

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

Transmission System Planning Performance	)	
Requirements for Extreme Weather	)	Docket No. RM22-10-000
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**COMMENTS OF SOUTHERN CALIFORNIA EDISON COMPANY ON NOTICE OF  
PROPOSED RULEMAKING REGARDING TRANSMISSION SYSTEM PLANNING  
PERFORMANCE REQUIREMENTS FOR EXTREME WEATHER**

Southern California Edison Company (“SCE”) respectfully submits these comments in response to the Federal Energy Regulatory Commission’s (“FERC” or “Commission”) Notice of Proposed Rulemaking (“NOPR”) in the above-captioned docket.

It is imperative to have a grid that adapts and responds to climate change to provide reliability and resiliency, and to achieve carbon neutrality that will help slow the rate of climate change. As discussed within FERC’s comments, extreme weather conditions are now the norm, not an exception, and traditional planning practices must be revised to incorporate future climate conditions and account for chronic and acute climate risks.

SCE supports FERC’s efforts to review reliability and resiliency needs pertaining to transmission system planning for extreme heat and cold weather events that impact reliable operations of the Bulk-Power System. SCE’s comments focus upon certain key topics, including 1) extension of planning horizons beyond the typical timeframe of 10 years or less to at least 20 years; 2) incorporation of coincident and sequential events and related compounding impacts along with a rigorous assessment of potential failure modes, and 3) use of climate projections to develop definitions of what constitutes extreme weather events. SCE also supports FERC’s proposal calling for the inclusion of drought conditions into extreme weather transmission planning refinements. In addition, SCE supports Edison Electric Institute (“EEI”)

recommendations to defer to the technical expertise of subject matter experts on the drafting team for details of new standards, as refining transmission planning for extreme weather merits rigorous oversight and focused development along with allowing for variations of extreme weather events among utilities based on location and system risk.

The NOPR is comprehensive and examines a multitude of issues relating to transmission planning and climate adaptation. SCE appreciates the opportunity to submit comments to address chronic and acute climate risks and associated transmission planning impacts.

## **I. BACKGROUND**

As discussed within SCE's May 2022 white paper *Adapting for Tomorrow: Powering a Resilient Future*, climate change is a societal issue, and the failure to adapt poses severe consequences to public health, safety, and the affordability of critical services. Given that the electrical grid is critical infrastructure, it is imperative that electric system planning incorporates and adapts to climate change to provide reliability and resiliency, and to achieve carbon neutrality that will help slow the rate of climate change.<sup>1</sup>

In 2019, the California Public Utilities Commission ("CPUC") issued a decision in the Climate Adaption Rulemaking<sup>2</sup> requiring the state's investor-owned utilities to evaluate how climate change could impact assets, operations, and services through 2070 using climate projections from California's Fourth Climate Change Assessment.<sup>3</sup> In response, SCE recently submitted to the CPUC a detailed Climate Adaptation Vulnerability Assessment ("CAVA")<sup>4</sup> focused on climate impacts on assets, operations and services throughout SCE's 50,000 square mile service area. Key takeaways include that, by 2050, extreme weather has the potential to

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<sup>1</sup> <https://www.edison.com/home/our-perspective/adapting-for-tomorrow>.

<sup>2</sup> <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/climate-change>.

<sup>3</sup> <https://climateassessment.ca.gov>.

<sup>4</sup> <https://www.sce.com/about-us/environment/climate-adaptation>.

increase wildfire risk that could take out full corridors of transmission, leaving large swaths of customers without service for extended periods; critical substations in flood plains could become inundated due to extreme precipitation events, and the grid could have up to 20% reduced capacity in some areas due to increased extreme temperatures.

SCE's CAVA highlights the critical need to address extreme weather within transmission planning, and SCE appreciates FERC's review of this important issue within the NOPR.

## **II. COMMENTS**

### **A. Increased Transmission Planning Horizons are Necessary to Inform Design and Specifications Addressing Extreme Weather Conditions**

Major electrical infrastructure assets, such as transmission lines, transformer banks and dam spillways, are long-lived (20+ years) and could be impacted by climate change in different ways. An extreme heat event may look different 20 years from now compared to what the past ten years of historical data might suggest. Thus, it is necessary to review within this effort the extension of planning horizons to inform the design and specifications of long-lived assets by conditions beyond a 10-year planning horizon.

As stated in comments on the Commission's Transmission Planning NOPR,<sup>5</sup> SCE supports the Commission's proposal to increase the planning horizon to 20 years to identify needed transmission, especially projects with long lead times to design, build, and construct, to timely meet state and national clean energy goals. A significant ramp up in new transmission projects to integrate renewable resources will be needed within the next few decades as the energy sector focuses its efforts to decarbonize the electric system in a safe, reliable, and cost-effective manner with no margin to delay the identification and ultimate construction of

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<sup>5</sup> <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=7FD1B409-F5BC-CFAC-9FE8-82AD26300000>

such projects. In California alone, in order to meet 2045 greenhouse gas reduction objectives, the CAISO's 20 Year Transmission Outlook identified over \$30 billion in transmission required for upgrades to the existing CAISO footprint, offshore wind integration and out-of-state wind integration.<sup>6</sup> The CAISO's completion of a 20 year outlook echoes the Commission's own concern that current practices may not be planning transmission on a sufficiently long-term, forward-looking basis to meet transmission needs driven by changes in the resource mix and demand.<sup>7</sup> In addition, SCE's recent transmission development activity shows a 10-plus year completion cycle.<sup>8</sup> SCE therefore supports a longer-term, 20 year transmission planning horizon to ensure new transmission is timely identified and constructed to address extreme weather conditions.

**B. Transmission Planning Standard Review Should Address Reliability Impacts Related to Concurrent and Sequential Events**

The Commission should also direct the standard drafting team to review whether additional contingencies should be developed to evaluate potential reliability risks from regionally coincident and sequential events and their potential compounding impacts on electricity assets, operations, and services. For example, a regionally coincident event could be a large-scale heat wave that reduces grid capacity for power flow while electricity demand increases for cooling. A sequence event may be a string of atmospheric rivers that could increase the risk of dam overtopping while reducing hydropower reservoir capacity. The impacts of such combinations of events should be considered by the drafting team as part of their review, and event duration and footprint should be considered as well as event intensity. Further, experts

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<sup>6</sup> 20-Year Transmission Outlook - May2022 (<http://www.caiso.com/InitiativeDocuments/20-YearTransmissionOutlook-May2022.pdf>).

<sup>7</sup> Transmission Planning NOPR, paragraph 24.

<sup>8</sup> [https://download.newsroom.edison.com/create\\_memory\\_file/?f\\_id=614b7811b3aed37b714d16ea&content\\_verified=True](https://download.newsroom.edison.com/create_memory_file/?f_id=614b7811b3aed37b714d16ea&content_verified=True); pages 5-6

from organizations such as the National Oceanic and Atmospheric Administration (“NOAA”), who have pertinent national-scale data and expertise, could be leveraged to perform retroactive evaluation and rigorous documentation of historical events to inform a better understanding of potential failure modes and reliability issues in the electrical system across balancing authorities. This analysis can guide the development of future contingencies that should be informed by climate projections.

**C. Climate Projections Should be Used to Develop Definitions of Extreme Heat and Cold Weather Events**

Enhanced transmission planning for extreme heat and cold events, in particular, definitions of extreme heat and cold weather events should incorporate climate science and projections beyond historical weather patterns. Specifically, planning cases should be defined based on how the climate, load and generation are changing rather than on conditions that have been seen in the past. To reflect the state-of-the-art understanding of how climate change will impact future regional weather, the standard drafting team should incorporate representations of climate projections<sup>9</sup> and consult with climate science experts with knowledge of climate data to appropriately inform the definitions of extreme heat and cold events to be developed as part of this effort.<sup>10</sup>

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<sup>9</sup> For example, SCE's CAVA relied on climate data developed for use in California and available through Cal-Adapt (<https://cal-adapt.org/>). As directed by the California Public Utilities Commission pursuant to D.19-10-054, SCE used projections reviewing a "high emissions" scenario where global emissions continue to rise through the year 2100, and 10 Global Climate Models (GCMs) identified as best representing California's climate by California's 4th Climate Change Assessment. The climate data available through Cal-Adapt, in conjunction with direction from the State of California on consistent usage in key long-term planning processes, highlight how regionally-appropriate climate projections can be developed and applied to inform system planning.

<sup>10</sup> See generally Paragraph 64 Transmission System Planning Performance Requirements for Extreme Weather Notice NOPR that speaks to existing study limitations governing TPL-001-5.1, “[s]tudies required by TPL-001-5.1, however, have traditionally focused on local planning and typically do not address the issues caused by wide-area extreme heat or cold weather events on a regional or interconnection scale.”

#### **D. Additional Extreme Weather Events**

Although the NOPR primarily focuses on extreme heat and cold events, the Commission correctly notes that long-term drought also creates risks to Bulk-Power System reliability over a wide geographical area and could contribute to conditions that impact the reliable operation of transmission systems. For SCE's operations, drought poses a particular risk by potentially reducing the ability to rely on hydropower generation for energy needs and balancing. Hydropower energy is generated locally and imported from nearby balancing areas; drought thus should be studied for its potential to impact regional power markets and affordability and SCE supports FERC's comments seeking stakeholder input on the inclusion<sup>11</sup> of drought conditions within transmission planning reviews.

SCE also urges consideration of additional climate variables for further study of potential impacts on electrical system reliability. For example, in addition to temperature and drought, SCE's CAVA filing evaluated system impacts from precipitation and flooding, sea level rise, wildfire conditions (spurred by heat, dryness, and high winds), and cascading events such as debris flow (landslide risk following wildfire scars and heavy precipitation) and rain-on-snow events that may lead to dam overtopping. In addition, the coincidence of extreme heat events and wildfire conditions is a high-impact event that has become increasingly frequent in California. Portions of the SQF Complex Fire began during the August 2020 Heatwave Event referenced in the NOPR and the 2020 Creek Fire, which caused damage to multiple SCE transmission and generating facilities, began less than three weeks after the August 2020 Heatwave Event. It is important to allow both regional flexibility in which conditions and impacts, such as the above, qualify as a high impact/low probability event for the purpose of

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<sup>11</sup> See Footnote 92 of Transmission System Planning Performance Requirements for Extreme Weather NOPR.

evaluating the impact of extreme weather on electric system reliability, as well as flexibility that climate change may cause the need to review existing event rankings. The above examples highlight the need for the standard drafting team to consider additional climate variables.

### **III. CONCLUSION**

As outlined above, continued review of transmission system planning standards is appropriate to support reliability and resiliency in response to extreme weather events. SCE appreciates the opportunity to submit these comments and looks forward to engaging in discussions addressing the changes needed to maintain system reliability and resiliency in the future.

Respectfully submitted,

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## **CERTIFICATE OF SERVICE**

I hereby certify that I have this day served the foregoing **COMMENTS OF SOUTHERN CALIFORNIA EDISON COMPANY ON NOTICE OF PROPOSED RULEMAKING REGARDING TRANSMISSION SYSTEM PLANNING PERFORMANCE REQUIREMENTS FOR EXTREME WEATHER**, upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Rosemead, California, this **26<sup>TH</sup> day of August 2022**.

/s/ Jorge Martinez

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Legal Administrative Assistant

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