

EXECUTIVE SUMMARY

Climate change is already reshaping the conditions in which communities live, businesses operate and critical infrastructure is planned, maintained and operated. Over the last decade, climate-related disasters have resulted in more than \$2 trillion in global economic losses, underscoring the need to strengthen infrastructure and response systems designed for yesterday's conditions. For California, a robust electric system is foundational to community preparedness, since electricity supports many essential services that keep people safe, connected and able to recover.

SCE's 2026 Climate Adaptation Vulnerability Assessment builds on prior work by using updated climate projections and improved analytical methods to provide more actionable insights into where climate hazards may affect specific assets, operations, services and communities. Improved data and analytical methods provide greater confidence in where and how vulnerabilities may emerge, including increased electrical load and heat stress on substation transformers, projected flood risks to direct-bury poles and sea level rise vulnerabilities on Catalina Island. These insights help SCE target adaptive investments and build infrastructure right the first time, reducing costly retrofits and avoiding premature replacements to support a more reliable and affordable electric system as California continues to electrify. For example, accounting for climate-driven temperature increases upfront could help avoid a projected 63% increase in the number of substation control buildings with protection relays that are vulnerable by 2050.

However, SCE cannot do this work alone. Utilities are critical partners, but building resilient communities requires collaboration, shared investment and widespread action across the whole economy, including government, emergency management, businesses, private investors, community organizations, residents and the research community. This paper is both a road map for resilience — outlining how climate-informed planning can strengthen reliability affordably — and a call to action.

KEY TAKEAWAYS



The climate change signal is clear: Intensifying hazards are increasing risks to communities, the electric grid and public safety.



SCE is strengthening its infrastructure for changing conditions through climate-informed planning.



Building climate resilience is a shared responsibility that requires coordinated action among utilities, governments, businesses and communities.

WHY ADAPTATION CANNOT WAIT

Climate hazards such as extreme heat, wildfires, flooding and sea level rise are increasingly threatening communities, public safety and critical infrastructure systems globally. Related events are already being observed across California and are projected to intensify in the decades ahead, increasing exposure to climate hazards across SCE's service area.

Managing the impacts of evolving climate hazards has become a defining societal challenge for communities, governments and infrastructure operators. Global economic losses due to climate hazards are projected to rise to nearly 15% of gross domestic product by 2050, topping \$40 trillion. California and the West have already experienced hundreds of billions in losses due to weather and climate disasters since 1980, with the 2025 Los Angeles area wildfires alone estimated to have caused over \$130 billion in direct and indirect economic losses.* Every \$1 invested in disaster preparedness avoids \$6 in post-disaster cleanup and \$7 in broader economic losses.** For the electric grid, climate change impacts are materializing at the same time as other significant changes, such as growing electricity demand driven by the electrification of vehicles and buildings, adoption of new technologies, data center development and the transition to a cleaner energy future. Together, these trends highlight the need to evolve how critical infrastructure is planned, designed and operated.

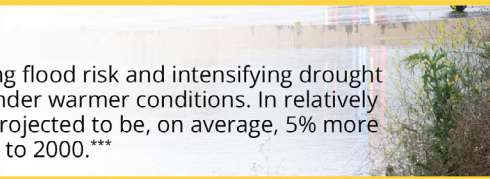
EXTREME HEAT

California has warmed by more than 2°F over the past century, with rapid increases in nighttime temperatures leading to additional heat stress on communities and critical infrastructure. Daytime high temperatures across SCE's service area are projected to rise ~3°F by 2050 relative to 2000.***



EXTREME PRECIPITATION AND FLOODING

California is experiencing greater swings between wet and dry years, increasing flood risk and intensifying drought impacts. Intense precipitation events are projected to become more severe under warmer conditions. In relatively wet regions of the SCE service area, the largest three-day storm each year is projected to be, on average, 5% more intense, with some regions becoming up to 13% more intense in 2050 relative to 2000.***



WILDFIRE CONDUCTIVE CONDITIONS

California is experiencing more frequent and severe wildfires. Longer dry seasons and increasing heat have the potential to further increase wildfire risk. Climate projections indicate a longer wildfire season across SCE's service area, with the greatest increases in fire-conductive weather occurring during spring and fall, and up to a 32% increase in fire weather days in coastal regions.***



SEA LEVEL RISE

California's sea level has risen by about 8 inches over the past century. The Los Angeles region is projected to experience approximately 1 additional foot of rise by 2050 relative to 2000 under an intermediate-high emissions scenario, leading to additional risks of flooding, erosion and rising groundwater levels.



**FOR MORE
INFORMATION:**

edison.com/adaptingtoday

*Li & Yu, UCLA Anderson Forecast, 2025

**U.S. Chamber of Commerce, 2024

***Calculations use the median change between Global Warming Levels of 0.8°C (approx. 2000) and 2.0°C (approx. 2050 under the SSP3-7.0 scenario) with the exception of wildfire which used the change in relevant climate metrics under 2.0°C applied to historical values (SCE's RAMP Climate Pilot White Paper, May 2026). The supporting data came from the California Fifth Climate Change Assessment using the Cal-Adapt data access tool (climatekitae v1.5.5).