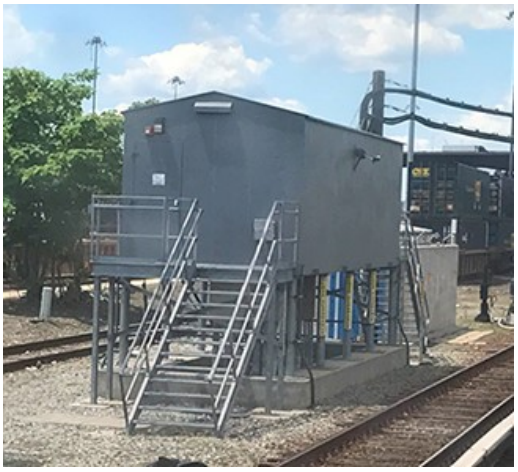
Critical Asset Relocation

This adaptation measure relocates assets away from an existing location with a very high inundation risk. Simply put, this measure involves relocating the asset outside of the threat of rising waters to the greatest extent possible. Relocation alternatives include relocating in place or relocating nearby/at a distance. All have their advantages/disadvantages and require coordination with your TAMbassador. Relocation measures are best suited for cases in which other feasible adaptation measures are insufficient to address flooding and inundation.



Relation to Adaptation and Resiliency

Helps achieve continuous operation of the facilities in the event of floods or natural disasters at the ground level.

Benefits

Relocation reduces ground-level inundation risks to system assets, such as electrical panels, control units, and power generation equipment and their supporting systems. By protecting the equipment from floods, their safety is guaranteed throughout their useful life which ensures future cost savings from repairing damages and dealing with associated disruptions.

Limiting Factors (Constraints)

The main limiting factors will be the space required to implement the measure, the distance effects on the distribution systems, the environment that may be affected by moving the asset, as well as the cost and time involved in executing the required work.

Design & Preliminary Costs

- It is essential to consider the minimum distances and safety spaces for the correct installation and maintenance of the equipment, in strict compliance with national regulations. Additionally, all calculations corresponding to a voltage drop must be considered in feeders and branches, which depend on the installation distance. Therefore, they depend on the type of conduits that will be given to these new conductors, to guarantee their integrity and adequate power supply of equipment.
- Long distance asset relocations should also relocate electrical ports as well.
- Consider whether HVAC equipment needs to be relocated to support relocating communications equipment, uninterruptable power supply, or other equipment.

Costs are dependent on the new location where the measure will be implemented, including factors like the distance from the original location of the equipment to the new point considered, the height required according to the characteristics and natural hazards, together with the site conditions where the asset will be relocated (can be a low-cost option depending upon what is relocated (e.g. rolling stock) but relocating entire portions of a system would be cost prohibitive).

Permits & Approvals

Not all permits are known. If moving equipment that produces electricity, complete MDE Form 1.21 Energy Facility Permitting Information: Certificate of Public Convenience and Necessity If constructing new structures in tidally influenced areas, wetlands, waterways, or floodplains, complete MDE forms 3.18, 3.19, and/or 3.20.

Implementation

The implementation of this type of measure can take a long time depending on the equipment to be relocated and the adequacy of available, safe space for relocation. In the process of moving equipment and facilities, implement provisional facilities so as not to interrupt operations during asset relocation. This requires consideration of the best available locations to relocate assets and ensuring that there is space. For example, the Port Authority of NYNJ is identifying safe locations in its yards to store rolling stock during storm events.

Maintenance Requirements

It is appropriate to perform a torque maintenance of all the connections after moving the asset to the new location to extend useful life. After moving the asset, the asset should undergo the same maintenance procedures that were in place at the original location. Torque maintenance refers to the verification that each one of the electrical conductor connections (terminals or screws) are tightened to the magnitude specified by the manufacturer of each element in order to avoid hot spots due to false contacts.

Useful Life

The useful life of the elements or equipment will be the same as in its initial place, apart from an extended life expectancy due to protection from the risks of rising waters. This is a very long-term response, protecting the asset over its useful life.

References/Specifications

National Fire Protection Association (NFPA) links can be found on MadCad (*Subscription is required*)

o NFPA 70

o NFPA 70e

o NFPA 110