

# Climate Change and Critical Infrastructure Resilience for Community Functionality

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Resilient infrastructure for climate change

Normally consideration of resilience in infrastructure systems subjected to natural hazards does not involve climate change expressly. Climate change impacts the frequency and severity of the natural hazards and the normal probability curve for a particular hazard is not normal anymore.

While the purpose of this paper is not to delve into this aspect, the paper would like to focus on the impact of climate change on critical infrastructure systems. These are: Transportation networks, Electric power grids, Water systems, Waste -water systems, Telecommunication networks, and Natural gas and oil network. These systems are interdependent and their resilience needs to be assessed as a system of systems.

Climate change impacts communities in three distinct ways: *Temperature rise; Storms and precipitation; and Sea-level rise*. Coastal communities are affected more severely than others, however, the impact on water-related hazards, energy production and transportation impacts all areas. Effective cross-sector considerations, and policies at all levels are necessary to assess infrastructure capacity to withstand *additional future* climate change risk.

This paper presents a comprehensive model to develop resilience in critical infrastructure systems for acceptable functioning of a community.