



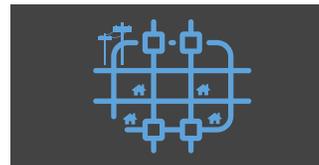
EXECUTIVE SUMMARY

Climate change is a societal issue, and the failure to adapt poses severe consequences to public health, safety and finances.¹ The recently released Sixth Assessment Report from the Intergovernmental Panel on Climate Change (IPCC), Climate Change 2022: Impacts, Adaptation and Vulnerability, found that increases in the frequency and intensity of climate and weather extremes around the world already have had widespread, pervasive impacts on ecosystems, people, settlements and infrastructure.² The cost of inaction is greater than the cost of action. If we do not rapidly decrease GHG emissions by midcentury, large parts of our planet will become uninhabitable and 10% of total economic value will be lost.^{3,4}

The electrical grid is critical infrastructure that powers our communities. It is imperative in California and around the world to have a grid that adapts and responds to climate change, both to provide resiliency and reliability, and to achieve the carbon neutrality that will help slow the rate of climate change.

Southern California Edison recently completed a detailed climate adaptation vulnerability assessment (CAVA) on assets, operations and services throughout our 50,000-square-mile service area.⁵ The chief conclusions⁶ are that, by 2050, wildfires could take out full corridors of transmission, leaving large swaths of customers without service for long periods; critical substations in flood plains could become inundated due to more extreme precipitation events; and the grid could have up to 20% reduced capacity in some areas due to increased extreme temperatures. To meet this new reality, infrastructure must be designed to withstand more intense storm surges and flooding, and new transmission lines must be constructed to bolster regional reliability under more severe wildfire conditions.

KEY FINDINGS DEMAND URGENT ACTION:



PLANNING: Today, electric grid design standards and planning practices used at SCE and throughout the industry are based on historical climate data, underestimating future conditions and associated risks. Future climate states must be incorporated into planning processes to appropriately address chronic and acute climate risks, especially those related to long-lived assets and systems. Additionally, utility planning horizons should be extended from the typical timeframe of 10 years or less to at least 20 years, so investments in the near term can help address climate change risks in the long term.



INVESTMENT: Climate adaptation investments are needed now. No-regrets foundational measures need to be developed and funded in the near term with the understanding that more significant investments will be required in the next 10 to 20 years. The cost to invest now is far less than the cost of inaction and will help hedge against the uncertainty society faces in the future.



PARTNERSHIPS: Significant collaboration among communities, local and regional planning authorities, and governments is required to address the interdependencies of critical infrastructures; perform cross-sector resiliency planning to take care of disadvantaged, climate-vulnerable communities; and minimize societal adaptation costs.

1. California's Fourth Climate Change Assessment. California's Changing Climate 2018: A Summary of Key Findings from California's Fourth Climate Change Assessment. 2018, pp. 8-12.

https://www.energy.ca.gov/sites/default/files/2019-11/20180827_Summary_Brochure_ADA.pdf

2. Intergovernmental Panel on Climate Change (IPCC). Sixth Assessment Report of the IPCC: Climate Change 2022: Impacts, Adaptation and Vulnerability – Summary for Policymakers, pp. SPM-7 – SPM-8.

https://report.ipcc.ch/ar6wg2/pdf/IPCC_AR6_WGII_SummaryForPolicymakers.pdf

3. IPCC. Sixth Assessment Report of the IPCC: Climate Change 2022: Impacts, Adaptation and Vulnerability – Summary for Policymakers. p. SPM-11.

https://report.ipcc.ch/ar6wg2/pdf/IPCC_AR6_WGII_SummaryForPolicymakers.pdf

4. Swiss Re Institute. "The economics of climate change: no action not an option." April 2021. <https://www.swissre.com/dam/jcr:e73ee7c3-7f83-4c17-a2b8-8ef23a8d3312/swiss-re-institute-expertise-publication-economics-of-climate-change.pdf>

5. The SCE climate adaptation vulnerability assessment was filed with the California Public Utilities Commission on May 13, 2022 and is available at <https://www.sce.com/about-us/environment/climate-adaptation>.

6. All exposure projections reflect climate change under a "high emissions" scenario, or Representative Concentration Pathway (RCP), commonly referred to as RCP 8.5.

At Edison International, we are committed to doing our part to safely meet the energy resiliency needs of customers and communities and, as we laid out in Pathway 2045, to lead the way to a cleaner and carbon-free California and U.S. We call on all our public, industry and community partners to join us now in the work of adapting to the changing climate.

2050 CLIMATE EXPOSURE TRENDS AND POTENTIAL IMPACTS ON THE ELECTRICAL SYSTEM



AVERAGE TEMPERATURE

5°F projected increase relative to historical averages

AVERAGE TEMPERATURE IMPACTS

- Existing infrastructure will become less efficient, especially inland, resulting in reduced capacity on lines and higher losses in transformers
- Useful life of assets will decrease due to increased exposure and usage



EXTREME HEAT

7X more likely, on average, for SCE service area to experience temperatures as hot as or hotter than the historical 99th percentile temperature

EXTREME HEAT IMPACTS

- Worker safety standards will need to account for heat
- Peak load could increase significantly
- Equipment will not cool overnight during intense heatwaves, reducing capacity and useful life of some equipment



PRECIPITATION

40% projected decline in snowpack and more variable year-to-year precipitation with more intense drought and fewer, more intense precipitation events

PRECIPITATION IMPACTS

- Infrastructure will need to be designed to withstand more intense storm surges and flooding
- Hydroelectric generation could become less reliable if the current drought continues or in the event of future prolonged droughts



WILDFIRE

23% more land projected to burn during summer fuel-driven wildfires and wildfire season is expected to become longer

WILDFIRE IMPACTS

- Conditions will be more conducive to wildfire ignition and spread
- Impacted service centers may not be able to operate or perform key functions during wildfires or droughts



SEA LEVEL

2.6 feet projected sea level rise relative to the year 2000

SEA LEVEL IMPACTS

- Infrastructure and communities in some coastal areas will be at higher risk of flooding



CASCADING EVENTS

A range of high-impact, low-probability events can occur from the interaction between exposure variables such as post-fire mudslides (debris flow) and rain-on-snow events

CASCADING EVENTS IMPACTS

- Communities in or near high fire risk areas could be exposed to increased landslide risk
- Hydroelectric planners need to account for early snowmelt and extreme runoff