**TRN Resource: Interview Questions and Documentation Table**

**Directions**: Use the following questions to facilitate discussions with mission owners and site operations personnel and to document findings for use in other Technical Resilience Navigator (TRN) actions. Any notable gaps in knowledge or deficiencies with energy and water systems identified through interviews should also be tracked in the Gap Analysis Documentation Worksheet.

## Mission Owner Interviews

Use data collected from mission owners to refine the list of facilities that support critical functions and establish the critical loads supporting those functions, the critical load energy and water requirements, and the availability and condition of redundant systems on those loads.

| Q# | Interview Question | Response | Where Data Is Used in the TRN |
| --- | --- | --- | --- |
|  | Requirements for Energy and Water Resources | | |
| 1 | Review with the mission owner representative the assumptions established in the Site-level Planning module regarding:   1. The organization’s critical functions 2. The list of facilities that support those critical functions 3. Planned significant changes to the mission in the next few years (e.g., expansion or reduction in personnel, facilities, or activities), which could impact energy or water requirements at the site. |  | Baseline Development Action 2 |
| 2 | Are there functions that can only be performed at this location? |  | Solution Development |
| 3 | What are the operating hours and occupancy of each facility housing a critical load under normal conditions? |  | Baseline Development Action 2 |
| 4 | Does the operating schedule change under special conditions (e.g., a surge in mission needs, emergency conditions)? |  | Baseline Development Action 2  Solution Development |
| 5 | Would occupants remain in the facility in the event of an emergency? If yes, at what level of occupancy? |  | Baseline Development Action 2 |
| 6 | For each facility supporting critical functions, what critical loads require energy to fulfill those functions (e.g., HVAC, critical processes, plug load equipment, lighting)? Do these systems require electricity, gas, or other fuels to function? |  | Baseline Development Action 2  Risk Assessment |
| 7 | For each facility supporting critical functions, what critical loads require water to fulfill mission critical functions (e.g., plumbing fixtures, cooling, washing processes)? Specify if the critical load requires potable (water treated to drinking quality standards) or nonpotable water. |  | Baseline Development Action 2  Risk Assessment |
| 8 | Do the critical loads within each facility support the same critical functions or different critical functions? |  | Baseline Development Action 2  Risk Assessment |
| 9 | Which of these critical loads have no tolerance for an energy or water disruption (i.e., the mission would fail)? |  | Baseline Development Action 2 |
| 10 | Which of these critical loads have some tolerance for an energy or water disruption (i.e., the mission would be impaired or degraded but could still continue at some level)? |  | Baseline Development Action 2 |
| 11 | How long (in hours) must each critical load be supported to avoid mission failure or degradation (required runtime of any backup solution)? |  | Baseline Development Action 3 |
| 12 | For each critical load, is the demand for energy or water variable/intermittent or consistent throughout the year? |  | Baseline Development Action 2 |
| 13 | If energy or water service is disrupted, are there plans to relocate or reconstitute the mission elsewhere to enable these functions to continue? If so:   1. Would the mission move elsewhere onsite or to another location? 2. Is there a formal continuity of operations plan in place? |  | Risk Assessment |
| 14 | Have you experienced energy (electrical, gas, fuel) disruptions to these critical loads in the past few years? Describe how long they lasted, how often they occurred, and how the mission was affected. |  | Baseline Development Action 3 |
| 15 | What is the tolerable outage duration (TOD) for each critical energy load (in hours)? That is, how quickly would mission failure or degradation occur without any redundant sources? |  | Risk Assessment |
| 16 | Have you experienced any water supply interruptions in recent years? Please describe how long they lasted, how often they occurred, and how the mission was affected. |  | Baseline Development Action 3 |
| 17 | What is TOD for each critical water load (in hours)? That is, how quickly would mission failure or degradation occur without any redundant sources? |  | Risk Assessment |
| **Redundant Energy and Water System Conditions—Critical Energy Loads** | | | |
| 18 | What redundant energy systems, such as a backup generator, UPS, or other onsite power supply (e.g., renewable energy source, battery) currently serve your critical loads during a utility disruption? If none, skip the remaining questions on critical energy loads. |  | Baseline Development Action 3  Risk Assessment |
| 19 | Do the redundant systems support the entire facility or the critical loads only? |  | Risk Assessment |
| 20 | Are there any critical loads in the facility that are not backed up by any system (e.g., security systems, servers, emergency lighting)? |  | Risk Assessment |
| 21 | Is there a second redundant energy system that serves as a backup to the first or primary redundant system? If so, does the second source operate independently from the first redundant system? |  | Baseline Development Action 3  Risk Assessment |
| 22 | For any secondary redundant systems, do they serve as emergency backup only, or are they also used in normal operation? |  | Baseline Development Action 3  Solution Development |
| 23 | What is the size or capacity of all backup power sources (kw) to the critical loads? |  | Baseline Development Action 3  Risk Assessment |
| 24 | What fuel do the backup power sources require? |  | Baseline Development Action 3 |
| 25 | What is the size of any onsite fuel tanks that support onsite backup generators? |  | Baseline Development Action 3 |
| 26 | What fuel resupply plans are in place for redundant systems that require fuel? Are refueling agreements documented? |  | Risk Assessment |
| 27 | Is the redundant system configured for automated start-up or does it require manual start-up? |  | Risk Assessment |
| 28 | Is regular maintenance and testing done on the redundant systems? By whom and how often? |  | Risk Assessment |
| 29 | Are onsite personnel trained in the start-up and operation of the backup source? |  | Risk Assessment |
| 30 | What relevant hazards and threats to the site are the system and its components designed to withstand? (e.g., is the generator raised in flood-prone areas or properly secured in earthquake prone areas?) |  | Risk Assessment |
| 31 | If current redundant systems on each critical water load work as designed and planned, what would be the time (hours) to mission degradation? |  | Baseline Development Action 3 |
| 32 | If the facility requires natural gas for any critical load, is there any natural gas storage onsite? If not, what other mitigation solutions are in place to ensure continuity of operations if the facility had a gas disruption? |  | Risk Assessment |
| **Redundant Energy and Water System Conditions—Critical Water Loads** | | | |
| 32 | Is there a backup water supply onsite? If yes, answer the following questions. If none, skip the remaining questions on critical water loads. |  | Risk Assessment |
| 33 | What is the source of water (e.g., groundwater, surface water, alternative water such as rainwater)? |  | Solution Development |
| 34 | What water treatment is performed (potable versus nonpotable treatment)? |  | Solution Development |
| 35 | How is water distributed to the facilities where it’s needed from this backup source? |  | Baseline Development Action 3 |
| 36 | What is the capacity (gal) of any redundant storage system? |  | Baseline Development Action 2  Risk Assessment |
| 37 | Do the redundant sources support the entire facility or the critical loads only? |  | Risk Assessment  Solution Development |
| 38 | Are there any critical water loads in the facility that are not backed up? (e.g., cooling, washing processes) |  | Risk Assessment |
| 39 | Does the redundant supply serve as emergency backup only or is it also used in normal operation? |  | Baseline Development Action 3  Solution Development |
| 40 | Is there a second redundant water system that serves as a backup to the first or primary redundant water system? If so, is the second source independent from the first redundant source? (e.g., does the second water supply come from an entirely different source versus the same groundwater or surface supply) |  | Baseline Development Action 3  Risk Assessment |
| 41 | Is regular maintenance and testing done on the redundant systems including treatment, distribution, and storage components? By whom and how often? |  | Risk Assessment |
| 42 | Are onsite personnel trained in the start-up and operation of the backup source? |  | Risk Assessment |
| 43 | What relevant hazards and threats to the site are the system and its components designed to withstand (e.g., is the water storage designed to withstand an earthquake, or located above a flood zone)? |  | Risk Assessment |
| 44 | Does the redundant water system require power to operate? If so, does it have a backup power source? If so, answer questions 20-32 for that backup power source. |  | Baseline Development Action 3  Risk Assessment |
| 45 | If current backup systems on each critical water load work as designed and planned, what would be the time (hours) to mission degradation? |  | Baseline Development Action 3 |

## Site Operations Personnel Interviews

Use interviews with site operations personnel to help establish the availability and condition of redundant energy and water systems supporting critical functions. Use data on the condition of the primary energy and water supply systems to support the assessment of hazards that could cause a utility disruption, and to define measures the site may take to reduce the probability of a utility disruption.

| Q # | Interview Question | Response | Where Response Later Used in TRN |
| --- | --- | --- | --- |
|  | Redundant System Conditions: Emergency Response and Facilities Operators | | |
| 1 | Do emergency plans include fuel distribution to redundant systems? What facilities and redundant systems are covered by the plans? |  | Solution Development |
| 2 | Is there a generator refueling agreement or plan in place for this (either an onsite refueling location or an offsite location such as a GSA refueling point)? |  | Solution Development |
| 3 | Does the site have mutual-aid agreements? For what services? |  | Solution Development |
| 4 | Do emergency planning exercises include energy and water disruption scenarios? Do they account for fuel or water distribution and access to facilities with critical loads? |  | Solution Development |
| 5 | Which buildings have automatic transfer switches on generators? Which must be transferred manually? |  | Risk Assessment |
| 6 | What O&M is conducted on the site’s generators? At what frequency? |  | Risk Assessment |
| 7 | What O&M is conducted on UPS and other backup power equipment? |  | Risk Assessment |
| 8 | What O&M is conducted on the site’s redundant water systems? At what frequency? |  | Risk Assessment |
| **Primary System Conditions: Electric Utility Operators** | | | |
| 9 | Review site maps to identify key electricity infrastructure including any substations, switch stations, transformers, and distributions lines. |  | Solution Development |
| 10 | Has the site experienced any electricity outages in the past few years? How long did it last? Which facilities were affected? What were the causes? |  | Solution Development |
| 11 | Have there been power quality issues in recent years? How frequently? Which facilities were affected? |  | Solution Development |
| 12 | What electrical feeds serve the site? Do they have a redundant feed? if so, are they collocated? |  | Solution Development |
| 13 | What portions of the onsite electricity distribution system lack redundancies (e.g., no redundant feeds, not looped)? |  | Solution Development |
| 14 | Are there any areas of the electricity infrastructure known to be in poor condition? Substations? Transformers? Circuits? Electrical lines? |  | Solution Development |
| 15 | Does the site or utility maintain an inventory of equipment/parts (substations and switch stations, transformers)? |  | Solution Development |
| 16 | Is the electricity infrastructure equipped with backup sources? What portions or segments? |  | Solution Development |
| 17 | What emergency response and restoration procedures are in place to respond to electricity disruptions at this site? Do these procedures these procedures differ for specific threats or hazards? |  | Solution Development |
| **Primary System Conditions: Natural Gas Utility Operators** | | | |
| 18 | Review site maps to identify key infrastructure, including any regulator stations and distributions lines. |  | Solution Development |
| 19 | Has the site experienced any natural gas disruptions in the past few years? How long did it last? Which facilities were affected? What were the causes? |  | Risk Assessment |
| 20 | Have there been any natural gas pressure issues in recent years? |  | Solution Development |
| 21 | Are there any areas of the natural gas infrastructure known to be in poor condition? Regulator stations? Distribution lines? |  | Solution Development |
| 22 | What emergency response and restoration procedures are in place to respond to natural gas disruptions at this site? Do these procedures differ for specific threats or hazards? |  | Solution Development |
| **Primary System Conditions: Water Utility Operators** | | | |
| 23 | What are the source of water to the site (e.g., municipal water, onsite groundwater, surface water, alternative water such as rainwater)? |  | Solution Development |
| 24 | Is water treatment performed onsite? What are the capacities (volume storage or gallons per day of water supply that can be maintained)? |  | Solution Development |
| 25 | Review site maps to identify key infrastructure, including any water feeds serving the site, water treatment facilities, water pumping stations, water towers, water wells, and distributions lines. Note: While the TRN does not explicitly address wastewater, the planning team may also examine onsite wastewater treatment facilities and lift stations. |  | Solution Development |
| 26 | Has the site experienced any water system outages in the past few years? How long did it last? Which facilities were affected? What were the causes? |  | Solution Development |
| 27 | Have there been any water pressure issues in recent years? How frequently? Which facilities were affected? What were the causes? |  | Solution Development |
| 28 | For any water feed serving the sites, is there a redundant feed? If so, are they collocated? Are they served by different supply lines? |  | Solution Development |
| 29 | Are there portions of onsite water distribution systems that lack redundancy (e.g., not looped/dead-end lines)? |  | Solution Development |
| 30 | Does the site or utility maintain an inventory of parts/equipment for wells, pump stations, treatment facilities, storage tanks, isolation valves? |  | Solution Development |
| 31 | Does any of the water infrastructure have redundant power sources? Which parts? Characterize the redundant systems. |  | Solution Development |
| 32 | What emergency response and restoration procedures are in place to respond to water supply disruptions at this site? Do these procedures these procedures differ for specific threats or hazards? |  | Solution Development |