STATE OF CALIFORNIA GAVIN NEWSOM, *Governor*
PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
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April 15, 2021

VIA ELECTRONIC DELIVERY

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A, East
Washington, D.C. 20002

Re: ***Climate Change, Extreme Weather, and Electric Reliability***
Docket No. AD-21-13-000

Dear Ms. Bose:

Please find for electronic filing in the above-referenced docketed proceeding the enclosed "**The California Public Utilities Commission Staff Comments in Response to FERC Questions on Extreme Weather Events and Climate Change**."

Thank you for your cooperation in this matter, and please do not hesitate to contact me at (415) 703-1123 or Christopher.Clay@cpuc.ca.gov if you have any questions or concerns regarding the foregoing.

Sincerely,

/s/ Christopher Clay

Christopher Clay
Staff Attorney

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Climate Change, Extreme Weather, and Electric Reliability	Docket No. AD21-13-000

THE CALIFORNIA PUBLIC UTILITIES COMMISSION STAFF COMMENTS IN RESPONSE TO FERC QUESTIONS ON CLIMATE CHANGE AND EXTREME WEATHER EVENTS

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Pursuant to the Federal Regulatory Commission's (FERC or "Commission") March 5th, 2021 Notice of Technical Conference, and the FERC's March 15th, 2021 Supplemental Notice of Technical Conference Inviting Comments, the California Public Utilities Commission (CPUC) hereby respectfully submits its staff comments in response to FERC's questions in this proceeding.

The CPUC is a constitutionally established agency charged with the responsibility for regulating electric corporations within the State of California. In addition, the CPUC has a statutory mandate to represent the interests of electric consumers throughout California in proceedings before FERC. As such, the CPUC has an immediate interest in the outcome of this proceeding. The CPUC hereby reserves its rights to raise additional substantive issues regarding all aspects of this proceeding, and to file additional comments, as warranted by the proceeding.

All communications, correspondence, and documents related to this proceeding should be addressed to the following:

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The CPUC submits these responses with the disclaimer that the information provided is not exhaustive of all relevant programs and policies under the purview of the CPUC, and if needed, the CPUC could file additional information to supplement these responses.

FERC Question 1

What are the most significant near-, medium-, and long-term challenges posed to electric system reliability due to climate change and extreme weather events?

Climate change poses a variety of reliability challenges, including increased electric demand from hotter weather in the summer, increased risk of overheating to network components due to increased or sustained high temperatures, reduced hydro output due to drought, and increased risk of damage to electric infrastructure due to increased wildfire risk. On the other end of the temperature scale, polar vortex conditions

could lead to freezing conditions at natural gas compressors as well as wind turbines that cut off energy during cold weather.

In the near term, drought and high temperatures can lead to wildfire risk which imperils electric equipment running through remote areas. Other states could also see their electric demand increase, reducing the imported energy available to California that we have historically relied upon at peak times and forcing a greater reliance on electric generation internal to California. Increased reliance on California generation could increase electric prices, which will take a toll on electric ratepayers.

Medium term, increased likelihood of sustained high temperatures and drought conditions could reduce the abundance of hydroelectricity overall or lead to more erratic runoff earlier in the spring when more winter precipitation falls as rain instead of snow. Increased temperature in areas which right now have more moderate weather could lead to more customers purchasing air conditioning, leading to increased overall electric demand particularly in coastal or foothill areas.

In the long term, coastal flooding could inundate and sustained higher temperatures could overheat key network elements. Patterns of electric demand could change as even spring and fall may face sustained high temperatures, leading to increased electric demand outside of the current peak season.

The State of California has invested in a variety of resources at various agencies and institutions to track the impacts of climate change on various sectors. The Cal Adapt website, for example, provides a view of how climate change might affect California, and it provides links to data, research and efforts to build adaptation plans. See https://cal-

adapt.org/. California's Fourth's Assessment also provides information to build resilience to climate impacts, including temperature, wildfire, water, sea level rise, and governance. See https://www.climateassessment.ca.gov/.

FERC Question 2

With respect to extreme weather events (e.g., hurricanes, extreme heat, extreme cold, drought, storm surges and other flooding events, or wildfires), have these issues impacted the electric system, either directly or indirectly, more frequently or seriously than in the past, and if so, how? Will extreme weather events require changes to the way generation, transmission, substation, or other facilities are designed, built, sited, and operated?

The 2020 wildfire season for the Western United States was the most active in recorded history, with nearly twice as many fires detected as the prior highest year, 2018. Climate modeling forecasts significant increases in the scope, severity and frequency of wildfires in the West, and along with it the weather events that drive such episodes, including drought, extreme heat, and wind events. In response to the recent wildfire seasons, the State of California created a California Wildfire Safety Advisory Board (WSAB) in 2019, a board of independent expert advisors, to advise a Wildfire Safety Division on wildfire safety measures, including Wildfire Mitigation Plans. The CPUC expects that the Wildfire Safety Division can contribute to more effective regulation of the safety of investor-owned utilities. In July 2021, the Wildfire Safety Division will become the Office of Energy Infrastructure and Safety in the California Natural Resources Agency.

Frequency and intensity of wildfires, as well as the electric system's role in wildfire ignitions is just one area that is receiving attention from the CPUC. To look at a wider range of impacts to the electric grid, the CPUC initiated a Climate Adaptation

proceeding to look at other changes to planning, forecasting, modeling, and risk assessment in the energy sector. For more information about the CPUC's Climate Adaptation Proceeding (R.18-04-019), See https://www.cpuc.ca.gov/climatechangeadaptation/.

One area of focus for the CPUC has been examining utility infrastructure investment plans with an emphasis on making sure the utilities conduct comprehensive safety and risk assessments prior to submitting requests in their general rate cases. The CPUC's Risk Assessment and Mitigation Phase, or RAMP, proceedings are used to ensure that the utilities are using a risk-based decision-making framework in their infrastructure decisions. See https://www.cpuc.ca.gov/riskassessment/.

Traditional risk assessment assumes a static climate. Given the accelerating nature of climate change this assumption may no longer be valid. Infrastructure planning under a dynamic climate requires additional information to account for a range of potential future climate scenarios.

Stochastic production cost models are one important tool used by the CPUC to forecast the impacts of weather events on the reliable operation of the electric grid. Such models are typically informed by historical weather data: The CPUC model relies on a 20-year, hourly weather dataset that covers the WECC footprint, providing hourly temperature, dewpoint, solar incident radiation, and wind speeds.

The CPUC staff is considering a methodology that would allow us to quantify the impacts of climate change on the operation of the electric grid. This way we could build synthetic climates based on the existing historical dataset but perturbed by averaged

differences between a 2- or 3-degree Celsius future, and the current climate. We could then use these perturbed climates as an input to our stochastic production cost to begin quantifying the impact of climate change on the operation of the electric grid.

While such an approach has inherent uncertainties, it has also become increasingly clear that relying on historical weather data to forecast the future operation of the electric grid also has risk. In addition to examining electric grid reliability, this approach also allows us to examine things like substation electric transformer hourly violations under the synthetic climates, and potentially also the increases in wildfire risk.

FERC Question 3

Climate change has a range of other impacts, such as long-term increases in ambient air or water temperatures that may impact cooling systems, changes in precipitation patterns that may impact such factors as reservoir levels or snowpack, and rising sea levels among others. Will these impacts require changes to the way generation, transmission, substation, or other facilities are designed, built, sited, and operated?

As ambient air temperatures increase, likely impacts include higher minimum temperatures overnight, higher humidity, and longer durations of higher temperatures in the summer. These conditions will affect substation and transformer equipment and may require redesign of equipment to increase temperature tolerance depending on location and likely climate changes. In addition, extreme low temperatures such as a polar vortex may freeze equipment at gas wells and compressors. Additional investment may be required to protect that equipment from freeze offs including facilities located upstream and outside of California.

In addition to vulnerability assessments directed by the CPUC, the State of California's California Environmental Quality Act (known as CEQA, signed into law in

1970 by then Governor Ronald Reagan) requires all state and local agencies to identify and publicly disclose the significant environmental impacts of any proposed projects and it requires agencies to avoid or mitigate environmental impacts if feasible. Any new electric infrastructure, including new substations or transmission lines, requires the government permitting agency to consider both climate change impacts that may arise from the project itself as well as consistency of the project with respect to permitting requirements, such as a community's general plan. For many years, the CEQA Guidelines have offered detailed strategies for how to consider potential climate change impacts (such as sea level rise) in developing a community's general plan (that may, for example, restrict development in potential flood zones.) The State of California developed guidance on how to develop a general plan and contains specific information on developing a qualified climate action plan. See, Chapter 8, http://www.opr.ca.gov/planning/general-plan/guidelines.html. Broadly speaking, any new electric infrastructure designed, built, or sited in California is subject to CEQA.

Climate change is impacting California, and many of the industries the CPUC regulates, including the electric sector are affected. Robust climate adaptation planning in a time of worsening climate impacts is a prudent next step to ensure the safety and reliability of all investor-owned public utilities. While the CPUC has focused on climate change mitigation programs over the past few years, the CPUC is now working on addressing the real impacts climate change will have or that are already occurring. For example, California is experiencing impacts from climate change, such as:

- Rising sea levels that can potentially inundate power plants and substations.

- Increased temperatures that cause additional strain on transformers.
- Increased line losses between electric generators and load.
- Increased overall electric demand for air conditioning during heat waves.

As part of its response to these changes, the CPUC issued an Order Instituting Rulemaking (R.18-04-019) in 2018 to integrate climate change adaptation matters in relevant CPUC proceedings. In this proceeding, the CPUC directed the utilities to consider at a minimum: temperature, sea level, variations in precipitation, wildfire, and cascading impacts (e.g., wildfires burn hillsides and rainstorms cause mudslides). See D.20-08-046, at 86-87.

Safeguarding California's utility infrastructure against climate threats is a major undertaking, and the CPUC has been issuing decisions in phases to address various aspects of climate adaptation as it relates to electric and natural gas utilities and will consider expanding to the other utilities it regulates. See CPUC Climate Change Adaptation page to access additional background materials and relevant resources: www.cpuc.ca.gov/climatechangeadaptation.

FERC Question 4

What are the electric system reliability challenges associated with "common mode failures" where, due to a climate change or extreme weather event, a large number of facilities critical to electric reliability (e.g., generation resources, transmission lines, substations, and natural gas pipelines) experience outages or significant operational limitations, either simultaneously or in close succession? How do these challenges differ across types of generation resources (e.g., natural gas, coal, hydro, nuclear, solar, wind)? To what extent does geographic diversity (i.e., sharing capacity from many resources across a large footprint) mitigate the risk of common mode failures?

Managing electric system reliability for an electric grid that is simultaneously experiencing rapid climate change impacts and a revolutionary change in the composition of its generation fleet is an unprecedented endeavor. The risk of common mode failures can be mitigated through electric infrastructure planning and planning standards. The applicable standards vary depending on the part of the electric grid in question. For example, the bulk electric grid is subject to NERC reliability standards that specifically relate to the transmission system. In establishing Resource Adequacy requirements for our jurisdictional entities, the CPUC has considered appropriate planning standards for our mix of loads and resources (generation). Given the heavily networked and interdependent nature of the electric grid and its susceptibility to extreme weather events arising from climate change, it seems increasingly likely that the patterns of failure will become more complex.

The CPUC has engaged in a variety of modeling exercises over the past decade to consider how planning standards and assumptions should be refined to address the changing grid. Issues such as the California "duck curve" (representing the extreme variance throughout the day of the generation mix) or the shift in the net load peak (representing the shift in the peak load, net of wind and solar supply) have continued to be studied and results impact CPUC regulatory requirements. Another major assumption for California to consider in planning has been the availability of imports from the northwest and southwest, regions that are themselves impacted by both rapid climate change and revolutionary changes in the composition of their generation fleet.

Geographic diversity, as well as technological diversity, as well as regulatory standards for minimum reserve margins (planning requirements) all play a role in mitigating the risk of common mode failures.

FERC Question 5

A*re there improvements to coordinated operations and planning between energy systems (e.g., the natural gas and electric power systems) that would help reduce risk factors related to common mode failures? What could those improved steps include?*

State regulators and utility planners should continue to consider how to reliably contract for intermittent gas usage by gas-fired electric generators. As the grid experiences higher penetrations of variable renewable energy, the grid's dependence on gas-fired generation will continue in the near future, even if gas resources are used less frequently. Coordination between gas and electric daily operations from planning through operations will continue to require a concerted effort between regulators, utilities, and grid operators.

FERC Question 6

How are relevant regulatory authorities (e.g., federal, state, and local regulators), individual utilities (including federal power marketing agencies), and regional planning authorities (e.g., RTOs/ISOs) evaluating and addressing challenges posed to electric system reliability due to climate change and extreme weather events and what potential future actions are they considering? What additional steps should be considered to ensure electric system reliability?

The CPUC (in R.18-04-019) recently developed a comprehensive planning process for the state's large energy utilities to account for long-term climate change impacts to utility infrastructure, operations, and services. CPUC Decision 19-10-054 defined climate adaptation as follows:

> *Climate change adaptation is adjustment in natural and human systems to a new or changing environment. Adaptation to climate change for energy utilities regulated by the Commission refers to adjustment in utility systems using strategic and data-driven consideration of actual or expected climatic impacts and stimuli or their effects on utility planning, facilities maintenance and construction, and communications, to maintain safe, reliable, affordable and resilient operations.*

Pursuant to CPUC Decision 20-08-046, the utilities will begin conducting climate change vulnerability assessments, with the first utility filing its vulnerability assessment in 2022. Vulnerability assessments consider climate risks to operations and service as well as to utility assets over which energy IOUs have direct control; the IOUs' assessments may also include any known climate vulnerability information from contracted power generation facilities. The key planning timeframe for the vulnerability assessments is 20-30 years out, with additional considerations in the 10–50-year range. Additionally, the assessments will include an array of options for dealing with vulnerabilities and an indication of the IOUs' plans for potential next steps. Each IOU files its vulnerability assessment one year in advance of its General Rate Case filing, to provide context for the need for any investments it requests in its General Rate Case application. Community engagement, particularly with communities that are disadvantaged and vulnerable to climate change, is a key aspect of the IOUs' development of their vulnerability assessments. The decision also requires energy utilities to designate 'climate change teams' across departments, reporting directly to an executive at a senior vice president level or above. All board members will also oversee climate adaptation planning.

Table 1. Schedule for first round of utility Climate Adaptation-related filings

Investor Owned Utility	Community Engagement Plan Filing	Vulnerability Assessment Filing	General Rate Case Filing
SCE	2021	2022	2023
PG&E	2023	2024	2025
SoCalGas/SDG&E	2024	2025	2026

See response #3, above, for more details.

FERC Question 7

Are relevant regulatory authorities, individual utilities, or regional planning authorities considering changes to current modeling and planning assumptions used for transmission and resource adequacy planning? For example, is it still reasonable to base planning models on historic weather data and consumption trends if climate change is expected to result in extreme weather events that are both more frequent and more intense than historical data would suggest? If not, is a different approach to modeling and planning transmission and resource adequacy needs required? How should the benefits and constraints of alternative modeling and planning approaches be assessed?

The CPUC has two primary proceedings for consideration of modeling and planning assumptions related to electric system reliability:

- The Integrated Resource Planning (IRP) proceeding, R. 20-05-003, establishes the planning standards for long-term resource adequacy, conducts modeling on a variety of long-range planning futures, and informs CPUC decision making with respect to the need for new generation to serve load in the medium to long term (focusing on years 3-10, but increasingly looking out to 2045). See https://www.cpuc.ca.gov/irp/
- The Resource Adequacy (RA) proceeding, R.19-11-009 establishes the minimum capacity requirements for all jurisdictional load serving entities, conducts modeling on a range of near-term planning futures, and informs CPUC decision making with respect to all aspects of the resource adequacy program requirements. See https://www.cpuc.ca.gov/ra/

Both the IRP and RA proceedings are considering modifications to forecasting the future climate. This is because the assumption that the future will behave, on average, like the previous historical record carries inherent uncertainty. The CPUC is working on

developing approaches to future climate modeling, including creation and use of synthetic climates, to test the robustness of our planning processes.

More broadly, in the CPUC's comprehensive climate adaptation proceeding, discussed in question 6, the CPUC identified climate data sources, models, and tools the energy utilities should use to understand climate-driven risks. See Decision 19-10-054. The CPUC requires the utilities to use the California Fourth Climate Change Assessment and the studies, data, tools, and models contained in that Assessment when analyzing climate impacts, climate risk, and climate vulnerability of utility infrastructure and operations. If the state develops new projections, the utilities should continue to align with the updated information. Pursuant to Decision 19-10-054, the CPUC selects one global emissions scenario – a business-as-usual case referred to as Representative Concentration Pathway 8.5 - for the utilities to use in their planning, which is consistent with other state modeling efforts. Identifying a common set of data and assumptions on which the utilities base their climate adaptation vulnerability assessments helps ensure alignment in planning processes and reduce the need for utilities to individually make these decisions. The CPUC also recognized that it can update its guidance as climate science evolves.

FERC Question 8

Are relevant regulatory authorities, individual utilities, or regional planning authorities considering measures to harden facilities against extreme weather events (e.g., winterization requirements for generators, substations, transmission circuits, and interstate natural gas pipelines)? If so, what measures? Should additional measures be considered?

As discussed in questions 2 and 6, the CPUC climate adaptation planning process aims to create a coordinated long-term planning framework whereby utilities assess climate vulnerabilities over a long planning horizon. This long planning horizon then informs their near-term needs for any potential investments to harden facilities in preparation for climate change and their seeking funding for these investments as part of their General Rate Cases. Utilities are developing planning frameworks that utilize climate modeling and risk assessment to identify the most critical and timely investments to make to network infrastructure including transformers and substations. Natural gas utilities are also evaluating similar hardening investments for their natural gas assets. Importantly, since California part of a regional energy market, planning and hardening investments are necessary to ensure reliable energy service throughout the region. The FERC may need consider promoting planning to prioritize hardening investments for all states and to study minimum planning standards for states to follow in order to best identify needs using the most up to date climate assessments.

The CPUC oversees the safety and reliability of electric system infrastructure with the support of two key areas of regulation:

(1) The CPUC runs an Electric Generation Safety and Reliability Program. As part of this program, the CPUC implements and enforces General Order (GO) 167. Staff performs comprehensive audit, outage inspection, and incident investigation of electric generation facilities to ensure they are maintained and operated in a safe and reliable manner. The appropriate hardening and weatherization of facilities can be considered pursuant to this General Order. The General Order contains maintenance standards, operation standards, as well as logbook requirements. The CPUC has also established outage standards and outage reporting procedures.

(2) The CPUC also has established Electric and Communication Facility Safety standards, as established and enforced under the CPUC's General Orders (GO) 95,

128, 165, 166, and 174 . These regulations govern the construction and maintenance of overhead and underground electric and communications facilities. The CPUC has jurisdiction over the safety of overhead and underground electric and communications line construction of all investor-owned utilities, co-ops, and municipalities in the State of California. See https://www.cpuc.ca.gov/General.aspx?id=7659.

In addition to these planning standards, California electric utilities are hardening electric infrastructure and investing in other mitigation measures as part of a broad Wildfire Mitigation Planning process directed by statute.

FERC Question 9

How have entities responsible for real-time operations (e.g. utilities, RTOs/ISOs, generator operators) changed their operating practices in light of the challenges posed by climate change and extreme weather events and what potential future actions are they considering? What additional steps should be considered to change operating practices to ensure electric system reliability?

CPUC offers no response to Question 9.

FERC Question 10

Are seasonal resource adequacy assessments currently performed, and have they proven effective at identifying actual resource adequacy needs? If they are used, is there a process to improve the assessments to account for a rapidly changing risk environment such as that driven by climate change? If seasonal resource adequacy assessments are performed, are probabilistic methods used to evaluate a wider range of system conditions such as non-peak periods, including shoulder months and low load conditions?

The CPUC does not currently perform seasonal resource adequacy assessments, although modeling studies do show that seasonal assessments will likely become more necessary as the climate change impacts increase and the generation mix continues to evolve towards a carbon-free technology mix.

The CPUC and some parties to CPUC proceedings do perform probabilistic resource adequacy assessments of peak months, which have already shown how reliability needs are increasingly being driven by later evening hours when solar generation ramps down. This effect will likely increase going forward; however, there are a range of demand side resources (including new ones such as controllable EV demand) that may mitigate the need for a new "supply" resource to ensure reliability.

FERC Question 11

Are any changes being considered to the resource outage planning process? For instance, should current practices of scheduling outages in perceived "non-peak" periods be re-evaluated, and should the consideration during planning of the reserve needs during non-peak outage periods be improved?

As the generation fleet increasingly relies on intermittent generation such as wind and solar, and as electric demand in off peak months may become more variable or higher, there may be the need for a more real time scheduling of outages, rather than the month ahead or year ahead scheduling of outages that is currently prevalent. In addition, it is likely that increased amounts or different types of reserves will be needed to account for the variability of intermittent resources.

FERC Question 12

Mass public notification systems (e.g., cellphone texts, emails, smart thermostat notifications) are sometimes used in emergencies to solicit voluntary reductions in the demand for electricity. To what extent are such measures used when faced with emergencies related to climate change or extreme weather events, have they been effective in helping to address emergencies, and is there room for improvement?

The CPUC requires utilities to notify customers for both planned and unplanned outages, pursuant to the CPUC's General Order 166. Standards apply to unplanned

outages caused by damage to distribution or transmission lines or substations due to events such as storms, fires, accidents, or terrorism. The utilities provide the CPUC copies of their emergency communication plans each year which include detailed communication protocols for various circumstances.

FERC Question 13

What measures are being considered to improve recovery times following extreme weather event-related outages? For example, are there potential changes to operating procedures, spare equipment inventory, or mutual assistance networks under consideration? What additional steps should be considered to improve recovery times?

CPUC regulated utilities measure and report their reliability statistics, including measured duration and frequency of outage events using industry standard reliability metrics. For more information, see Reliability Reporting.

FERC Question 14

Given the key role blackstart resources play in recovering from large-scale events on the electric system, how is the sufficiency of existing blackstart capability assessed, and has that assessment been adjusted to account for factors associated with climate change or extreme weather events? For example, is the impact of potential common mode failures considered in the development of black start restoration plans (including but not limited to common mode failure impacts on generation resources, transmission lines, substations, and interstate natural gas pipelines)? Should these be addressed?

Blackstart capability is essential to an electric system that runs the risk of cascading failures. Common mode failures may also arise from dependencies on a similarly fragile and interconnected fuel system. Blackstart capability must be facilitated by generators capable of running on more than one type of fuel, or storing fuel onsite, or both. There is also ongoing and promising research into the capability of electrical battery storage to provide inertial response, which could also provide blackstart

capabilities so long as the batteries are fully charged. A gas turbine, while providing inertia and voltage support, may have less certain blackstart capabilities due to potential failure of the gas supply system. Solutions may include both battery storage as well as dual fueled combustion technology. Building up gas linepack and ensuring that gas wells don't freeze may require some investment in heating and compression that also have onsite or dual fuel capability.

FERC Question 15

What actions should the Commission consider to help achieve an electric system that can better withstand, respond to, and recover from climate change and extreme weather events? In particular, are there changes to ratemaking practices or market design that the Commission should consider?

CPUC offers no response to Question 15.

FERC Question 16

Are there opportunities to improve the Commission-approved NERC Reliability Standards in order to address vulnerabilities to the bulk power system due to climate change or extreme weather events in areas including but not limited to the following: transmission planning, bulk power system operations, bulk power system maintenance, emergency operations, and black start restoration? For example, should the Reliability Standards require transmission owners, operators or others to take additional steps to maintain reliability of the bulk power system in high wildfire or storm surge risk areas? Should the Reliability Standards require the application of new technologies to address vulnerabilities related to extreme weather events, such as to use new technologies to inspect the bulk power system remotely?

CPUC offers no response to Question 16.

FERC Question 17

Where climate change and extreme weather events may implicate both federal and state issues, should the Commission consider conferring with the states, as permitted under FPA section 209(b), to collaborate on such issues?

Yes, FERC collaboration with other states on climate change and extreme weather events is highly desirable, given the scale and complexity of the problem. California is planning for climate change, as summarized above, however, given the interconnectedness of intrastate/interstate electric/gas systems the Commission should consider conferring with states as regional planning and state/federal coordination could be beneficial. The recent polar vortex event in Texas and its impact on gas and electric supply to California is only one recent example of such interdependencies. Lack of WECC wide coordination will impact the overall reliability of the electric grid. For this reason, we believe coordination of planning efforts across all states is prudent.

Dated: April 15, 2021

Respectfully submitted,

AROCLES AGUILAR
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CERTIFICATE OF SERVICE

I hereby certify that I have on this day caused a copy of the foregoing document to be served upon all parties designated on the official service list in this proceeding in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure.

Dated at San Francisco, California, this 15th day of April 2021.

/s/ Christopher Clay
Christopher Clay