarios are provided in greater detail in the “Sequestration Guidelines and Considerations” and “Mutual Assistance for Control Center Operators” sections of this Resource Guide.

A previous version of this guidance recommended that there should be a single control room for operators who have confirmed cases of COVID-19 in the event minimum staffing levels cannot be maintained with employees who do not have the virus. To clarify the intention of this statement, the Control Center Continuity Working Group is recommending that this approach only be followed in extreme situations that cannot be mitigated by any other means. Any employee who shows symptoms or tests positive for COVID-19 should be separated from other employees, customers, and visitors and should be sent home, per CDC guidelines, if possible.

Mitigation Strategies

- The same strategies outlined in Scenario 1&2 apply.
- Non-impacted shifts should be sequestered onsite.
- If available, onsite 24-hour medical care should be considered.

Scenario 5&6 (site compromised at one or both locations)

The primary and backup control rooms have a significant number of Operators and/or Direct Support Personnel impacted with COVID-19, compromising the entire site. Multiple infected personnel in this scenario also assumes that, in addition to both facilities having personnel who test positive, more than one shift at each location is affected. This will exacerbate the problem of realigning personnel who are cross trained to perform specific functions or using in-house redundancy of employees without knowing which specific skills are needed. Additionally, this also could lead to the compromise of a control center to the degree that it is no longer usable until it can be sanitized properly.

Suggested mitigation strategies for these scenarios are provided in greater detail in the "Sequestration Guidelines and Considerations" and "Mutual Assistance for Control Center Operators" sections of this Resource Guide.

Mitigation Strategies

- Operations should be sequestered fully onsite.
- If available, onsite 24-hour medical care should be considered.
- Per the guidance above, a body temperature screening process should be used, or symptoms reviewed before re-admission into control rooms, and recovered staff should be isolated from infected staff in a plan to return to heathy pool.
- The family situations of operators impacted by sequestering should be considered, and they should be offered assistance/support where needed to ensure sequestered operators do not feel they are placing their family at risk (e.g., transportation, housing, childcare, eldercare, video chats).
- Mutual assistance may be necessary to ensure continuity of control center operations.

Social Distancing for Control Center Personnel

Social distancing, or limiting physical interactions between individuals, can be an effective strategy for reducing the risk of spreading COVID-19. CDC guidance on social distancing recommends maintaining at least 6 feet of physical distance between individuals, including in the workplace when possible. Strategies for implementing social distancing in a control center environment are outlined below. These solutions can be paired together, as appropriate, based on factors related to each organization's workforce and the physical space available for control center operations.

If a NERC-registered entity, subject to NERC Reliability Standards, is unable to operate the grid through primary or backup control centers, it must follow NERC's Reliability Standards. NERC has published an FAQ on using interactive remote access if an entity can't staff its control center, which can be found online at:

https://www.nerc.com/news/Pages/NERC%20Publishes%20FAQs%20About%20Joint%20NERC-FERC%20Industry%20Guidance%20for%20COVID-19.aspx

Leverage additional control rooms to limit rotation of personnel

- Primary and backup (or dual primary) control rooms should be utilized with control center operators split-assigned.

Repurpose spaces in control centers to limit physical interactions between control center personnel

- Consider which, if any, personnel can perform their jobs in spaces adjacent to an existing control room.
- In any scenario where a shift of control center personnel is not in the same room, the lines of communication between employees should remain open, clear, and easily accessible.

Physically separate workstations within a control room

- Workstations should allow for at least 6 feet of space between employees.
- Room design and other physical space limitations, including the placement of wiring, may restrict options for where workstations can be located.

Designate workstations for individual operators

- Assigning each employee a dedicated workstation reduces the likelihood that an employee will come into contact with a contaminated surface.
- If physical space or the number of available workstations is limited, this may make it more difficult to ensure that there is enough physical distance (at least 6 feet) between workstations.

Enable remote operations outside of a single control room

- Not all control center operations can be performed remotely. This option only may be feasible for non-control functions, including monitoring, data analytics, and other situational awareness functions.
- Remote operations increase the potential for security vulnerabilities.
- When implementing any remote operations for control center personnel, it is critical that lines of communication between employees remain open, clear, and accessible. Remote operations may increase reliance on commercial telecommunications infrastructure and may eliminate the option to use some backup channels of communication.
- The NERC Reliability Standards address requirements for BES control centers and security controls for remote access of systems, applications, or data.

Sequestration Guidelines and Considerations

Control center personnel working in close proximity for extended periods proactively can be isolated in order to limit their chances of contracting COVID-19. In this document, the following definitions apply to the different means of isolation:

- **Shelter-in-place:** An employee should remain in his/her private residence with immediate family members only. Travel outside the home should be restricted to essential needs and functions only, including food, medicine, and work deemed critical. This form of movement restriction is largely consistent with state-level orders and directives.
- **Self-quarantine**: Following the onset of symptoms or the possible exposure to a positive case of COVID-19, an employee should remain in isolation from interpersonal contact and should not leave his/her designated area of quarantine (i.e., his/her home).
- **Sequestration:** An employee with no confirmed exposure risk and no symptoms of COVID-19 proactively is isolated for an extended period for the purpose of performing his/her job function on-site. No movement beyond the designated sequestration area and no interpersonal contact with individuals outside the defined area for the designated period are allowed.

Sequestration Triggers

Sequestration is likely to be the most effective means of reducing risk to critical control center employees during a pandemic, but it is also the most resource- and cost-intensive option to implement. Additionally, sequestration presents additional challenges to employees and their families at a time when stress and uncertainty already are running high. Careful consideration of the circumstances or “triggers” that dictate a decision to enact sequestration is necessary for determining if and when sequestration is the best option.

The decision to enact sequestration is driven by individual organization risk assessments and should not be based on any one criterion or data point alone, but it should consider the situation for a specific control center holistically. Considerations may include, but are not limited to, the following:

- The number of people showing symptoms or testing positive as a percentage of the population for the government jurisdiction (county or municipality) where the control center is located. This is largely based on the availability of testing for COVID-19 and requires constant communication with staff who are both on- and off-shift to monitor their health. Consideration should be given both to the location of the control center and the home addresses of employees who commute from outside the jurisdiction where the control center is located.
- The number of people showing symptoms or testing positive who perform certain job functions, primarily based on particular certified skills and the ability to hire a replacement. Acceptable risk should be based on the minimum staffing requirements of the control center and should include the availability of a reserve shift for critical position backfills. For example, shift supervisors are commonly certified in all positions in the control center, and the unavailability of more than one-third of a single organization's shift supervisors could compromise operations.
- The rate of infection spread across a geographic region. Considering the rapid spread of COVID-19, special care should be taken to identify the point at which control center personnel are more likely than not to come into contact with an infected individual during their off-shift hours. The degree of risk to an employee is affected by the government and private-sector measures implemented to limit the spread of the virus, such as the closing of schools, daycares, public venues, restaurants, etc., or the implementation of a state- or city-wide shelter-in-place mandate.

Other possible considerations for activating control center sequestration may include:

- Screenings based on control center absenteeism rates
- State or municipal emergency directives that apply to the jurisdiction in which a control center is located
- Reliability Coordinator (RC) directives that require operation of the affected control center to ensure reliability of the bulk electric system for the duration of the pandemic
- Reputational risks of either taking or not taking action to ensure continued operation of the affected control center (e.g., in support of the RC)

In addition to understanding the possible triggers for enacting sequestration, operators should give consideration to factors that may indicate that sequestration is not the best solution for a control center at a particular time. For instance, in regions that already have seen high numbers of confirmed cases or rapid rates of community transmission, the ability to test every sequestered employee proactively is a critical prerequisite before sequestration can be enacted. If sufficient testing is unavailable in these circumstances, it may be 'too late' for sequestration to be an effective means of reducing risk to control center employees. Conversely, if a sequestration plan is put into effect too early, it may become challenging to sustain operations for the necessary duration of the sequestration.

Example 1: Sequestration triggered by threat of rapid infection spread

One organization considered three options for when to activate its sequestration plans. The first option was to prepare but not to sequester until there was an outbreak in the control center. The second option was to prepare and to continue to track infection spread in the surrounding area until a certain trigger was met. The third option was to sequester quickly before an outbreak began. This organization chose the third option and moved quickly into an onsite sequestration, deciding that it would be easiest to make a sequestration site operational before an infection outbreak spreads.

Example 2: Developing a tiered escalation plan

Another organization decided to develop a tiered escalation plan rather than moving quickly into sequestration. At lower levels of risk, the plan calls for measures like social distancing, additional cleaning, and designing contingency plans for staffing. As the risk increases, the plan recommends moving to modified shift rotations and alternate control center locations and implementing medical screening or testing. At the most severe level of risk, as a last resort, the plan recommends sequestration.

Example 3: Sequestration at one control center

One organization is sequestering staff at one control center and is emphasizing social distancing and other preventative measures at other control centers that are not sequestering. This is intended to ensure that there is at least one full team of operators available if the situation worsens and if other shifts are unable to work due to illness or risk of exposure.

Example 4: Sequestration based on system operator absenteeism

Several organizations have indicated that they will sequester control center employees when they reach a level of absenteeism that equals their minimum staffing requirements plus 50 percent. For instance, if the minimum staffing requirement at a facility is 40 percent of the total staff, then the trigger for sequestration would be 60 percent of staff availability.

Example 5: Sequestration based on community infection percentages

One organization is considering the percentages of the community infection rate to inform its decision on whether to sequester. At a lower threshold of 10 percent community infection, this organization allows an officer-level decision to determine whether to sequester. At a higher threshold of 20 percent, this organization mandates a move to sequestration.

Universal Sequestration Strategies

Strategies for sequestering control center personnel are driven by organization risk assessments and geographically specific factors, such as the remoteness of the facility itself and proximity to large clusters of positive cases.

An effective sequestration may require alterations to existing schedules and alignment of personnel:

- Shift schedules should change from 8 hours to 12 hours. This reduces personnel turnover and ensures that shift hand-offs occur only between the same two groups. This eliminates the potential cross-contact of shift personnel with those of a second/back-up control center and reduces the total number of interactions.
- An organization-directed self-quarantine of a complete reserve shift ensures that all critical functions can be performed in the event that a shift becomes compromised. To ensure their availability as a complete team, a shift should not be “cannibalized” to supplement individual positions in a different shift.
- All personnel who can perform their essential tasks remotely should be moved off-site. Organizations have taken steps rapidly to develop the IT infrastructure necessary to move support tasks off-site that previously were not accessible remotely. This allows for a bare minimum number of people in the facility that houses the control center to limit contact further.

To ensure that a sequestration plan is implemented effectively and that enough employees are willing to volunteer to be sequestered, the quality and availability of support services are critical. Support plans should include provisions for the following:

- **Duration:** A minimum of 14 days is necessary in order to ensure the availability of a replacement sequestered shift, given the minimum length of an ordered quarantine for exposure. The current maximum in practice is 6 weeks, driven by the expense associated with providing the support services for shifts and the exposure risk associated with shift changes.
- **Lodging:** Most control center facilities do not have existing designated lodging space, or the conditions were designed for temporary use during more traditional circumstances such as storm responses. Given the extended nature of sequestered shifts, control centers either are retrofitting existing space to accommodate personnel for longer periods of time, or they are procuring sleeping trailers and recreational vehicles to house operators on-site. Accommodations should limit the number of people in each designated sleeping space for comfort (current practice is two per trailer) with consideration for gender. Current cost assessments identify 6 weeks as cost parity for buying trailers vs. renting them.
- **Family Support:** Connectivity with family members is essential to ensuring the ability of operators to perform their jobs. Addressing unique family requirements such as childcare, medical requirements, transportation needs, and food/groceries should be considered during discussions with volunteers.
- **Food:** There are three primary strategies to provide food to shift personnel, each with a requirement to determine the frequency of delivery to limit exposure risk from frequent interactions with delivery personnel and contracting provisions regarding the sanitation practices of the food provider to ensure the lowest possible risk:
  - When adequate kitchen facilities are available, groceries can be delivered, and operators can prepare their own food.
  - Prepared meals or catering can be provided.
  - Food preparation personnel (a cook) can be included in the sequestered team.

  Communal dining facilities should be limited during the initial 14 days to limit the risk of exposure to all personnel.
- **Medical Services:** Ongoing monitoring of sequestered employees' health is necessary to maintain the integrity of sequestration and to ensure all employees' continued safety. At a minimum, this may include routine self-testing for symptoms such as fever, with the ability to call upon medical professionals as needed. Alternatively, a medical professional can be sequestered on-site to provide services to all on-site shifts, reducing the external exposure risk.
- **Cleaning/Sanitation Services:** The ongoing cleaning of the control center, lodging, and common areas is essential to the health and welfare of operators. As with food service, there are tiers of exposure risk based on the strategy selected:
  - Shift personnel may be provided with the required supplies to clean common and individual spaces themselves.
  - External cleaning services, including personnel who are equipped with all necessary PPE to limit the risk of exposure, may be contracted to come on-site as needed.
  - Cleaning staff may be sequestered on-site.

Finally, for sequestration to be activated effectively, a plan must be developed completely and ready for immediate implementation, including a schedule for the full duration of the sequestration, provisions for support services, and identification of volunteers.

Sequestration Experiences from the Industry

Several organizations across the industry actively are sequestering some of their mission-essential employees. The following list highlights steps taken, and lessons learned by these organizations as they work to reduce the risk of contamination and protect their critical workforce. This list is not exhaustive and only is intended to share information about which strategies organizations have elected to use. This list will be updated regularly as more sequestration experiences are shared across the industry.

Control Center Staffing, Operations, and Facilities

- Implement Incident Command Structure (ICS)
- Conduct daily incident command organization meetings and share department communications with control room leadership and employees
- Isolate any non-essential employees from control rooms prior to sequestration
- Utilize primary and backup control centers to limit interactions between critical employees and to mitigate risk of control room contamination
- Consider control room functions that can be performed remotely, like monitoring or data analytics
- Sequester an adequate number of operators to allow for unforeseen changes, including enabling an employee to leave sequestration in the event of an emergency at home
- Sequester necessary facilities personnel to maintain functionality and cleanliness of control center buildings
- Limit access to control center buildings by disabling badges for non-essential or quarantined employees
- Ensure that internal lines of communication between staff allow for immediate, reliable connectivity
- Coach staff on personal CDC preventative recommendations, including maintaining 6 feet of space between individuals during the work shift
- Track interactions between sequestered employees as appropriate
- Consider suspending non-essential field work if possible

Health and Wellness

- Conduct pre-sequestration testing of all onsite staff
    - Recognizing that this is a serious challenge for the industry, a future iteration of this document will share the experiences of organizations that have secured or attempted to secure pre-sequestration testing for mission-essential workers

- Provide a separate medical hotline for employees to report symptoms/concerns
    - This has numerous benefits, including employees directing medical or COVID-19 epidemiological questions to an anonymous source and away from supervisors who are focused on operations
- Conduct regular medical screenings, including measuring temperature and checking for other symptoms, onsite and/or at the entrance to the control room
- Increase sanitization and cleaning practices in control room buildings, which may include the application of electrostatic cleaning treatment and/or NanoSeptic surfaces to reduce spreading of germs
- Install HEPA air filters in air handling units and/or near doors to control rooms
- Provide access to fitness facilities and exercise equipment within sequestration areas
- Enforce strict hygiene guidelines for all sequestered employees

Living Facilities and Other Necessities

- Develop a procedure for deliveries of required goods and services
- If sequestering onsite
    - Provide onsite food service to all sequestered personnel
    - Provide onsite shower facilities and other personal hygiene necessities
    - Provide onsite laundry facilities
    - Provide onsite sleep and rest facilities, which may include dedicated sleep trailers, bunk rooms, or rented/purchased RVs, with provided bedding (sheets, pillowcases, blankets, pillows, etc.) and other necessities
- If sequestering in hotels
    - Provide pre-packaged, individually wrapped food
    - Have employees clean their own rooms to reduce interaction with hotel staff
    - Have employees drive their own vehicles to and from the control center
    - Provide laundry facilities or services
- Wash bedding and other linens after each use
- Stock up on office, kitchen, and food supplies to eliminate the need to leave the premises and reduce the number of interactions between sequestered employees and non-sequestered individuals
- Provide appropriate physical security protection to sequestered employees

Mutual Assistance for Control Center Operators

Continuity of control center operations is driven by the health and availability of trained personnel. This has led many organizations to develop and activate plans that involve isolation or sequestration of control center operators to maintain shift integrity and to limit the potential exposure to COVID-19. However, given the shortage of available testing for mission-essential employees, circumstances may arise in which isolation or sequestration fails to protect workforces adequately and additional actions are needed to supplement control center operations.

Mutual assistance or mutual aid is a model that the industry uses very effectively to supplement an impacted organization's workforce during emergencies like severe weather events, and this model may be adapted to help fill control center gaps during a pandemic. However, there are many challenges and constraints around using mutual assistance in these circumstances, and careful consideration is needed to mitigate the risks associated with sending employees to other service territories.

Specific guidance for traditional mutual assistance during this pandemic can be found in the "Mutual Assistance Considerations" portion of this Resource Guide.

Challenges:

- **Task Variance:** Specific positions and functions within control centers vary based on the Bulk Electric System (BES) or grid component being managed and reflect variations in organization-specific policies and alignment. Transmission, distribution, and generation systems all have unique control room positions that cannot be filled without conducting a robust up-front screening to determine whether the training and certification of potential mutual assistance resources are functionally compatible with the requirements of the requesting entity.
- **Knowledge of Operational Practice:** Reliability Coordinators (RC), Transmission Operators (TOP), Balancing Authorities (BA), Transmission Owners (TO) and Independent System Operators (ISO) all have specific nomenclature and jargon, coordinated responsibilities, and orders of operation used to run their systems, including the dispatch of generation, contingency analysis, switching/clearance orders, and outage coordination. Additionally, an operator's knowledge of grid topography (location of critical loads, demand response resources, what type of remedial action schemes are available, etc.) is important for efficient operation. Regional variance, including variance inherent in the associated interconnection, should be considered when identifying potential mutual assistance resources to limit the time and complexity of acclimation to a new control center environment.
- **System Customization:** Energy Management Systems (EMS) and supporting toolsets are heavily customized, making it difficult to find replacement operators with the required knowledge of Information Technology (IT) and Operations Technology (OT) systems specific to the requesting entity.
- **Contamination Risk:** Given the emphasis on staff isolation and sequestration to prevent the spread of COVID-19 to control center personnel, special consideration should be given to the availability of medical testing prior to integrating anyone from outside the organization into a critical workforce. Strict requirements and screening criteria for any external candidates are necessary to limit the risk of contamination. Consideration also should be given to state restrictions on movement and self-quarantine.

- **Legal Indemnification:** The risk of potential impacts on the real-time performance of a system is greater for control room operations than it is for the field work that traditional mutual assistance crews typically conduct on distribution and transmission infrastructure. Additionally, operators often are accessing and utilizing Critical Infrastructure Protected (CIP) systems, requiring a fast track for system access. The Cyber Mutual Assistance (CMA) Mutual Non-Disclosure and Use of Information Agreement is useful as a template for future agreements for specialized personnel to limit some legal liability and security risks. Other existing frameworks, including the Edison Electric Institute Mutual Assistance Agreement and the American Public Power Association's and National Rural Electric Cooperative Association's Mutual Aid Agreement, also may be leveraged as a framework to address some liability issues related to potential control center mutual assistance.

Risk-Based "Tiers" of Mutual Assistance

Recognizing that there is not a one-size-fits-all approach, this document outlines several "tiers" of supplemental control room resources that organizations could consider to fill depleted ranks of control center staff. The tiers are listed in descending order with respect to ease of implementation and level of overall risk.

- **Internal Mutual Assistance:** The lowest risk form of mutual assistance draws supplemental control room resources from the existing workforce of a single organization. This could include cross-training to sustain essential functions by taking personnel who work in "non-essential" areas of the control center with a working knowledge of the relevant systems, procedures, and tools (for instance, a real-time system engineer). Internal mutual assistance also could include identifying employees who previously have worked in control centers and now serve in different capacities (such as corporate management), employees who recently have retired, or previous employees who may work for another organization but retain a functional knowledge of the system. Except for extreme circumstances, these personnel only should monitor and help maintain situational awareness, enabling real-time operations on the system to be performed by certified system operators.

- **External Assistance (Region-Specific):** Operator job descriptions and tasks are more likely to be aligned among the asset owners/operators within the same Reliability Coordinator (RC) footprint. Familiarity with these norms, general knowledge of neighboring system infrastructure, and joint outage management training within RCs is likely to reduce the time needed to integrate external personnel properly. In some instances, certain grid balancing functions can be delegated to transmission and distribution control centers to reduce workload on regional entities for periods of time.

- **External Assistance (Tool-Specific):** A deep working knowledge of common EMS software is essential to the workforce compatibility of mutual assistance personnel. Organizations should identity in advance the IT/OT tools of greatest importance by work function to match them to the areas of greatest need for possible assistance.

- **Remote External Assistance (Organization-Specific):** If two neighboring territories have substantial EMS overlap and shared oversight, it may be possible for one territory to provide control center mutual assistance remotely. In this instance, the neighboring organizations already would have a fundamental working knowledge and shared understanding of each other's systems and already may have such assistance plans in place. Although this option is lower risk than other external forms of mutual assistance, it is less likely to be viable for many organizations.

Additional Considerations

- **Advance Planning for Mutual Assistance:** As an organization has increasing constraints to ensure the effective staffing of its control center functions and begins to anticipate the need for mutual assistance, that organization should coordinate with neighboring entities to identify potential mutual assistance resources in advance. Additionally, the entity proactively should consider remote training options to begin familiarizing and training potential mutual assistance resources to advance their knowledge of grid topography, specialized system operating knowledge, and EMS tools.
- **Limitations Based on Qualification or Certification:** In all but the most extreme circumstances, the functions that either an internal or external mutual assistance resource could perform would be limited and could include non-control functions, like monitoring, data analytics, or compliance documentation, among others. Additionally, it should not be assumed that all certification requirements will be lifted for every position, even in a black sky event.

Additional Resources

FERC, NERC Provide Industry Guidance to Ensure Grid Reliability Amid Potential Coronavirus Impacts

Federal Energy Regulatory Commission

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

March 18, 2020

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FERC, NERC Provide Industry Guidance to Ensure Grid Reliability Amid Potential Coronavirus Impacts

The Federal Energy Regulatory Commission (FERC) and the North American Electric Reliability Corporation (NERC) announced today they are taking steps to ensure that operators of the bulk electric system can focus their resources on keeping people safe and the lights on during this unprecedented public health emergency.

FERC and NERC are using regulatory discretion to advise all registered entities that they will consider the impact of the coronavirus outbreak in complying with Reliability Standards as follows:

- The effects of the coronavirus will be considered an acceptable basis for non-compliance with obtaining and maintaining personnel certification, as required in Reliability Standard PER-003-2, for the period of March 1, 2020 to December 31, 2020. Registered entities should notify their Regional Entities and Reliability Coordinators when using system operator personnel that are not NERC-certified.

- The effects of the coronavirus will be considered an acceptable reason for case-by-case non-compliance with Reliability Standard requirements involving periodic actions that would have been taken between March 1, 2020 and July 31, 2020. Registered entities should notify their Regional Entities of any periodic actions that will be missed during this period.

- Regional Entities will postpone on-site audits, certifications and other on-site activities at least until July 31, 2020. Registered entities should communicate any resource impacts associated with remote activities to their Regional Entities.

FERC and NERC recognize the uncertainties regarding the response to and recovery from the coronavirus outbreak and will continue to evaluate the situation to determine whether to extend these dates. Our shared goal is to ensure all registered entities balance the concerns for the health and welfare of their workforce while staying focused on the mission of supplying power to consumers across North America.

(30)

FERC Acts to Prioritize Reliability, Provide Regulatory Relief

NEWS RELEASE

April 2, 2020

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Coronavirus Update: FERC Acts to Prioritize Reliability, Provide Regulatory Relief

The Federal Energy Regulatory Commission (FERC) today took action to prioritize reliability of the nation's energy infrastructure and to provide the public and regulated entities relief from certain Commission regulatory obligations during the national emergency from the COVID-19 outbreak. The Commission previously announced several pandemic response actions, including creating a single point of contact, PandemicLiaison@ferc.gov, to serve as a resource to the regulated community so that they can receive prompt responses to their questions from FERC staff.

"The reliability and security of our nation's vital energy infrastructure is critical to meeting the needs of the American people," FERC Chairman Neil Chatterjee said. "The entities we regulate are taking unprecedented actions in response to the emergency conditions. These proactive steps will ease regulatory burdens so that they can focus on continuity of operations and ensure reliable operation of their systems."

Policy Statement

First, today the Commission issued a Policy Statement providing regulatory guidance on energy infrastructure, market, reliability and security matters.

In response to the national emergency conditions, entities regulated by the Commission have taken unprecedented actions that may disrupt, complicate, or otherwise change their normal course of business operations. The Policy Statement acknowledges that these actions may create questions about entities' ability to meet regulatory requirements and/or recover the costs necessary to take steps to safeguard the business continuity of their systems.

The Policy Statement makes clear that the Commission will give highest priority to processing filings made for the purpose of assuring the reliable operation of energy infrastructure during this emergency and assures regulated entities that the Commission "will expeditiously review and act on requests for relief, including but not limited to, requests for cost recovery necessary to assure business continuity of the regulated entities' energy infrastructure in response to the national emergency."

The Commission also expressed support for the continued cooperation across industry and government to provide any additional safeguards necessary to ensure the reliable and secure operation of energy infrastructure.

(more)

Regulatory Relief
In other action today, the Commission:

- Facilitated social distancing by approving a blanket waiver of requirements in Open Access Transmission Tariffs that require entities to hold meetings in-person and to provide or obtain notarized documents. The waiver will remain in place through September 1, 2020.
- Prioritized efficient processing of requests for waiver and other requests for relief made in response to the emergency conditions created by COVID-19 by:
    - Delegating authority to the Director of FERC's Office of Energy Market Regulation to act on uncontested requests for prospective waiver of certain regulatory obligations. This delegated authority is effective until June 1, 2020.
    - Approving an Instant Final Rule delegating authority to the Director of FERC's Office of Energy Policy and Innovation to act on motions for extension of time to file, or requests or petitions for waiver of the requirements of, FERC Form No. 552 (Annual report of Natural Gas Transactions) and FERC-730 (Report of Transmission Investment Activity).
- Extended the time period for Regional Transmission Operators and Independent System Operators to post all Uplift Reports and Operator Initiated Commitment Reports. The time period for all reports that otherwise would have been required to be posted between April 2020 and September 2020 is extended to October 20, 2020.

Supplemental Notice
The Secretary of the Commission today issued a supplemental notice granting extensions of time for certain non-statutory deadlines, waiving regulations and shortening answer periods for motions for extensions of time due to the pandemic emergency.

R-20-23

(30)

Mutual Assistance Considerations

Updated: April 27, 2020
Changes since the last version are highlighted in red

The guidance in this document was collected from organizations across the industry. The intent is to serve as a general information resource and not to set any industry standards. This document is evergreen and will be updated regularly to reflect additional or revised guidance as it is received.

Pandemic Mutual Assistance Checklist

This checklist is designed to provide requesting and responding investor-owned electric companies, public power utilities, and electric cooperatives guidance on how to conduct mutual assistance during the COVID-19 pandemic.

Investor-owned electric companies, electric cooperatives, and public power utilities are committed to protecting the people working for them and to ensuring energy operations and infrastructure are supported throughout an emergency. The items in this checklist can help provide guidance for mutual assistance efforts while protecting the health and safety of employees, customers, and communities. These practices are suggested for all organizations, regardless of the number of confirmed COVID-19 cases in the area.

This checklist may be used when providing mutual assistance for outage incidents during the COVID-19 pandemic. It also may be used when providing mutual assistance if a requesting organization is so impacted by COVID-19 cases that it is not able to conduct normal daily operations without assistance.

Organizations providing or requesting mutual assistance should follow the terms and conditions of their existing mutual assistance or mutual aid agreements.

Work Practices

- ☐ Responding crews should follow their organization's policies and procedures, and responding investor-owned electric companies, public power utilities, and electric cooperatives should work to minimize the chance of infected workers travelling. A responding organization may wish to use the COVID-19 Questionnaire with their employees before sending them to the requesting organization. *(See COVID-19 Mutual Assistance Questionnaire)*

- ☐ Requesting organizations should minimize movement of crews to different regions in their territory. By assigning the same crews to the same work areas, cross pollination and potential exposures are

limited. Note, this may require organizations to need additional resources and could impact restoration times.

- ☐ Investor-owned electric companies, public power utilities, and electric cooperatives should consider moving toward more isolated and self-contained responding teams to limit the exposure between crews who work for the requesting organization and responding crews. Keep crew teams intact to minimize exposure and execute "transfer of control" best practices for restoration when possible to limit exposure between crews of the requesting organization and responding crews.
- ☐ When information is available, requesting organizations should avoid sending responding crews into areas or facilities with significant COVID-19 outbreaks. The requesting company should restore in those areas.
- ☐ When information is available, the requesting organization should provide full situational awareness of the COVID-19 impact, the number of cases in the community (or region), and what protective measures are in place to responding crews and their organization, with regular updates.
- ☐ Requesting organizations should clarify how long they expect responding crews to be in their area.
- ☐ Requesting organizations should identify a liaison who can work with each responding entity to provide information about local conditions. Consider providing this information in advance of receiving responding crews.
- ☐ Requesting organizations should try to minimize person-to-person contact for material distribution and use drop points.
- ☐ Requesting organizations should use technology for onboarding and briefings (e.g., online conferencing services, conference calls) or conduct briefings in the field to reduce large meetings. Have safety onboarding on videos that can be distributed to crews in advance, with conference calls for Q&A. Conduct daily briefings remotely where feasible.
- ☐ If practicable, extensive pre-staging should be avoided unless the threat is imminent. Pre-staging should follow social distancing practices.
- ☐ Requesting organizations should look for opportunities within the restoration process to execute the function remotely (dispatching functions, advanced metering infrastructure (AMI) functionality, assessment, etc.).
- ☐ Both requesting and responding organizations may want to consider screening of crews using non-contact thermometers before deployment and upon arrival to verify employees do not have fevers above 100.4 F.
- ☐ Organizations should encourage workers to report to supervisors situations where social distancing cannot be maintained so ways to mitigate can be explored.

General COVID-19 Safety Practices

- ☐ If you are sick or have any flu-/virus-like symptoms, report this immediately to your supervisor and consult your physician.
- ☐ Cover your coughs and sneezes with a tissue, then immediately throw the tissue in the trash.

- ☐ Wash your hands often with soap and water for at least 20 seconds, especially after going to the bathroom; before eating; and after blowing your nose, coughing, or sneezing.
- ☐ Avoid touching your eyes, nose, and mouth with unwashed hands.
- ☐ Regularly clean your phones and handheld devices as these are some of the dirtiest items we carry.
- ☐ Maintain social distancing whenever possible [six (6) feet distance from anyone coughing or sneezing]. Avoid shaking hands and touching others.
- ☐ Use "non-circulating mode" for vehicle air conditioning/heating/ventilation.

Staging Sites

- ☐ Instead of large staging sites, requesting organizations should consider having multiple, smaller staging sites to limit contact with/exposure to crews. Design smaller staging sites to allow CDC distancing recommendations to be followed (currently 6 feet of distancing at all times). Note: this may require organizations to request more self-sufficient resources, such as crews from investor-owned electric companies, public power utilities, and/or electric cooperatives rather than contractors.
- ☐ Cleaning supplies, hand sanitizer, sanitation supplies, etc. should be available for all crews located at staging areas.

Lodging and Meals

- ☐ Requesting organizations should establish lodging and dining sites where social distancing can be established, and the requesting organization can manage and control access and direct sanitation.
    - This can include appropriately sized sleeper trailers, tents, renting out entire hotels/motels, or nontraditional spaces for crew-only use.
    - Keep crews that are working together in the same lodging and dining facilities. However, consider ways to maximize social distancing, such as limiting rooms to one per person, keeping different organizations on different floors, minimizing servicing of rooms, and having pickup locations for linens and room supplies.
    - Consider working with local authorities to develop exemptions from emergency closure and/or stay-at-home orders for hotels or other lodging facilities and their staff so they can serve mutual assistance crews.
    - Have a plan for feeding crews in the event restaurants are closed by government order.
    - Have lodging, dining, and common areas cleaned following CDC guidelines. *(See CDC recommendations.)*
    - Cleaning supplies, hand sanitizer, sanitation supplies, etc. should be available for all crews located at all lodging and meals areas.
    - Provide laundry service, if needed.

- Minimize travel in large vehicles such as buses by having crews use trucks for transportation between lodging and work sites.
- Have vehicles cleaned following CDC guidelines. *(See CDC recommendations.)*
- Try to minimize exposure by providing box lunches, snacks, water, etc.
- Electric companies, public power utilities, and electric cooperatives should check with hotel operators to confirm preferred hotels will remain open for mutual assistance crews. If hotels currently are closed, verify the length of time necessary for operators to reopen hotels, which could delay access to lodging.

External Outreach and Communication

- ☐ Requesting organizations should proactively communicate to regulators and government partners that power restoration and recovery may be slower due to the new response regime. Establish and disseminate information to customers that travel and restoration times may be longer.
- ☐ Requesting organizations should proactively communicate with customers about social distancing efforts. Ensure responding crews have consistent messaging and practices.
- ☐ Requesting organizations should work with local and state officials to ensure responding crews are designated as critical workers and are able to travel to and through the requesting entity's service territory. Travel documents and authorizations from requesting organizations should be as specific and clear as possible.

Health Issues

- ☐ Requesting organizations and responding crews should utilize the COVID-19 Visitor Questionnaire to evaluate health risks. *(See COVID-19 Mutual Assistance Questionnaire.)*
- ☐ Workers' temperatures should be taken daily. If a worker has a temperature above 100.4 F, he/she should be removed from the workforce. The requesting organizations should coordinate with the employees' organization and follow CDC guidelines on what to do if you are sick. *(See CDC recommendations.)*
- ☐ Workers who become ill should follow CDC guidelines. *(See CDC recommendations.)*
- ☐ Workers should minimize the use of currency and use credit cards instead to avoid hand-to-hand contact.
- ☐ Follow CDC recommendations for when individuals infected with COVID-19 can discontinue home isolation and return to work. *(See CDC recommendations.)*
- ☐ Follow CDC recommendations on implementing safety practices for critical infrastructure workers who may have had exposure to a person with suspected or confirmed COVID-19. *(See CDC recommendations.)*
- ☐ Before sending crews for mutual assistance, consider how your organization would quarantine workers after deployment if they are exposed during the mutual assistance work or how you would comply with local and/or state requirements.

CDC Recommendations

Interim Guidance for Business and Employers:
https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html

Cleaning and Disinfection Recommendations:
https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/cleaning-disinfection.html

What to Do If You Are Sick:
https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/steps-when-sick.html

Guidance for Large Events:
https://www.cdc.gov/coronavirus/2019-ncov/community/large-events/index.html

Interim Guidance for Discontinuation of Home Isolation for Persons with COVID-19
https://www.cdc.gov/coronavirus/2019-ncov/hcp/disposition-in-home-patients.html

Implementing Safety Practices for Critical Infrastructure Workers Who May Have Had Exposure to a Person with Suspected or Confirmed COVID-19
https://www.cdc.gov/coronavirus/2019-ncov/community/critical-workers/implementing-safety-practices.html

COVID-19 Mutual Assistance Questionnaire

Current as of 4/27/2020

The health and well-being of employees, strategic partners, families, and visitors remains our industry's top priority. To prevent the spread of COVID-19 and to reduce the potential risk of exposure to our workforce, contractors, and visitors, we are requesting mutual assistance workers fill out a simple screening questionnaire. The participation of the screening questionnaire is required for all visitors/contractors who are expected onsite and for employees who are responding to a mutual assistance request at another investor-owned electric company, public power utility, and/or electric cooperative. This will be required for each contract employee or visitor prior to coming onsite or travelling to another investor-owned electric company, public power utility, and electric cooperative.

Visitor's Name:	Personal Phone Number (mobile/home):
Visitor's Organization:	Name of Requesting Organization Sponsor:
Facility Name:	

SELF-DECLARATION BY VISITOR

Have you returned from any of the countries listed by the CDC as a travel/health advisory warning for Covid-19 Level 3 or higher in the last 14 days? Current list can be found here: https://wwwnc.cdc.gov/travel/notices

□ Yes □ No

Have you returned from any of the states listed in the CDC domestic travel advisory within the last 14 days? Current list can be found here: https://www.cdc.gov/coronavirus/2019-ncov/travelers/map-and-travel-notices.html

□ Yes □ No

Have you had close contact with or cared for someone diagnosed with COVID-19 within the last 14 days?

□ Yes □ No

Have you been in close contact with anyone who has traveled within the last 14 days to one of the countries listed as a level 3 or higher travel/health advisory by the CDC for Covid-19?

□ Yes □ No

Have you been in close contact with anyone who has traveled within the last 14 days to one of the states listed in the domestic travel advisory by the CDC for Covid-19?

□ Yes □ No

Have you experienced any cold or flu-like symptoms in the last 14 days (to include fever of 100.4 degrees F or higher, dry cough, difficulty breathing, or shortness of breath)?

□ Yes □ No

Have you or any member of your household traveled within the last 14 days?

□ Yes □ No

Please report any air travel, cruise ship travel, and/or destinations visited within the last 14 days, both work-related and personal travel.

If you answer "yes" to any of the questions above, access to the facility will be denied.

Signature (Visitor): _____

Date:_____

Note: If you plan to be on requesting organization's property for consecutive days and your response to this self-declaration changes, please notify your requesting organization sponsor immediately.

Please complete and return this form electronically to: POC

ACCESS TO FACILITY (circle one): APPROVED DENIED

Lessons Learned: March 28-April 14, 2020 Storms (NEW)

Between March 28 and April 14, 2020, a series of severe storms impacted several investor-owned electric companies, electric cooperatives, and public power utilities across the country. These storms caused power outages from Texas to Oklahoma and Arkansas, through the deep South and Gulf states, across the Eastern seaboard, and into New England. Parts of New England also experienced a Nor'easter during this time frame. These storms necessitated the first significant power outages and mutual assistance response during the COVID-19 pandemic. Following are some key lessons learned from these weather events.

The Mutual Assistance Response

- Overall, the mutual assistance response and restoration processes worked well during these storms. Organizations providing mutual assistance used the ESCC COVID-19 protocols to ensure social distancing and proper hygiene and to keep employees, contractors, and customers as safe as possible.
- COVID-19 safety procedures did not create significant delays in restoration efforts. In some cases, productivity gains occurred because crews were closer to work locations and materials and supplies were delivered or obtained from multiple, decentralized locations.
- Decentralized distribution worked well, including using runners to distribute materials.
- Large staging sites were not used.
- PPE was brought by responding crews, but requesting organizations did supplement where needed.

Work Practices

- Onboarding, briefings, work order distribution, and meetings were conducted successfully while maintaining distancing protocols. Organizations used electronic methods and communication tools, as well as steps such as meeting outside in small groups.
- The ESCC health screening questionnaire was used by organizations.
- Some entities processed all off-system responders with touch-free temperature checks and health questionnaires.
- Safety debriefs were conducted remotely via electronic tools, videos, etc. In some instances, DocuSign was used as proof of review, otherwise crew leaders were requested to collect written documentation.
- Most organizations had one worker per vehicle.
- Responding crews met requesting organizations' representatives in decentralized locations such as parking lots for onboarding.
- Work orders were issued using electronic tickets and were supported by decentralized planners. Some organizations assigned staging sites and work orders at lodging locations.

- Damage assessment personnel were staged off-site or in vehicles to avoid contact with others. In some instances, deploying damage assessors was a challenge, as was developing precise estimated times of restorations.

Lodging, Meals, and Support Services

- For the most part, hotel rooms were readily available except in the most rural locations. Responders were placed one person to a room.
    - However, in some locations where workers shared a vehicle, those workers were permitted to share a room.
- Organizations should continue to engage closely with hotels, restaurants, and caterers to ensure their availability for future incidents.
- For future responses, organizations should keep in mind that some hotels require a 3-day buffer in rooms between guest stays.
- Organizations should consider using boxed meals to facilitate social distancing to avoid problems with restaurant closures. For future large-scale events, consider food trucks and caterers who can provide boxed meals.
- The number and storage capacity of meal delivery vehicles should be increased in order to deliver boxed meals, food storage containers, and coolers.
- Portable bathrooms may be required in areas where public facilities are closed, especially in non-urban areas.
- Organizations should identify high-traffic areas, like water dispensing locations, that can create social distancing challenges.

Challenges and Improvement Opportunities

- It was a challenge to ensure crews kept social distancing at meal locations and while using elevators in hotels. Additional supervision/leadership may be needed for future responses.
- Crews experienced somewhat more “windshield” time depending on where they stayed due to efforts to ensure lodging was one person per room and to keep crews and job sites segregated.
- Additional vehicles were required to support restoration.
- Due to decentralization, more local supervision/leadership, material runners, and logistics runners were needed to support the response.
- Large-scale power outages can impact electric industry employees who are teleworking and may need to support mutual assistance. Consider having alternate work locations and assessments of employees’ ability to work during outages.
- Similarly, large-scale outages can impact the availability of lodging and meal facilities in the impacted areas. Consider alternate sites, wrap-around support service providers, and how support service contractors may be affected.
- Some PPE challenges included having adequate touch-free thermometers and masks.

Generation Operational Continuity

This document provides guidance to investor-owned electric companies, public power utilities, electric cooperatives, independent power producers, and federal government-owned utilities responsible for the safe and reliable operation of generation power plants and generation control centers during and throughout the COVID-19 pandemic. This document develops credible scenarios that could impact generation operations, identifies mitigation options, supports information sharing across the industry, and outlines needed government actions.

The guidance in this document was collected from organizations across the industry. The intent is to serve as a general information resource and not to set any industry standards. This document is evergreen and will be updated regularly to reflect additional or revised guidance as it is received.

Governmental Support Needs

The mitigation strategies for the scenarios described below cannot be executed unless: (1) COVID-19 testing is available and streamlined for essential personnel who work in shift environments, i.e., operations personnel; (2) relief from certain regulatory obligations is obtained to ensure the continued availability of operators and other skilled employees; (3) travel restrictions for the general public exclude personnel essential to the reliable operation of generating facilities; and (4) supplies for cleaning/hygiene are readily available.

A summary of specific government actions ESCC leadership could advocate for to ensure successful mitigation of risk to control center continuity is presented below:

- **High Priority**
  - Request that governmental authorities direct medical facilities to prioritize testing for asymptomatic generation control room operators, operator technicians, instrument and control technicians, and the operations supervisor (treat comparable to first responders) in advance of sequestered, extended-duration shifts; and obtain state regulatory approval for corporate health services organizations to administer testing for coronavirus to essential employees, if applicable.
  - Request that governmental authorities direct medical facilities to prioritize testing for asymptomatic control room operators (treat comparable to first responders) in advance of sequestered, extended-duration shifts; and obtain state regulatory approval for corporate health services organizations to administer testing for coronavirus to essential employees, if applicable.
  - If local, regional, state, or federal governments enforce a populace-wide quarantine/curfew or other travel restrictions, ensure that operators of generating facilities still can move freely outside of hours.

  - Request EPA and state level permitting agencies allow for non-compliance operations of generating facilities in the event sufficient resources or personnel are not available.

- **Medium Priority**
  - Obtain authority for priority supply of sanitizing supplies and PPE for generating facilities.
  - Obtain state approval for non-medical professionals (such as generating facility employees) to administer health questionnaires and temperature checks without ADA or other legal constraints.
  - Obtain enough Fire Retardant (FR) clothing (vests and hoods) and PPE, including masks and face coverings, to enable technicians to conduct work and not have to share items. Generation entities also are encouraged to seek FR clothing and PPE from vendors and other suppliers in their local areas, if available.

Identifying Essential and Critical Generation Personnel

The personnel needed to staff and operate generating facilities are essential to the reliable operation of the energy grid. The facilities needed to perform these functions generally are well-isolated and physically secure, or at least conducive to the sequestration of on-site staff as needed. However, given the long lead times required to train personnel to operate and maintain control systems at generating facilities properly, the limited number of people with these qualifications places a higher risk to reliable operations and requires a higher priority for protection from the spread of COVID-19 than the general population. Individual organizations still will have discretion to identify essential personnel unique to their organization, but a more uniform approach to categorizing staff will support the communication of likely areas of government support at the local, state, and federal levels.

Non-Nuclear Generation Personnel

Specific to non-nuclear generating facilities, each organization has employees who fit into two categories, with essential personnel being extremely difficult to replace given training and familiarization with each specific generation plant control room:

- **Tier One – Essential Generation Employees**
  - Control Room Operators
  - Operator Technicians
  - Instrument and Control Technicians (I&C Techs)
  - Operations Supervisor/Team Leader/Shift Supervisors
- **Tier Two – Critical Generation Employees**
  - Chemical/Lab Technician
  - Maintenance (Mechanical, Electrical)
  - Materialman (Warehouse)
  - Contractors – Ash Handling, Emergency Maintenance Repair, Critical Commodities, OEM
  - Other Support – Engineer, Specialist, Accounting

Nuclear Generation Personnel

The Nuclear Regulatory Commission (NRC) and federal statutes have very specific reliability and security requirements for the operation of nuclear generating station. Therefore, as it stands, nuclear generation owners and operators are obligated to staff their plants as normally required.[1] Tier two employees are not required by the NRC, however, the loss of Tier two employees may result in insufficient support for plant operators over time. The job titles of these nuclear generation employees are:

- **Tier One – NRC-required Essential Nuclear Generation Employees**
  - Licensed control room operators and designated supervision
  - Non-licensed operators
  - Radiation protection technicians
  - Fire brigade members and designated supervisor
  - Maintenance personnel (I & C, electrical and mechanical)
  - Armed security officers, armed responders, and other committed positions in the physical security plan
  - Emergency Response Organization positions described in licensee's emergency plan
- **Tier Two – Critical Nuclear Generation Employees**
  - Engineering Support
  - Maintenance Support
  - Management/Administrative
  - Procurement
  - Quality Assurance

Scenario Development

Given the limited ability of generating facilities to be operated remotely, mitigating strategies and contemplation of other issues must be developed to ensure adequate generating facility availability and operation. The scenario contemplated incudes 40 percent workforce attrition, a nine-month pandemic, and no mutual assistance. This scenario will test the effectiveness of social distancing and quarantine and the need for proactive testing of priority employees (and/or essential contractors). Mitigating strategies and other important considerations will be contemplated under the framework below. The mitigating strategies will attempt to represent existing industry and government policies, standards, and capabilities, as well as proposed actions going forward. Some entities have used this 40 percent workforce attrition scenario as the basis for designing plans to address COVID-19 reduced operations and have implemented these plans prior to the arrival of a positive test at generating plants. Early

[1] Title 10 Code of Federal Regulations (CFR), Parts 50 and 73, essential workers for commercial nuclear power reactors are specified in each facility's licensing basis. The applicable licensing basis documents are the licensee's Technical Specifications, Physical Security Plan, and Emergency Plan. These documents describe the site-specific positions required for plant operations, physical protection of the plant, and implementing emergency measures – all are needed to maintain the plant's operating license.

adoption of these reduced operation plans may minimize the impact to workforce attrition as the pandemic continues, while ensuring the ability to run facilities.

Possible Mitigation Strategies for Scenarios

This section first describes universal preventive measures that should be taken prior to having any essential employees with COVID-9, in addition to measures that would apply in all scenarios where employees are diagnosed with the virus. Thereafter, specific recommendations for the escalating impacts of the above scenarios are provided.

Universal Mitigation Strategies

- Involve union leadership in discussions around possible mitigation strategies up front to ensure transparency and collaboration.
- Proactively develop and communicate compensation, attendance and reliability, PTO, and related polices that will apply during these conditions.
- Encourage social distancing at work and on personal time; identify opportunities to create greater physical separation of operator workstations; utilize adjacent rooms where possible; eliminate interactions across shifts.
- Reinforce good personal hygiene practices; conduct home self-administered wellness checks prior to departure for shift; ensure CDC & State Health Org flyers are posted at control room entrance(s); deliver pre-shift safety-hygiene message(s).
- Incorporate the CDC's most current travel advisories into event planning and travel arrangements and consider practices to increase awareness of employees' personal travel plans to areas with active advisories.
- Require employees who travel to a location with a CDC Level 3 Travel Health Notice to adhere to a 14-day self-quarantine at home and be cleared by their organization's health services before they return to work.
- Require COVID-19 testing of asymptomatic control room operators and support staff to the extent available.
- Increase the frequency and extent of cleaning and disinfecting surfaces and equipment that comes into routine contact with multiple people.
- Secure resources and establish processes for further sanitizing and segregating work areas in the event exposure occurs.
- Provide a dedicated building entrance, a significant distance from all other employees, for all personnel working in the control room.
- Do not allow outside visitors in control rooms or other designated protected areas (e.g., no tours or non-essential personnel from the same organization).
- Implement additional access restrictions, such as limiting visitors or non-essential meetings within spaces in proximity to control centers.

- Screen non-badged contractors/vendors with health questionnaire and temperature check before allowing on site for deliveries, repairs, etc., and limit access during this time to critical activities only.
- Segregate crews on shift work schedules. Split operators (days/nights) or split individual shifts.
- Cut back control room operators to a minimum.
- Ensure business continuity plans have clearly defined thresholds and procedures for initiating organization's shelter-in-place, sequestration, and self-quarantining of essential personnel.
- Sequester a complete healthy shift (if available) and hold that shift in reserve for extreme scenarios, such as when minimum staffing levels cannot be met.
- Develop a resource plan for potential use of retirees, supervisors, managers, engineers, and recently transferred operators with the requisite skills to backfill operators and support staff in the event staffing is reduced due to COVID-19 infections.
- Allow generating facility support staff (engineering, compliance, maintenance, etc.) to work remotely to the extent permissible within remote access and cybersecurity requirements of the organization.
- Ensure information and communications technology resources are appropriate to accommodate increased use of remote work arrangements consistent with business continuity plans, without compromising security. Consider conducting planned stress tests for these arrangements.
- Develop logistics to house operators on-site, including bedding, entertainment, and food accommodations.
- Identify alternate workstations outside of the control room that can monitor and possibly control all or a limited part of a generating unit. Alternate workstations can allow operators to monitor unit functionality while a "dirty" control room is cleaned and returned to service.
- Begin planning a 'return-to-work' protocol for mission-essential staff who test positive or who are exposed to COVID-19 and complete any required self-quarantine period. A protocol will be needed to integrate these employees back into shift. Use CDC guidance to determine the criteria (e.g., the length of time an employee needs to remain symptom free, if he/she is exposed at home, and what PPE should be mandated, etc.).
- Ensure workers wear face coverings or masks at generation plants, both in sequestration and/or reduced operations, to minimize the spread within the workforce per CDC guidance.2
- Given that distractions might increase during these high anxiety times, remind essential employees to be extra aware and to stay in the moment. Management and supervisors should recognize and reward awareness efforts by employees.
- Eliminate non-essential work, especially if it would require two or more people to be within 6 feet.
- Alter assignments for work tasks that must occur in close proximity (less than 6 feet) by pairing technicians into a "team" and do not rotate individuals with other teams – ensure technicians have appropriate face coverings and other PPE.

[2] https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover.html

- Ensure FR clothing and PPE (including masks/face coverings) are not shared between employees or contractors.
- Ensure that there is only one employee per vehicle, per shift, where possible. Adopt appropriate cleaning procedures between shifts.

Scenarios – Single Operator Impacted

A mission-essential control room operator or technician in the primary control room tests positive for COVID-19. Both categories of employees work in tightly controlled shifts in terms of working hours, skill sets, and physical proximity during work. A positive case in any shift comes with a high risk of infection for other personnel in the same shift if the infected individual is not identified quickly.

While there is some amount of redundancy in skills sets on a single shift, allowing for a degree of interchangeability, this option does not apply to all positions and is limited in both the quantity of people available and the duration of operational tempo. Having at least one confirmed case during a shift puts the entire crew at risk for infection. The control room would require disinfection. Furthermore, the employees in contact with the infected employee would require observation and possibly testing to clear them to return to work.

Mitigation Strategies

- All staff on shift with the impacted operator(s) should immediately be self-quarantined, and the work hours/coverage of all non-impacted shifts extended. Ideally a relief shift would be available to cover the employees removed from duty.
- Execute sanitizing procedures with a pre-approved contractor to clean the control room area.
- Utilize alternate workstations, if available, to ensure unit operation can continue while the control room is disinfected and returned to service.
- A body temperature screening process should be used, or symptoms should be reviewed before admission into control rooms. This typically is required to be performed by licensed medical professionals and may require relief from HIPAA requirements for supervisors/managers to perform if necessary.
- A supplemental staffing plan should be implemented, and refresher training and simulations offered (if needed) for supervisors, managers, engineers, and retirees with the requisite skills to backfill control room staff in the event control center staffing is further reduced due to COVID-19 infections.
- The family situations of operators impacted by self-quarantine should be considered, and assistance/support should be offered where needed to ensure quarantined operators do not feel they are placing their family at risk (e.g., transportation, housing, childcare, eldercare, video chats).
- In order to return employees back to work, access to testing and analysis must be prioritized and made available.
- Have HR or Incident Command (IC) preemptively provide direction to supervisors about what to do if someone tests positive. A standard series of questions to help with an investigation should be considered, following applicable regulations, that discuss isolation (does employee have support to do that?). HR/IC should investigate direct contact or close contact (30 minutes or more) between employees. Additionally, HR/IC should determine which notifications need to go

out throughout the organization. Rather than sending out a communication on every case, consider discussing incidents in a weekly call for all employees.

Case Studies and Lessons Learned from COVID-19

As the electric power industry continues its response to COVID-19 and pandemic plans remain activated, this section will be updated with anonymized real-world case studies and lessons learned to inform other organizations' pandemic planning and operations.

Generation Scenario – "I don't feel well."

At approximately 9:15 a.m., a control room board operator alerted the shift supervisor that he was not feeling well. Specifically, the operator felt some chills and thought he possibly had a fever. The shift supervisor immediately called disability management. The operator left the work area and was sent for medical care. Although it was not known if the operator was sick, site management considered the control room "dirty" and in need of cleaning. A review was held to determine if other employees were exposed, and disability management assisted with caring for those employees.

Per the site Pandemic Plan, an available operator was sent to the engineering workstation where the unit could be controlled and monitored safely. Access to the control room was stopped and the pre-approved cleaning contractor was called to clean the control room. By the end of day, shift operators could reenter the control room.

- **Case Study Lessons Learned**
  - Employees should speak up if they do not feel well.
  - Disability management should be contacted immediately for guidance.
  - Pandemic plans should have guidelines in place for this type of event.

Generation Scenario – Operator Tests Positive, Commence Safe Shutdown

A generation control room operator began coughing on Day 1, the last night shift of the scheduled rotation (the crew practiced social distancing). On Day 11, the employee returned to shift with a cough. The plant manager heard the cough and sent the operator home. After a diagnosis of bronchitis by a physician, the employee returned on Day 16, worked until Day 18, and then left for previously planned paid time off. On Day 20, the employee returned to the physician not feeling well, and was tested for COVID-19. On Day 22, the employee tested positive for COVID-19.

Due to the positive test, the operator's two crewmates also were sent home for 14 days of self-isolation, even though neither had symptoms. Given critical and sensitive equipment in the control room, the decision was made to remove the unit from service in a controlled manner immediately, instead of waiting for a scheduled hard trip-out on Day 22, without impact to overall grid reliability. A thorough deep clean was conducted. Employees could not be in the areas while the disinfecting process took place, so the non-operational plant was monitored from the remote engineering workstation. This engineering station was suitable for monitoring but could not safely control an operating unit.

Once deep cleaning was completed, employees were allowed to return, and the plant resumed operation.

- **Case Study Observations**
  - Multiple individuals are unable to work based on exposure, not symptoms. Having access to testing with readily available results potentially would return those individuals to shift.
  - Organizations should use a cleaning process with a heavy misting spray system, with products that saturate the areas with a stronger concentration.
  - Plant management exhibited a good proactive response by sending possibly infected employees home as quickly as possible to prevent further spread of the disease.
  - Other craft employees should encourage employees to discuss with supervisors when they are exhibiting symptoms.
  - Prior to the event, plant management contracted with a vendor to come daily to perform "Tough Point" cleaning with an antibacterial product on all personnel spaces. This activity continues.

Sequestration for Generation Considerations

Owners and operators of generating units will consider the sequestration of mission-essential generation control center staff in order to keep them healthy and to ensure continuity of operations. Separating these essential and hard-to-replace employees from their families is not an easy decision, but it is a decades-old industry practice to ensure electricity is available in times of need.
This section lays out important guidance and suggested critical lessons learned from generator operators, nuclear generating stations, and independent power producers already practicing sequestration during the COVID-19 pandemic. To ensure that a sequestration plan is implemented effectively and that enough employees are willing to volunteer to be sequestered, the quality and availability of support services are critical.

Suggestions for Sequestration at a Generation Plant

- **Hygiene**
  - Establish clear, hygienic shift turnover practices.
  - Establish a clear, hygienic procedure for shift relief after two weeks.
  - Follow clear sanitization procedures at beginning and end of every shift.
  - Remember that the external environment (i.e., cold) can influence temperature readings when conducting screens and lead to false readings. Consider rapid testing if available.
- **Mission-Essential Personnel**
  - Perform temperature checks of all personnel entering the plant site (employees and contractors), following CDC recommendations.
  - Reinforce social distancing and secure control room personnel to limit/prevent exposure in the event of a suspected or confirmed case. Perform routine temperature checks of plant-sequestered employees to monitor conditions.

- Develop a procedure for handling critical chemicals and supplies.
- Reduce or eliminate employees moving from one site to another.
- Close as many gates and access points on a site as possible. Minimize traffic.

- **Other General Lessons for Entities Implementing Sequestration**
  - Communicate relentlessly. Use all platforms.
    - Provide general employees with updates.
    - Tell employees who do not feel well that it is ok to stay home.
  - Follow internal accounting and human resources policies to ensure appropriate record keeping.
  - Maintain an engaged business continuity team (corporate level) to support the site.
  - Use volunteers as much as possible.
  - Negotiate with unions before sequestration to develop appropriate HR processes.

Different Approaches to Sequestration

The following chart describes different approaches taken by generation operators practicing sequestration.

	Generator A	Generator B	Independent Power Producer A	Independent Power Producer B	Lesson
Trigger for sequestering	Statewide outbreak. Generator A proactively sequesters employees to prevent attrition.	Low reserves coupled with COVID threat led Generator B to decide to sequester employees to maintain fleet reliability.	Employees exhibiting flu-like symptoms and potential exposure to approximately 90% of plant personnel.	Company decision not to be a conduit of infection among employees. Some sites have a small staff, cannot afford attrition. Did not want to wait for confirmed cases in the workforce.	Drivers to sequester can include many factors including surrounding area infection rates.
Type of employees sequestered	Control Room Operators, Field Operators, Operations Supervision, Security, Cleaning Staff, Contractor Operators	Control Room Operators, Control Room Supervision, Technicians	Control Room Operators, Operations and Maintenance Manager, Outside Operators – day and night shift	Control Room Operators, Outside Operators, and I&C Techs. No contractors sequestered, and contractors are kept offsite unless essential.	Control Room must be isolated, and a clean environment must be maintained. Consider assigning keyboards / mice to each specific operator. Shut down the plant and perform deep cleaning of the control room area using outside cleaning resources.
Sequester location	Onsite in two separate areas: 1. Testing / triage 2. Housing	Offsite hotels Hotel rooms are plentiful Caterer or Hotel meal prep	Onsite; trailers brought in for lodging, shower capability onsite, food brought in from offsite	Site dependent Mobile Homes / RVs; offices Employees washing own linens onsite, arrangements made with wholesaler and local businesses for food. Wi-Fi network extended for personal use.	Onsite requires more logistical co-ordination for accom-modations, food, room sanitization, linens, entertainment. Hotel easier to implement meal prep, hotel sanitization practices, transportation, linens. Food left at the gate for pick up.

Sequester schedule	2 weeks / 12-hour shifts	2 weeks / 12-hour shifts	6 days / 12-hour rotating shifts	14 days / 12-hour shifts	Put criteria in place for employee “At Home Reserve” with protocols to follow away from work to ensure health. Employees at home regardless of classification are paid straight time. Maintain list of potential people to supplement operators (e.g., retirees). Non-sequestered employees paid their regularly scheduled hours to stay home. Sequestered employees paid for all hours inside the plant (straight time for regularly scheduled shift, time-and-a-half for all other hours). Next sequester crew identified and monitored.

Mutual Assistance for Generation Considerations

This section is designed to provide requesting and responding investor-owned electric companies, public power utilities, independent power producers, and electric cooperatives guidance on considerations for mutual assistance when needed to continue generation plant operations during the COVID-19 pandemic.

Specific guidance for traditional mutual assistance during this pandemic can be found in the "Mutual Assistance Considerations" portion of this Resource Guide.

Regardless of the method of staffing generation plant control rooms, the safety and health of all employees is the priority. Site-specific and company-specific training will be required to operate any generation plant.

Mutual assistance normally is used to help restore electric service to customers and typically is focused on transmission and distribution infrastructure. The COVID-19 pandemic has motivated generation entities to consider the use of mutual assistance for generation plant operation.

Considerations for Fossil, Gas, Nuclear, and Renewable Generators:

Personnel

Consider the use of existing employee work stoppage plans as a resource in planning for the use of personnel not currently assigned to plant operation.

- Keep a central list of all employees with skills who can be called from corporate/tech support (such as former operators or plant engineers/managers) and use that list for consistent communications across the fleet.
- Maintain a list of retirees or other individuals with relevant qualifications who could be called upon to help operate the control room first, prior to reaching out to another company/utility.
    - Consider recent control-board-trained operators (retired, transferred, etc.) for temporary employment.
    - Share retiree list, including qualifications, with other companies for operators.
    - Keep in mind retirees likely will fall into a higher-risk group for COVID-19.
- Consider the use of third-party contractor operators to supplement plant operators, keeping in mind they may lack familiarity with the site and will require additional training and supervision.
- Create a thorough list of experience and qualifications needed to operate a particular unit. Important details include fuel type, OEM technology, DCS type, environmental controls, certifications, etc. Consider proactively sharing this information internally within your company first and then with neighboring companies.
    - Provide sufficient detail from manufacturers (Emerson Ovation, GE Mark VI, ABB, Honeywell, etc.) without exposing proprietary information.
- Subject to maintaining compliance with pertinent regulatory requirements and NERC Reliability Standards, if reserves permit and the system operator concurs, consider optimizing fleet operations and removing non-committed units from dispatch. Transfer qualified operations

personnel from non-running units to other higher priority units to supplement the operational workforce.

- Maintain an active list of qualified operators who have recovered from COVID-19 and who can return to the workplace. A returning worker should meet CDC requirements for returning to work.

  https://www.cdc.gov/coronavirus/2019-ncov/healthcare-facilities/hcp-return-work.html

- Make specific requests when seeking mutual assistance for generation control room personnel. Details should include generation type, fuel type (fossil, hydro, single-cycle gas, combined-cycle gas, nuclear, renewable) as well as equipment and process descriptions, etc.

- Consider proactively developing a Mutual Assistance Agreement with strategic companies within the region or system.

Operations

- Subject to maintaining compliance with pertinent regulatory requirements and NERC Reliability Standards, safely shut down and lay up units not committed for dispatch and/or reserve margins based on load forecasts and other business considerations.

- Consider leaving units in extended or planned maintenance outages in that state as long as possible. Operators at these offline sites could be considered available for a site responding to pandemic challenges.

- Consider shifting operation control to remote operation room to limit onsite operators where possible. This may create additional cybersecurity vulnerabilities that will need to be mitigated; coordination with cybersecurity and IT teams will be important.

Specific Consideration for Nuclear Generation

- Nuclear power plants hold robust emergency plans that define indefinite coping strategies for managing the asset in all conditions, including their minimum staffing requirements. Due to regulations, mutual aid is managed by each license holder.

Lodging and Meals

- Incorporate additional employees into sequestering plans if requesting mutual assistance. Considerations should include (but not be limited to) lodging capability, food/snacks/hydration, food restrictions, other personal needs, transportation, etc.

- Additional guidance for lodging and meals for sequestered employees can be found in the "Control Center Continuity" section of this Resource Guide.

Actions to Take if Mutual Assistance for Generation is Triggered

- Review existing mutual assistance agreements to determine if they apply to generation control room personnel and associated indemnification and liability.

- Engage with unions given the pandemic situation and the path forward to supplement the control operator employee base.

- Engage with state and local licensing and commissions for regulatory relief during the pandemic.
- Coordinate with your respective ISO/RTO, TO, and TOP to ensure they are aware of your pandemic plan.
- Identify potential qualified workers who could be called upon to operate a site.
- Consider using the visitor questionnaire from the "Mutual Assistance Considerations" section of this Resource Guide.
- Follow the terms and conditions of existing mutual assistance or mutual aid agreements.

COVID-19 Interim Cleaning and Disinfection Protocol for Generation Control Rooms

Currently, there are no disinfection protocols that have been tested specifically for SARS-CoV-2, abbreviated "COVID-19," as an emerging viral pathogen. Per current CDC recommendations, evidence suggests that the novel coronavirus may remain viable for hours to days on surfaces made from a variety of materials. CDC disinfection recommendations are linked below; the details noted in this document are not meant to supersede CDC's guidance:

https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/cleaning-disinfection.html

Cleaning of visibly dirty surfaces followed by disinfection is a best practice measure for prevention of COVID-19 and other viral respiratory illnesses in community settings. Following are recommendations from the CDC's April 1, 2020, guidance on the cleaning and disinfection of rooms or areas where those with suspected or with confirmed COVID-19 have visited. It is aimed at limiting the survival of novel coronavirus in key environments.

Cleaning and Disinfection Protocols

After person(s) suspected to have COVID-19 has been at facility

- Close off areas used by the potentially ill person(s) and wait as long as practical before beginning cleaning and disinfection to minimize the potential for exposure to respiratory droplets. Open outside doors and windows to increase air circulation in the area. If possible, wait up to 24 hours before beginning cleaning and disinfection.
    - Due to criticality, some areas (i.e., control rooms) may require immediate disinfection and operation from remote locations such as DCS rooms.
    - When cleaning the control room, have all operations personnel operate the unit from the DCS room. Before operations personnel depart the control room, have them deenergize all keyboards and mice (removing batteries.) This will prevent the risk of cleaning personnel tripping the unit.
    - Before the contractor begins cleaning the control room, show them the areas that are not to be cleaned, such as red E-Stop push buttons.
    - DO NOT use a bleach cleaning solution on any computer equipment. Use a 70% alcohol cleaning solution.

- Cleaning staff should clean and disinfect all areas (e.g., offices, bathrooms, and common areas) used by the potentially ill person(s), focusing especially on frequently touched surfaces.
- Signage and red barricades will be utilized to prevent access to suspected areas.
- Heads-up notifications will be sent to plant personnel as an alert.
- Appropriately trained and approved contract personnel will handle cleaning and disinfection upon plant request.

How to Clean and Disinfect

Surfaces

- If surfaces are dirty, they should be cleaned using a detergent or soap and water prior to disinfection.
- For disinfection, diluted household bleach solutions, alcohol solutions with at least 70% alcohol, and most common EPA-registered household disinfectants should be effective.
    - Diluted household bleach solutions can be used if appropriate for the surface. Follow manufacturer's instructions for application and proper ventilation. Check to ensure the product is not past its expiration date. Never mix household bleach with ammonia or any other cleanser. Unexpired household bleach will be effective against coronaviruses when properly diluted.
- Prepare a bleach solution by mixing:
    - Five tablespoons (1/3 cup) bleach per gallon of water or 4 teaspoons bleach per quart of water.
    - Products with EPA-approved emerging viral pathogens claim icons are expected to be effective against COVID-19 based on data for harder to kill viruses. Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, etc.).
    - For soft (porous) surfaces, such as carpeted floor, rugs, and drapes, remove visible contamination if present and clean with appropriate cleaners indicated for use on these surfaces.
    - If the items can be laundered, launder items in accordance with the manufacturer's instructions using the warmest appropriate water setting for the items and then dry items completely.
    - Otherwise, use products with the EPA-approved emerging viral pathogens claims that are suitable for porous surfaces:

        https://www.americanchemistry.com/Novel-Coronavirus-Fighting-Products-List.pdf

Linens, Clothing, and Other Laundry Items

- Do not shake dirty laundry; this minimize the possibility of dispersing virus through the air.
- Wash items as appropriate in accordance with the manufacturer's instructions. If possible, launder items using the warmest appropriate water setting for the items and dry items

completely. Dirty laundry that has been in contact with a potentially ill person(s) can be washed with other people's items.

- Clean and disinfect hampers or other carts for transporting laundry according to guidance above for hard or soft surfaces.

Personal Protective Equipment (PPE) and Hand Hygiene

- Cleaning staff should wear disposable gloves and gowns for all tasks in the cleaning process, including handling trash.
  - Gloves and gowns should be compatible with the disinfectant products being used.
  - Additional PPE might be required based on the cleaning/disinfectant products being used and whether there is a risk of splash.
  - Gloves and gowns should be removed carefully to avoid contamination of the wearer and the surrounding area. Be sure to clean hands after removing gloves.
- Gloves should be removed after cleaning a room or area occupied by potentially ill persons. Clean hands immediately after gloves are removed.
- Cleaning staff should report breaches in PPE (e.g., tear in gloves) or any potential exposures to their supervisor immediately.
- Cleaning staff and others should clean hands often, including immediately after removing gloves and after contact with a potentially ill person, by washing hands with soap and water for 20 seconds. If soap and water are not available and hands are not visibly dirty, an alcohol-based hand sanitizer that contains 60-95 percent alcohol may be used. However, if hands are visibly dirty, always wash hands with soap and water.
- Follow normal preventive actions while at work and home, including cleaning hands and avoiding touching eyes, nose, or mouth with unwashed hands. Additional key times to clean hands include:
  - After blowing one's nose, coughing, or sneezing.
  - After using the restroom.
  - Before eating or preparing food.
  - After contact with animals or pets.
  - Before and after providing routine care for another person who needs assistance (e.g., a child).

Additional Resources

Nuclear Generation: NRC Issues Instructions for Obtaining Relief from Work Hours Rules

On March 28, 2020, Ho Nieh (Director, Office of Nuclear Reactor Regulation) sent a letter to the Nuclear Energy Institute outlining a streamlined process for operating nuclear power reactors to obtain exemptions from the requirements of 10 C.F.R. 26.205(d)(1)-(7). The purpose of the exemptions "is to ensure that the control of work hours and management of worker fatigue do not unduly limit licensee flexibility in using personnel resources to most effectively manage the impacts of the COVID-19 [Public Health Emergency]. . . ." The letter provides that if a licensee determines that its staffing levels will be affected by the COVID-19 emergency and no longer can meet the requirements of 10 CFR 26.205(d)(1)- (7), then the licensee should submit an email requesting an exemption to the facility's NRC project manager (with a copy to the NRC Document Control Desk). The request should be submitted "as soon as practicable and no less than 24 hours before [the licensee] would be out of compliance with the regulations." All such requests should include the following information:

- a statement that the licensee no longer can meet the work-hour controls of 10 CFR 26.205(d) for certain positions;
- a list of positions for which the licensee will maintain current work-hour controls under 10 CFR 26.205(d)(1)-(d)(7);
- the date and time when the licensee will begin implementing its site-specific COVID-19 Public Health Emergency fatigue-management controls for personnel specified in 10 CFR 26.4(a);
- a statement that the licensee's site-specific COVID-19 Public Health Emergency fatigue-management controls are consistent with the constraints outlined in this letter and its attachment; and
- a statement that the licensee has established alternative controls for the management of fatigue during the period of the exemption and that, at a minimum, the controls ensure that for individuals subject to these alternative controls:
    - not more than 16 workhours in any 24-hour period and not more than 86 workhours in any 7-day period, excluding shift turnover;
    - a minimum 10-hour break is provided between successive work periods; 12-hour shifts are limited to not more than 14 consecutive days;
    - a minimum of 6-days off are provided in any 30-day period; and
    - requirements are established for behavioral observation and self-declaration during the period of the exemption.

Supply Chain Considerations

This document provides guidance that investor-owned electric and/or natural gas companies, public power utilities, and electric cooperatives can consider for maintaining adequate supply of inputs and physical equipment during this health emergency. Lists were developed for consideration so that both the volumes of the supply chain need, and the geographic location of suppliers can be determined. Clearly, the extent and duration of this emergency will influence the importance of one supply chain component compared to another.

The guidance in this document was collected from organizations across the industry. The intent is to serve as a general information resource and not to set any industry standards. This document is evergreen and will be updated regularly to reflect additional or revised guidance as it is received.

The three sections provided are:

- Supply Chain Considerations for Industry Critical PPE
- Power Delivery Materials
- Bulk Chemicals Needed for Power Generation and Delivery

It is acknowledged that access plays a key role both for organizations and their suppliers in a pandemic. The access issue is covered more fully in the “Access Considerations” section of this Resource Guide.

Supply Chain Considerations for Industry-Critical PPE

As the novel coronavirus (or COVID-19) pandemic spreads, the electric power industry recognizes that Personal Protective Equipment (PPE) is in short supply even for first responders and the healthcare sector. Energy and other critical sectors now are considering alternatives to keep workers safe while maintaining reliable service. To assist with these efforts, this section of the Resource Guide provides planning considerations and resources to help investor-owned electric and/or natural gas companies, public power utilities, and electric cooperatives meet their PPE needs by identifying:

- Mission critical PPE, cleaning products, and related supplies for the electric power and natural gas industry;
- Non-government vendors/suppliers for PPE;
- Guidance for engaging those suppliers;

- Creative practices for creating alternative PPE and other protective equipment.

While our sector recognizes that the priority is to ensure that PPE is available for workers in the healthcare sector and first responders, a reliable energy supply is required for healthcare and other sectors to deliver their critical services. The Department of Homeland Security (DHS) emphasized the importance of the energy sector, recently releasing an advisory guidance on Essential Critical Infrastructure Workers (ECIW), that includes energy company and utility workers.

In addition, the Electricity Subsector Coordinating Council (ESCC) has identified a subset of highly skilled energy workers who are unable to work remotely and who are mission-essential during this extraordinary time. Consequently, there is a need to elevate the availability of PPE for workers in the energy sector at the federal, state, and local levels.

Personal Protective Equipment Needs

The supply chain tiger team developed the following material list, which summarizes the critical PPE needs for the electric power and natural gas industries. Tier I items are those items that serve an immediate need where critical infrastructure workers are subject to contact. Tier II are items that are not needed at the time of contact but are in the horizon of the planning scenario of nine months and a 40 percent reduction in workforce.

- Tier I:
  - Nitrile gloves
  - Shoe covers
  - Tyvek suits
  - Goggles / glasses
  - Hand sanitizer
  - Dust masks
  - N95 respirators
  - Anti-bacterial soap
  - Trash bags
- Tier II:
  - Anti-bacterial wipes
  - Disposable thermometers
  - Batteries
  - Alcohol wipes
  - Antiseptic wipes

Non-Government PPE Vendors/Suppliers

The key suppliers of PPE include[3]:

- 3M
- McKesson
- Walmart
- Amazon
- Costco
- Ecolab
- Johnson & Johnson
- Procter and Gamble

Due to regional variations in the availability of PPE, organizations also are encouraged to look to local sources and partners for obtaining PPE. These localized sources may include hospitality wholesalers (Sysco, US Foods) restaurants, malls, and hotels that may have supplies that are not being used. Some organizations also are working with local distilleries to produce disinfectant products.

Energy sector companies and utilities also are encouraged to connect with their local or state energy officials or emergency operations centers to engage in a discussion about the prioritization of PPE needs, access to restricted areas, and testing.

Guidance for Engaging Suppliers and Local Authorities

When contacting vendors and suppliers, organizations should consider the following key points.

- Our sector recognizes that workers in the healthcare and first responders have first priority when it comes to receiving PPE.
- However, the energy industry is a lifeline sector that generates, transmits, and delivers electricity and natural gas to critical services and end-use customers, such as hospitals, clinics and other first responders.
- The Department of Homeland Security emphasized the importance of these workers, and recently released an advisory guidance on Essential Critical Infrastructure Workers (ECIW), that includes energy company and utility workers. That guidance document can be found online at:

  https://www.cisa.gov/publication/guidance-essential-critical-infrastructure-workforce

- The sector is not looking for PPE for the entire workforce. Rather, we are working to prioritize supplies for mission-essential workers – a subset of highly skilled energy workers who are unable to work remotely and who are mission-essential during this extraordinary time. More information on these mission-essential workers online at:

[3] Please note that many retailers and suppliers of PPE now only are selling N95 masks to the healthcare sector and government.

https://www.electricitysubsector.org/-/media/Files/ESCC/Documents/ESCC_Mission_Essential_Workforce_2020.ashx

Creative Solutions

With PPE being in short supply and priority being given to health care workers, the energy sector has sought alternative solutions to adequately supply mission essential workers.

- Hand sanitizer formulation:
  - WHO Guidance:

    https://www.who.int/gpsc/5may/Guide_to_Local_Production.pdf

    https://www.ncbi.nlm.nih.gov/books/NBK144054/
  - Bleach-based sanitizing solution:

    https://www.dhhs.nh.gov/dphs/holu/documents/hom-sani.pdf

    https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html
  - Industrial products can be used as alternatives to medical supplies, such as face shields and masks:
    - Face shields:

      https://www.grainger.com/category/safety/face-protection
    - 3D printer file for face shields:

      https://www.electricitysubsector.org/-/media/Files/ESCC/Documents/3D Printer File for Face Shields
    - Respirator masks with HEPA filters:

      https://www.buyinsulationproductstore.com/respirators/
  - Guidance for safely reusing PPE with proper decontamination.
    - Decontamination Methods for Filtering Facepiece Respirators:

      https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2781738/
    - Ultraviolet germicidal irradiation (UVGI):

      https://www.nebraskamed.com/sites/default/files/documents/covid-19/n-95-decon-process.pdf

      https://www.labconco.com/product/protector-evidence-drying-cabinets/4

      https://inspectusa.com/uvc-uva-ultra-violet-light-meter-yk-37uvsd-datalogging-p-1798.html
    - Ethylene oxide (EtO):

      https://www.cdc.gov/infectioncontrol/guidelines/disinfection/sterilization/ethylene-oxide.html

- Vaporized hydrogen peroxide (VHP):

  https://www.draeger.com/Library/Content/article-vhp-pr-9103500-en-us-1702-1-V7-2.pdf

  https://www.battelle.org/newsroom/news-details/battelle-deploys-decontamination-system-for-reusing-n95-masks

— Maximize use of existing stocks:

  https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/face-masks.html

  https://kingcounty.gov/depts/health/communicable-diseases/disease-control/novel-coronavirus/PPE-shortage.aspx

— Homemade masks with pockets for HEPA filter inserts:

  https://www.gfclinic.com/approved-pattern-info-for-homemade-masks/

— CDC recommendations on using cloth face coverings, including ways to make cloth masks. (Note, these may not be appropriate for situations where Fire Retardant face coverings are required.)

  https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover.html

Organizations also should be aware that the Occupational Safety and Health Administration (OSHA) has relaxed some regulatory requirements to permit the extended use and reuse of respirators, as well as the use of respirators that are beyond their manufacturer's recommended shelf life. This guidance can be found online at:

https://www.osha.gov/memos/2020-04-03/enforcement-guidance-respiratory-protection-and-n95-shortage-due-coronavirus

Power Delivery Materials List

The purpose of this section is to list frequently used critical electric power transmission and distribution materials needed for continued safe and reliable operations. It is not intended to include critical spares for major pieces of equipment such as large power transformers. While investor-owned electric companies, public power utilities, and electric cooperatives maintain a certain stock level of the materials that they frequently use, normal consumption rates, potential spikes in regional demand driven by storms or hurricane landfalls, or a disruption to transportation networks rapidly could deplete these stocks over a broad area. Maintaining a functional manufacturing and delivery supply chain for these materials will support safe and reliable operations over the planning scenario of nine months and a 40 percent reduction in workforce.

Broad categories

- Cable (bulk) and accessories
- Common supplies
- Conductor (bulk) and accessories

- Gases and chemicals
- Insulators
- Metering items
- Poles, structures, and accessories
- Sectionalizing and protection items
- Specialized hardware
- Street lighting items
- Transformers and accessories
- Substation control room and communication equipment

Cable (bulk) and accessories

- Cable connector block, lv insulated - various types
- Cable outdoor termination kit - various voltages and types
- Cable, fiber optic - various types
- Cable, lv control -various types
- Cable, primary ug - various sizes and voltages
- Cable, quadruplex urd - various sizes
- Cable, triplex urd - various sizes
- Conduit and fittings - various sizes
- Termination, fiber optic - various types
- Ug cable arrester elbow - various voltages and types
- Ug cable elbow - various voltages and types
- Ug cable splice kit - various voltages and types
- Wire, optical ground (opgw) - various sizes

Common supplies

- Batteries, common - various types
- Batteries, power tool - various types
- Indicator bulbs -various types
- Spill absorbent and containment - various types

- Tape, electrical

Conductor (bulk) and accessories

- Conductor, aac - various sizes
- Conductor, acsr - various sizes
- Conductor, insulated aac - various sizes
- Conductor, insulated copper - various sizes
- Conductor, quadruplex - various sizes
- Conductor, triplex - various sizes
- Connecter, auto sleeve for aac, acsr, copper - various sizes
- Connector, compression service - various sizes
- Connector, neutral sleeve for cu, acsr - various sizes
- Connector, sleeve for copper - various sizes

Gases and chemicals

- Corrosion inhibitor - various types
- Distilled water
- Gasoline fuel
- Diesel fuel
- Lubricant, dielectric - various types
- Nitrogen gas, bottled
- Sulfur hexafluoride gas, bottled

Insulators

- Insulator, distribution pin - various voltages and types
- Insulator, distribution post - various voltages and types
- Insulator, distribution strain - various voltages and types
- Insulator, distribution suspension - various voltages and types
- Insulator, house knob - various sizes
- Insulator, strain guy - various sizes and ratings
- Insulator, substation post - various types

- Insulator, transmission bell - various types
- Insulator, transmission non-ceramic - various voltages and types and associated hardware
- Insulator attachment/line construction hardware
- Pin, crossarm for insulator

Metering items

- Meter socket and hub - various types
- Meter, watthour - various types

Poles, structures, and accessories

- Crossarm, wood - various sizes
- Ground rod
- Ground strap, copper braided - various sizes
- Guy anchor shaft
- Guy anchor, helix - various types
- Hardware, guying - various types
- Lattice tower member, steel - various types
- Pole, steel - various sizes
- Pole, streetlight - various sizes
- Pole, wood - various sizes
- Wire, guy - various sizes

Sectionalizing and protection items

- Arrester, lightning distribution line - various voltages
- Capacitor, high voltage - various voltages and kvar
- Fuse cutout - various voltages
- Fuse holder, cutout - various sizes
- Fuse link, cutout - various ratings
- Fuse, low voltage control - various ratings and types
- Fuse, substation high voltage - various ratings and types
- Switch, overhead gang operated - various voltages and types

- Switch, overhead single phase - various voltages and types

Specialized hardware

- Armor rod line guard - various sizes
- Brackets, overhead equipment - various types
- Clamp, parallel groove - various sizes
- Clevis assembly, various types
- Deadend clamp - various sizes
- Deadend grip, preformed - various sizes
- Fasteners, distribution line - various types
- Fasteners, transmission line - various types
- Tie wire, aac - various sizes
- Tie wire, bare copper - various sizes
- Tie wire, preformed - various sizes
- Conductor splicing hardware – various sizes

Street lighting items

- Streetlight lamp
- Streetlight luminaire
- Streetlight photocell

Transformers and accessories

- Boxpad, fiberglass padmount transformer - various sizes
- Bushing, padmount transformer - various voltages and types
- Transformer and circuit breaker insulating mineral oil
- Transformer, overhead 1ph - various voltages and kva
- Transformer, padmount 1ph - various voltages and kva
- Transformer, padmount 3ph - various voltages and kva

Substation control room and communication equipment

- Storage battery cells

Bulk Chemicals Needed for Power Generation and Delivery List

The purpose of this section is to list bulk chemicals critical to power generation and delivery. These chemicals are consumed at various rates by power production processes, so maintaining continued reliable access is critical to generate electricity. The manufacturing and delivery supply chain of these chemicals must remain functional for continued reliable power generation.

- Additives
  - Coal
  - Coal Additives
  - Fuel Oil Additives
- Bulk Chemicals
  - Activated Carbon
  - Ammonia
  - Boric Acid
  - Glycol
  - Hydrazine
  - Hydrochloric Acid (HCl)
  - Lignosulfonate
  - Lithium Hydroxide
  - Sodium Bisulfate
  - Sodium Carbonate (Soda Ash)
  - Sodium Hydroxide (Caustic Soda)
  - Sodium Hypochlorite (Bleach)
  - Sulfur and Molten Sulfur
  - Sulfuric Acid
  - Urea
- Bulk Gases
  - Argon (AR)
  - Carbon Dioxide
  - Hydrogen (H2)
  - Nitrogen (N2)
  - Oxygen (O2)
  - Trailer or Tank Rentals
- Bulk Powders

- CEMS (Protocol) Gases
- Cylinder (Bottled) Gases
  - Argon (AR) Cylinder
  - Carbon Dioxide (CO2) Cylinder
  - Cylinder Rentals
  - Hydrogen (H2) Cylinder
  - Nitrogen (N2) Cylinder
  - Oxygen (O2) Cylinder
  - Propane
  - Sulfur Hexafluoride (SF6)
- Lime (Hydrated Lime)
- Wastewater Treatment
  - Flocculent
- Water Treatment
  - Demineralizers
  - Mobile Demineralizers Trucks
  - Water Filtration Equipment
  - Water Treatment Systems
- Water Treatment Chemicals
  - Resins
- Water Treatment Services

Natural Gas Delivery Materials List

Reliable natural gas delivery depends, in part, on the availability of several components and parts. The availability of these components depends on two key factors: lead times and chokepoints. Natural gas companies typically do not overstock certain components and parts because they tend to be widely available in the market under normal conditions. If these components and parts become in short supply and there are longer lead times for production, the natural gas delivery system could be challenged. In general, the availability of these components and parts also is subject to transportation constraints that can delay delivery. Therefore, both rail and fleet availability can create chokepoints, which, in turn, can create supply chain difficulties.

Long lead time items

- Large diameter valves and accessories
- Electro-fused fittings

- Prefabricated risers
- Prescriptive-based rebuild or maintenance kits for metering and/or regulating stations

Chokepoint items

- Nitrogen – for purging pipes and pressure testing
- Odorant (Mercaptan) – for odorizing natural gas

Responsible Re-entry and Return to the Workplace

New Section: April 27, 2020

Since February, the ESCC has worked with several hundred leaders across the electric power industry representing electric companies, public power utilities, and electric cooperatives and continues to coordinate with federal government partners on response and mitigation to COVID-19. The ESCC developed and continues to update this COVID-19 Resource Guide and has shared it broadly across the industry. As states and the federal government ramp up efforts to re-engage the economy, the ESCC is, as always, on the front lines. The electric power industry has an ingrained culture of safety and can offer a unique perspective, as well as planning considerations, that can help promote the safety of our workforce and our customers.

As the industry prepares to shift from remote operations to return to the workplace, the ESCC has identified four strategic priorities that will help define this next stage in the pandemic response:

- **Industry plans for returning to the workplace should be coordinated with state/local governments and executed in phases.** Organizations will need to partner with their state and local government officials who are responsible for lifting restrictions and re-engaging the economies in their jurisdictions. Understanding what information these officials will use to begin their economic restart activities will help inform localized plans for industry to transition from remote work back to the workplace. A phased approach to this process will be required, with the understanding that some business units can continue to rely on telework. School closures and a lack of day care services also will impact an organization's planning, as will increased mental health considerations for the workforce during a potentially challenging transition process. As these plans are developed, industry leaders should also consider engaging with regulators and/or oversight bodies.
- **Focus on the health and safety of our workforce and our customers.** Our workforce is the foundation for everything we do. The health and safety of our employees, contractors, and customers is a paramount consideration, shaping every decision we make. Organizations will need to adapt to the "new normal" of social distancing and enhanced hygiene in office settings and in field/construction work. These changes could include physically restructuring office space, schedule rotations, regular health screenings, more frequent cleaning of facilities, and changes in travel policies. In field settings where social distancing is challenging, additional PPE and safety protocols may be required. These requirements currently are stressing, and likely will continue to stress, an organization's supply chain, as demands for PPE, COVID-19 tests, thermometers, and cleaning supplies may continue. The industry will continue to work collaboratively with other critical sectors and suppliers, but also will need the continued support

of federal, state, and local government partners to ensure supply chain requirements are filled. The ability to maintain a healthy and safe workforce as we re-enter the workplace depends greatly on the ability to ensure the supply of these items to the electric power industry. The reliability and security of the electric system also depends on industry and government working together to ensure these supply chain needs are fully addressed. Industry mutual assistance needs currently are being met, but with storm season upon us, these supply chain needs will become even more critical in order for us to keep the lights on.

- **Anticipate and address any technology-related challenges and cyber threats associated with the return the workplace.** Organizations are aware that the transition from telework to the workplace may increase cyber vulnerabilities—in both Informational Technology (IT) and Operational Technology (OT) systems. Recognizing these challenges, we will need to continue our partnership with federal intelligence sources, the Department of Energy, Department of Homeland Security, and other relevant agencies to receive timely and actionable communications during the transition process.

- **Clear and consistent internal and external messaging will be critical for all aspects of a re-entry plan.** Organizations already are developing comprehensive messaging plans to engage with the workforce, customers, and stakeholders on the re-entry process. Messaging should be transparent, easy to understand, consistent, timely, and coordinated with government partners.

These strategic priorities are guiding the development of tools and resources that will support electric companies, public power utilities, and electric cooperatives as they make independent, localized decisions based on the situations in their communities. As these resources are being addressed, the ESCC will continue to identify needs for federal assistance to help facilitate the industry's re-entry planning. These requests will be coordinated through the Department of Energy and will have a strong focus on support of the industry's supply chain (PPE, COVID-19 tests, thermometers, and cleaning supplies) and messaging to state and local government partners that engagement with the electric power industry is critical for economic planning.