WESTERN STATES SEISMIC POLICY COUNCIL Policy Recommendation 21-5

Resilience of Lifeline Infrastructure and Services

Policy Recommendation 21-5

WSSPC encourages utility regulatory bodies and utility service providers to implement current best practices and seismic design in the construction and maintenance of their infrastructure in order to assure satisfactory performance in future earthquakes. WSSPC also encourages the establishment of collaborative bodies, such as lifeline councils, to coordinate practices and examine interdependencies.

Executive Summary

Lifelines form a critical segment of the nation's infrastructure. Disruption can significantly affect the resiliency of a community. Use of existing guidelines as well as development of new guidelines can serve as an effective method of identifying and reducing risk.

Background

Lifeline infrastructure including, but not limited to, electricity, gas, telecommunications, water and wastewater, liquid fuel, multi-modal transportation systems are critical to a community's wellbeing.¹ Some lifelines are still being constructed using old methods and technologies that are known to be inadequate by seismic experts.

Much of the nation's existing infrastructure has not been designed to perform satisfactorily under extreme conditions produced by major earthquakes, including severe ground shaking, earthquake-induced tsunamis, fault rupture, large landslides, and liquefaction. Lifelines should be designed to provide reliable performance under expected earthquake loading conditions to ensure that the region can withstand future earthquake damage without crippling consequences. Critical infrastructure

¹ Lifeline infrastructure can be defined differently by organizations. The <u>Department of Homeland Security's</u> (DHS) Cybersecurity & Infrastructure Security Agency describes 16 critical infrastructure sectors including: chemical; commercial facilities; communications; critical manufacturing; dams; defense industrial base; emergency services; energy; financial; food and agriculture; government facilities; healthcare and public health; information technology; nuclear reactors, materials and waste; transportation; and water and wastewater systems.

requires system and component vulnerability studies in order to understand potential damages and operational consequences. Mitigation of infrastructure with a high likelihood of failure with extreme loss-of-service consequences should be addressed. This policy recommendation is a reinvigorated effort to follow through on resolving infrastructure liabilities originally identified in FEMA 271 "Plan for Developing and Adopting Seismic Design Guidelines and Standards for Lifelines" (1995).

Assessment

The effectiveness of this policy can be determined by the implementation of industry recognized guidelines by regulators and utilities.

History

- Policy Recommendation 13-11 was introduced and adopted at the WSSPC Annual Business meeting in 2013.
- Policy Recommendation 13-11 was re-adopted as Policy Recommendation 16-11 by unanimous vote of the WSSPC membership at the Annual Business Meeting May 6, 2016.
- Policy Recommendation 16-11 was re-adopted as Policy Recommendation 19-11 by unanimous vote of the WSSPC membership at the Annual Business Meeting April 26, 2019.
- Policy Recommendation 19-11 was first adopted as Policy Recommendation 13-11 which was approved unanimously by vote of the WSSPC membership at the Annual Business Meeting May 3, 2013.
- Policy Recommendation 19-11 was revised and re-adopted unanimously at the 2021 Annual Business Meeting. As such, it was renumbered 21-5.