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TO PARTIES OF RECORD IN RULEMAKING 18-04-019:

This is the proposed decision of Commissioner Liane M. Randolph. Until and unless the Commission hears the item and votes to approve it, the proposed decision has no legal effect. This item may be heard, at the earliest, at the Commission's August 6, 2020 Business Meeting. To confirm when the item will be heard, please see the Business Meeting agenda, which is posted on the Commission's website 10 days before each Business Meeting.

Parties of record may file comments on the proposed decision as provided in Rule 14.3 of the Commission's Rules of Practice and Procedure.

/s/ ANNE E. SIMON
Anne E. Simon
Chief Administrative Law Judge

AES:avs

Attachment

Decision **PROPOSED DECISION OF COMMISSIONER RANDOLPH**
(Mailed 7/6/2020)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to
Consider Strategies and Guidance for
Climate Change Adaptation.

Rulemaking 18-04-019

**DECISION ON ENERGY UTILITY CLIMATE CHANGE VULNERABILITY
ASSESSMENTS AND CLIMATE ADAPTATION IN DISADVANTAGED
COMMUNITIES (PHASE 1, TOPICS 4 AND 5)**

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APPENDIX B – Commission Staff Report – Topic 5

DECISION ON ENERGY UTILITY CLIMATE CHANGE VULNERABILITY ASSESSMENTS AND CLIMATE ADAPTATION IN DISADVANTAGED COMMUNITIES (PHASE 1, TOPICS 4 AND 5)

Summary

This decision takes steps to ensure the energy utilities we regulate are prepared to upgrade their infrastructure, operations and services to adapt to climate change, and to ensure safe and reliable energy service to all Californians – including those most vulnerable and disadvantaged.

At its essence, climate change adaptation for California’s investor-owned energy utilities focuses on incorporating the best available climate science into utility infrastructure and operational planning for the long term to help ensure provision of resilient and reliable service to all customers. The purpose of this Rulemaking and the guidance adopted herein is to provide a forum for addressing how energy utilities should plan and prepare for increased operational risks due to changing climate conditions and heightened risks from wildfires, extreme heat, extreme storms, drought, subsidence and sea level rise, among other climate change phenomena. Energy utilities need this guidance to plan to continue to fulfill their mission to provide safe, reliable and affordable service in the future’s more difficult operating environment.

This decision weaves together two questions: (1) how should the energy utilities we regulate assess and adapt to California’s vulnerabilities caused by climate change, and (2) how should the utilities engage with the most vulnerable and disadvantaged communities on climate adaptation so the communities are not left behind the rest of the state.

We reach the following conclusions in this decision:

1. *Topic 4: Disadvantaged Vulnerable Communities*
 - a. The communities most vulnerable to climate change will be referred to as Disadvantaged Vulnerable Communities (DVCs).
 - b. DVCs, which require special attention for climate adaptation purposes when utilities begin making infrastructure, operational and service changes as part of their climate adaptation efforts, will consist of: The 25% highest scoring census tracts according to the California Communities Environmental Health Screening Tool (CalEnviroScreen); all California tribal lands; census tracts with median household incomes less than 60% of state median income; and census tracts that score in the highest 5% of Pollution Burden within CalEnviroScreen, but do not receive an overall CalEnviroScreen score due to unreliable public health and socioeconomic data.
 - c. The large energy investor owned utilities (IOUs) the Commission regulates will be required to lead a process of community engagement with DVCs as they develop vulnerability assessments due to climate change impacts. The IOUs will describe such engagement in a Community Engagement Plan due no later than 90 days from the effective date of this decision. Subsequent Community Engagement Plans will be filed every four years, 180 days before their vulnerability assessment.
 - d. The Community Engagement Plan will include, among other things, an analysis of how IOUs promote equity in DVCs based on the communities' adaptive capacity.
 - e. The IOUs will survey DVCs and community-based organizations (CBOs) to assess the effectiveness of the community outreach and engagement. The IOUs will file the results of the surveys every four years in a survey report. The first survey report is due on

June 30, 2021. Survey results will be used to improve the Community Engagement Plans.

2. *Topic 5: Vulnerability Assessments*

- a. The IOUs' vulnerability assessments will be submitted every four years according to each IOU's General Rate Case cycles as detailed in this decision.
- b. Vulnerability assessments will focus on climate risks to operations and service as well as to utility assets over which IOUs have direct control; options for dealing with vulnerabilities, ranging from easy fixes to more complicated, longer term mitigation; exposure to climate risk of facilities IOUs have third-party contracts with for power, capacity, or reliability; green and sustainable remedies for the vulnerable infrastructure; and how to promote equity in DVCs.
- c. Vulnerability assessments will focus on the following climate impacts: temperature, sea level, variations in precipitation (snowpack, extreme precipitation events, long-term precipitation trends, drought, subsidence), wildfire, and cascading impacts/compounding incidents.
- d. The key time frame to be considered by the vulnerability assessment will be the next 20–30 years. Vulnerability assessments will also include an intermediate time frame of the next 10–20 years and a long-term time frame of the next 30–50 years.
- e. Funding will be part of a separate ratesetting process. IOUs will set up memorandum accounts, the "Climate Adaptation Vulnerability Assessment Memorandum Account - CAVAMA" for the purpose of tracking costs directly related to the vulnerability assessments ordered in this decision.
- f. IOUs will create "climate change teams" across departments, with cross-departmental responsibilities and that will report directly and independently to an executive at the senior vice president level or above. In

addition, all board members will take responsibility for climate adaptation planning for infrastructure, operations, and services.

This proceeding remains open.

1. Procedural Background

The Commission opened this climate adaptation rulemaking on April 26, 2018. The proceeding was motivated by statewide policy directives, recent climate events, as well as advancements in – and availability of – climate science data and tools for evaluating the data. Climate change adaptation planning in a time of worsening climate impacts is a prudent step to ensure the safety and reliability of the investments and operations of all investor-owned utilities.

This is the second of two decisions issued in Phase 1 of the Rulemaking. As outlined in the Rulemaking, Phase 1 of this proceeding considers the following five topics; Decision (D.) 19-10-054 addressed Topics 1 and 2, and this decision addresses Topics 4 and 5:

1. Definition of climate adaptation for utilities;
2. Appropriate data sources, models, and tools for climate adaptation decision-making;
3. Guidelines for utility climate adaptation assessment and planning;¹
4. *Identification and prioritization of actions to address the climate change related needs of vulnerable and disadvantaged communities; and*
5. *Framework for climate-related decision-making and accountability.*

¹ The Topic 3 issues are addressed as part of Topic 5, as explained in the Administrative Law Judge's Ruling dated January 29, 2020. No party objected to this approach.

Further, one issue from Topic 2 – a January 2019 Staff Proposal to establish a “Technical Advisory Group” – was also moved to Topic 5 and changed to a proposal for the utilities to rely on experts in their vulnerability assessments. D.19-10-054 at 47. Hence, this decision completes Phase 1 of the proceeding.

The following California investor-owned electric and natural gas utilities are respondents to this Rulemaking: Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E), Southern California Gas Company (SoCalGas), PacifiCorp, Liberty Utilities (CalPeco Electric) LLC, Bear Valley Electric Service, Southwest Gas, Alpine Natural Gas Operating Company, Lodi Gas Storage, Wild Goose Storage, Central Valley Storage, and Gill Ranch Storage. According to the Scoping Memo, the entities filing as the California Association of Small and Multi-Jurisdictional Utilities and Independent Storage Providers are not required to participate in Phase 1. California investor-owned telecommunications and water utilities were invited but not required to participate in Phase 1, and they did not participate. The Scoping Memo adopted a working group process for developing the issues under five topics, including Topics 4 and 5.

On Topic 4, staff issued a proposal (attached to the June 25, 2019 ruling described below).² The Topic 4 working group met twice, on March 25, 2019 and May 21, 2019. Following the two meetings, a working group report on “Climate Vulnerable and Disadvantaged Communities” (Topic 4 Report) was prepared and served on parties by ruling dated June 25, 2019.³

² The Topic 4 staff proposal appears as Appendix A to this decision.

³ For both Topic 4 and 5, a utility prepared the report at the direction of the assigned ALJ, but the report summarizes the working group discussions and was edited by Commission staff. Parties were allowed to review the report before it was submitted to the Commission, and ALJ

Natural Resources Defense Council (NRDC), California Environmental Justice Alliance (CEJA) and Leadership Counsel jointly (CEJA/LC), California Public Advocates Office (CalPA), Green Power Institute (GPI), PG&E, SCE, SDG&E, SoCalGas (with the 4 utilities also filing jointly as Joint Utilities) filed Opening Comments on the Topic 4 Report on July 12, 2019. Small Business Utility Advocates (SBUA), CalPA/NRDC (jointly), CEJA/LC, GRID Alternatives (GRID), PG&E, SCE, SDG&E and SoCalGas filed Reply Comments on the Topic 4 Report on July 26, 2019.

On Topic 5, an initial staff proposal was sent to the service list on October 22, 2019.⁴ The parties attended a working group session addressing these topics and proposals on November 15, 2019. On January 16, 2020 SoCalGas submitted its summary of the working group discussion in a staff-reviewed Topic 5 Report. An Administrative Law Judge's (ALJs) ruling on January 29, 2020 issued the Topic 5 Report for comment and asked questions that form the basis for the Topic 5 discussion in this decision. PG&E, SoCalGas, SCE, SDG&E, CEJA/LC, CalPA, GPI, NRDC and SBUA filed Opening Comments on February 18, 2020. With the exception of NRDC and SBUA, the same parties filed Reply Comments on March 3, 2020.

2. Topic 4 - Identification and Prioritization of Actions to Address the Climate Change Related Needs of Vulnerable and Disadvantaged Communities

Topic 4 focuses on three questions:

1. What is an appropriate definition of vulnerable and disadvantaged communities in the context of climate

rulings on June 25, 2019 (Topic 4) and January 29, 2020 (Topic 4) gave parties an opportunity to comment on the reports.

⁴ The Topic 5 staff proposal is Appendix B to this decision.

- adaptation? What are the special needs of these communities that should be addressed?
2. How should utilities and the Commission include these communities in their efforts to identify and prioritize climate adaptation investments?
 3. How should investments and other activities benefitting these communities in the context of climate change impacts be identified and prioritized?

The Topic 4 staff report proposes the following definition of vulnerable and disadvantaged communities:

Vulnerable communities experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts. These disproportionate effects are caused by physical (built and environmental), social, political, and/or economic factor(s), which are exacerbated by climate impacts.

Staff proposes that the definition include the 25% highest scoring census tracts according to CalEnviroScreen, along with tribal lands and census tracts with median household incomes less than 80% of area or state median income.

With regard to reaching out to and collaborating with such vulnerable and disadvantaged communities (community engagement), staff proposes the following:⁵

- Build enough time into the vulnerability assessment process to allow for community engagement and partnership.
- Develop and maintain partnerships with DVCs and their representatives across the investor-owned utilities' (IOUs') service territory.
- The Commission and IOUs should work with the community to build capacity to participate in Commission

⁵ The Topic 4 staff proposal is Appendix A to this decision.

- processes and create long-term relationships with community groups.
- The Commission and IOUs should work with communities to maximize community member participation through meeting logistics and planning.
 - The Commission and IOUs should build on the best practices for community engagement that they and other organizations have identified and implemented, and collaborate, when appropriate, with existing efforts at the CPUC and in State government.
 - IOUs can consider how best to connect community members with appropriate agencies to address requests for adaptation investments/activities that are not within the IOU's jurisdiction.

We discuss each of the Topic 4 questions below.

2.1. Question 1: What is an Appropriate Definition of Vulnerable and Disadvantaged Communities in the Context of Climate Adaptation; What are the Special Needs of These Communities That Should Be Addressed?

2.1.1. Definition

2.1.1.1. Party Comments – Definition

Question 1 of Topic 4 focuses on the definition of vulnerable and disadvantaged communities for climate adaptation purposes and identification of the special needs of such communities. The parties addressing the definition make the following arguments:

- The Commission should not use the term “disadvantaged communities” for purposes of climate adaptation since it is a term used in statute and applied in many contexts and it may be confusing to use the same term for climate adaptation purposes.
- Traditional definitions of disadvantaged communities are too limiting in the context of climate adaptation, arguing

that the climate vulnerability of a community may only be loosely tied to its socioeconomic status.

- Defining climate vulnerability requires considering both the socioeconomic characteristics of a community and that community's exposure to climate-driven impacts.
- The Commission should use the term “climate vulnerable” communities and not the proposed “disadvantaged communities” designation when identifying communities most at risk of suffering from the impacts of climate change on utility infrastructure and the utility’s ability to reliably provide energy service.
- The definition of vulnerable and disadvantaged communities should focus on their risk of having energy service affected by impacts to infrastructure from climate change-driven hazards. The ability of such communities to withstand and adapt to loss of energy services from utility infrastructure impacts, such as a power outage, should also be included.
- The definition for climate adaptation purposes should rely on the staff proposals regarding CalEnviroScreen, tribal lands and income levels.
- The Commission should rely on California Department of Public Health’s CalBRACE Climate Change & Health Vulnerability Indicators for California (CCHVIz) or Cal-Adapt, or the Healthy Places Index discussed during the second Working Group, instead of CalEnviroScreen.
- The Commission should change the income levels staff suggests.
- All disadvantaged communities should be categorized as vulnerable to climate change and therefore assessed for vulnerability, rather than creating a binary choice of either assessing a community or not. Others oppose this approach.

- Some discuss whether other community characteristics, such as “risk sensitivity,” and “adaptive capacity” should be criteria for including a community.
- One party suggests including small businesses in the definition on the assertion that 40-50 percent of businesses that shut down during a disaster do not reopen.

2.1.1.2. Discussion – Definition

We adopt the staff definition of communities that are the most vulnerable to climate change, and call such communities “Disadvantaged Vulnerable Communities,” or DVCs. As discussed in the “Median Income” Section below, we modify the staff proposal to include state median income and not area median income:

A DVC for purposes of this proceeding consists of communities in the 25% highest scoring census tracts according to the most current versions of the California Communities Environmental Health Screening Tool (CalEnviroScreen), as well as all California tribal lands, census tracts that score in the highest 5% of Pollution Burden within CalEnviroScreen, but do not receive an overall CalEnviroScreen score due to unreliable public health and socioeconomic data, and census tracts with median household incomes less than 60% of state median income.

We include the term “disadvantaged” because the Commission has applied the term to include communities that require extra funding, outreach and attention due to socioeconomic factors, pollution burden, and adaptive capacity.⁶ To ensure that it is clear that the reference is to disadvantaged communities that are also exceptionally vulnerable to climate change because of their disadvantage, we add the term “vulnerable” to the description.

⁶ Parties seeking information on the Commission’s work on behalf of disadvantaged communities should consult the Commission’s webpage at <https://www.cpuc.ca.gov/discom/>.

DVCs will require extra attention in order to ensure equity when the IOUs begin making infrastructure, operational and service changes as part of their climate adaptation efforts. As the Commission found in D.19-10-054 (the first decision on Phase 1), DVCs may need additional resources over other communities in order to ensure that they are treated equitably in response to climate change:

Certain groups [are] likely to require additional *prioritization* for protections in the adaptation context (*e.g.*, vulnerable and disadvantaged communities, and low-income customers.) This should be considered in detail in Working Group Topic 4 and 5.⁷

The term “prioritization” does not mean that DVCs will necessarily be treated first. It may be, for example, that a highly populated area near the ocean requires attention before a rural inland community due to the potential for sea level rise. Similarly, a very hot inland community may require adaptation measures before a cooler coastal community due to temperature changes caused by climate change. “Prioritization” in this context means that a community that is a DVC may require extra resources, and more engagement and attention, because it is less able to fund or organize adaptation efforts on its own.

The key is to ensure equity - recognition that some communities may need extra financial, educational, supportive service and other assistance due to their characterization as DVCs. Such communities are vulnerable socioeconomically and therefore will have difficulty adapting to climate change due to their inability to afford resiliency measures that other, wealthier communities may be able to afford. They also are communities at specific danger of climate change impacts of various types. Hence, a DVC has both high socioeconomic burden

⁷ D.19-10-054 at 25 (citations omitted; emphasis in original).

and high exposure to one or more adverse climate impacts. Such communities will require specific attention and extra resources to adapt to climate change.

2.1.2. Adaptive Capacity

2.1.2.1. Party Comments – Adaptive Capacity

The staff report points out that adaptive capacity contributes to communities' vulnerability in the context of climate adaptation. Thus, when a community's adaptive capacity is low, relative to exposure and sensitivity, a community is more vulnerable. In comparison, a community with higher adaptive capacity, relative to exposure and sensitivity, is less vulnerable. Vulnerability occurs on a spectrum and this spectrum should be considered in defining DVCs.

CEJA/LC ask the Commission to adopt the following definition of adaptive capacity:

The broad range of responses and adjustments to daily and extreme climate change-related events available to communities. This includes the ability and resources communities have to moderate potential damages, take advantage of opportunities, and cope with consequences. CEJA/LC Topic 4 Opening Comments at 13.

SCE also suggests that the determination of communities' climate vulnerability include an initial understanding of the communities' adaptive capacity. The Joint Utilities likewise state that "[c]limate vulnerability' in the context of utility adaptation should consider adaptive capacity to climate-driven impacts to utility infrastructure." Joint Utilities' Topic 4 Opening Comments at 5.

2.1.2.2. Discussion – Adaptive Capacity

We agree with CEJA/LC that vulnerability assessments for DVCs shall include their adaptive capacity, and we define the term as CEJA/LC propose.

When IOUs begin to seek funding to adapt their infrastructure, operations and services to DVCs, such requests shall include extra treatment, including funding, outreach and education, to promote equity between communities with low adaptive capacity and those outside DVCs with high incomes or other indicia of strong ability to adapt to climate change.

The Commission and IOUs will have to identify resources to ensure equity. Hence, the vulnerability assessments should identify areas in need of extra funding, outreach and education, and parties may weigh in on such areas. However, requests for funding equity needs should be included either in the IOUs' General Rate Cases, a separate ratesetting proceeding, or in applications filed by the IOUs.

Nonetheless, in preparing their vulnerability assessments (and Community Engagement Plans discussed later in this decision), IOUs shall include analysis of how they promote equity in DVCs based on their adaptive capacity. In determining levels of adaptive capacity, IOUs shall consult with and rely on the other parties to this proceeding that submitted comments on the issue.

In discussing adaptive capacity, the IOUs should include discussion of whether extra funding will be sought in the future, along with discussion of any extra outreach and education that IOUs will need to conduct in order to achieve equity.

Since vulnerability⁸ assessments themselves will not seek funding, we expect the Commission will have to expand on how to implement this general requirement of equity when IOUs begin seeking funding for actual adaptation

⁸ The staff proposals for Topics 4 and 5 appear in Appendices A and B, respectively.

measures. Vulnerability assessments shall also discuss equity considerations so DVCs are not left behind due to their inability to garner their own resources to fund climate adaptation measures.

2.1.3. Tools to Identify DVCs

2.1.3.1. Party Comments – Tools to Identify DVCs

Staff proposes that the Commission use CalEnviroScreen to determine which communities are DVCs. PG&E and SCE recommend reliance instead on the California Department of Public Health’s California Building Resilience Against Climate Effects (CalBRACE) Climate Change & Health Vulnerability Indicators Tool (CCHViz).⁹ The CCHViz tool considers indicators in three domains:¹⁰

- Environmental exposures – the magnitude, frequency, and duration of an environmental exposure or disease risk.
- Population sensitivity – the physiological and socioeconomic factors which directly or indirectly affect the degree to which a population is impacted by climate-related changes.
- Adaptive capacity – the broad range of responses and adjustments to the impact of climate change, including the capacity to moderate potential damages, take advantage of opportunities, and cope with the consequences.

CEJA/LC advocate using Cal-Adapt as a primary data tool for adaptation planning given its ability to overlay the CalEnviroScreen data. This data includes evaluation of pollution sources and community vulnerability given

⁹ Topic 4 Report, at 7.

¹⁰ Climate Change and Health Vulnerability Indicators for California, California Building Resilience Against Climate Effects (CalBRACE). California Department of Public Health Office of Health Equity. <https://www.cdph.ca.gov/Programs/OHE/Pages/CC-Health-Vulnerability-Indicators.aspx>.

socioeconomic criteria, and scores census tracts in California based on their combined pollution burden and population characteristics. Users of Cal-Adapt are able to view and compare predicted climate changes within and between disadvantaged communities.¹¹ CEJA/LC also state that community-based organizations (CBOs) can provide more specific information about differences in community vulnerabilities and adaptation needs than provided by CalEnviroScreen, and that utilities should use such information in their climate adaptation planning when considering community vulnerabilities and prioritization of disadvantaged and vulnerable communities.

2.1.3.2. Discussion – Tools to Identify DVCs

Staff's reliance on CalEnviroScreen with modifications is appropriate for definitional purposes in this proceeding. To the extent the CCHViz/CalBRACE tool that SCE and PG&E rely upon in their comments assist in determining DVCs, the IOUs may use that tool as well. Similarly, Cal-Adapt tools may be used as CEJA/LC suggest.

However, other tools such as CCHViz or Cal-Adapt should not be used to exclude communities from DVC status if using CalEnviroScreen or the rural and tribal lands we refer to in the definition of DVCs would include them.

2.1.4. Tribal and Rural Communities

2.1.4.1. Party Comments – Tribal and Rural Communities

Most parties agree with staff that CalEnviroScreen alone is insufficient to identify all DVCs for purposes of climate adaptation. CEJA/LC state that many communities—especially disadvantaged unincorporated communities (DUCs) in rural areas—are too small to be identified by the census-level data relied on in CalEnviroScreen. CEJA/LC assert that DUCs are some of the most vulnerable

¹¹ *Id.* at 4.

communities in the state and therefore request that they be included in any definition the Commission establishes here. CEJA/LC point to tools to aid in this identification in their comments.¹²

2.1.4.2. Discussion – Tribal and Rural Communities

We agree with staff's proposal to expand on the output of CalEnviroScreen in order to capture tribal lands and the low or sparsely populated census tracts that score in the highest 5% of Pollution Burden within CalEnviroScreen, but do not receive an overall CalEnviroScreen score due to unreliable public health and socioeconomic data, including all California tribal lands. While the populations of these communities may be small, certain rural and tribal communities may be equally in need of climate adaptation as larger communities in appropriate situations.

2.1.5. Median Income Requirement

2.1.5.1. Party Comments – Median Income Requirement

The staff report proposes that DVCs include census tracts with median household incomes less than 80% of area or state median income. CEJA/LC recommend that in evaluating low-income communities, the Commission should use *statewide* median household income only, rather than *area and state* median household income as staff proposes. CEJA/LC also recommend changing the percentage to 60% rather than using the 80% figure staff proposes.

CEJA/LC reason that including area median income causes 48% of census tracts to be eligible for DVC status, and that nearly half of the state's census tracts

¹² *Senate Bill 244 Disadvantaged Unincorporated Communities Assessment*, October 2015, analysis completed for Tulare County, provided as an example of the kind of local data that is available to identify disadvantaged unincorporated communities, available at <https://tularecounty.ca.gov/rma/index.cfm/rmadocuments/planning-documents/senate-bill-244-disadvantaged-communities-gpa-15-010/>.

is too large of a proportion to allow for meaningful prioritization of climate adaptation actions and investments. CEJA/LC claims this proportion should be closer to 20% to create meaningful prioritization of climate adaptation actions and investments. Removing area median household income and identifying low-income census tracts by statewide median household income, CEJA/LC state, reduces the number of identified census tracts substantially.

CEJA/LC provide the following table for comparison purposes. Because changing the staff proposal to use statewide median incomes and 60% rather than 80% as the percentage brings the percentage of DVCs closer to 20% of the state's total communities, CEJA/LC supports the third option in Table 1.

Table 1: Breakdown of Census Tracts Identified as Low-Income

Definition	Percentage of Census Tracts Identified
Census Tracts with Median Household Incomes Less than 80% of Statewide and Area Median Household Income	48%
Census Tracts with Median Household Incomes Less than 80% of Statewide Median Household Income only	33%
Census Tracts with Median Household Incomes Below 60% of Statewide Median Household Income	17%

By contrast, GRID disagrees with CEJA/LC's proposal to modify staff's definition to low-income census tracts and communities with a median household income less than 60% of statewide median income. GRID states that while it understands CEJA's intention to prioritize investments in communities most at-risk to the impacts of climate change, a 60% of statewide median income threshold would exclude a significant number of individual low-income households that will also be negatively affected by daily and longer-term climate change impacts.

2.1.5.2. Discussion – Medium Income Requirement

Despite the disagreement between CEJA/LC and GRID, both strong advocates for disadvantaged communities, we opt for CEJA/LC’s proposal, removing the requirement of using area incomes and retain only statewide incomes. We do this to ensure that resources are concentrated in communities most at need. Hence, the definition of DVCs conforms to the third row in Table 1 above:

Census Tracts with Median Household Incomes Less than 60% of Statewide Median Household Income only	17%
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2.1.6. Should the Definition of DVCs Include Small Businesses?

2.1.6.1. Party Comments – Small Businesses

SBUA asks the Commission to include small business in its definition of disadvantaged or vulnerable communities in this proceeding. While SBUA agrees that a geographic frame of reference is helpful for identifying locations where climate-related phenomena (*e.g.*, sea-level-rise, flooding, wildfires, high heat days, etc.) are likely to occur, this type of framing is less effective at considering socio-economic, political and linguistic determinants of human vulnerability and adaptability. Even if social factors are mapped onto these geographic locations, community is still composed of many individuals, businesses, and institutions that each experience varying levels of vulnerability. From SBUA’s standpoint, recognizing the constituents of a community is significant because small businesses experience vulnerability differently than the community at large.

SBUA asserts that small businesses that provide employment, income and services for community members are a critical component of the “social . . . and economic factor(s)” affecting community vulnerability. These businesses may be

vulnerable in ways that individuals are not, and their vulnerability may cascade into widespread impact to the community at large. For instance, small businesses with slim profit margins may be particularly sensitive to higher gas or electricity prices, or to business interruptions due to de-energization events and natural disasters. According to SBUA, small businesses typically lack the investment capital necessary to secure backup electrical power generation, business interruption insurance or other mitigation measures. They, therefore, suffer significant injury from even short power interruptions, particularly in food service and retail, two sectors with large proportions of low-income employees.

2.1.6.2. Discussion – Small Businesses

We do not believe small businesses should be treated differently than the communities in which they are located. The clear implication of adopting SBUA's recommendation is that even if a community is not a DVC, its small businesses may require adaptation measures. Because other sectors of the economy could make the same assertion, we are not prepared to extend extra benefits – funded by all ratepayers, including residential customers – to small businesses without them otherwise meeting the definition we adopt here.

2.1.7. Summary of Decision on Topic 4 Question 1

In summary, this decision reaches the following conclusions regarding Topic 4 Question 1.

1. We will call disadvantaged communities in the climate adaptation context “Disadvantaged Vulnerable Communities,” or DVCs;
2. The most recent version of CalEnviroScreen is the first step in identifying such communities;
3. CalEnviroScreen results will be supplemented by the census tracts that score in the highest 5% of Pollution Burden within CalEnviroScreen, but do not receive an

- overall CalEnviroScreen score due to unreliable public health and socioeconomic data;
4. All California tribal lands will be included in the definition;
 5. Median income requirements for DVC status will be based on census tracts with median household incomes less than 60% of statewide median household income.

2.2. Question 2: How Should Utilities and the Commission Include Vulnerable and Disadvantaged Communities in Their Efforts to Identify and Prioritize Climate Adaptation Investments?

The second Topic 4 question in the staff report relates to how to engage disadvantaged and vulnerable communities. We received comments recommending the following approaches:

- CBOs should be involved early and in all aspects of scope analysis, data gathering, goal development, implementation, and review.
- To this end, the IOUs should submit Community Engagement Plans, with time for comment by parties and the Disadvantaged Communities Advisory Group (DACAG). CalPA and NRDC provide a sample outline for such a report.
- Those involved in community engagement should be trained, and DVCs should receive funding to participate.
- The Commission's existing disadvantaged community planning, including the *Environmental Justice and Social Justice Action Plan*, and *Disadvantaged Communities Advisory Group Equity Framework*, should help guide community engagement on climate adaptation.

- The IOUs ask that the Commission or other government entities lead the effort to engage communities rather than the IOUs themselves.¹³
- The IOUs propose conducting vulnerability assessments of utility infrastructure first, and engaging with communities thereafter. Other parties have various proposals on timing of vulnerability assessments and community engagement.

2.2.1. IOUs Should File Community Engagement Plans and the Commission Should Allow Comment

2.2.1.1. Party Comments – Community Engagement Plans

Some parties urge the Commission to require the IOUs to file a Community Engagement Plan with an opportunity for party comment. CEJA/LC ask the Commission to review the Community Engagement Plans so that there is regulatory oversight ensuring that IOUs' community engagement is consistent with best practices. They suggest the Commission require the IOUs to develop these plans to be submitted for approval in an Advice Letter subject to discretionary approval within 45 days of the decision this proceeding; we adopt a 90-day deadline.

CalPA and NRDC have developed a sample outline for an "Interim Methodology Report: Community Engagement, Climate Adaptation, and Safe and Reliable Energy Provision in Vulnerable and Disadvantaged Communities" in coordination with CEJA.

¹³ PG&E suggests the Commission or relevant State agency coordinate and convene the public process for community engagement. SDG&E and SoCalGas cite SB 379 to contend that it is California local governments, and not the IOUs, who are required to carry out climate adaptation vulnerability assessment. SCE urges coordination with the Governor's Office of Planning and Research's Integrated Climate Adaptation and Resiliency Program efforts, localities and/or the Commission in efforts to convene and organize stakeholders to contribute to community-scale adaptation planning processes.

PG&E agrees that a community engagement plan should be created prior to a large-scale public engagement effort such as the one outlined in the staff proposal.

2.2.1.2. Discussion – Community Engagement Plans

We will require each IOU to prepare and file/serve a Community Engagement Plan. The Plan is due no later than 90 days from the effective date of this decision. Subsequent Community Engagement Plans should be filed/served 180 days before the due date for their vulnerability assessments. Rather than ordering an Advice Letter, since this proceeding will remain open IOUs should file the Community Engagement Plans in this docket. The parties should start by working from the CalPA/NRDC outline furnished with their Reply Comments on Topic 4. Parties will be given an opportunity to comment on the Plans by ruling, but the IOUs shall also share draft Plans with all parties as soon as possible and solicit input before the Plans are filed. We discuss the Community Engagement Plans in further detail later in this decision.

2.2.2. Training for Community Engagement

2.2.2.1. Party Comments – Training for Community Engagement

Several parties urge the Commission to ensure 1) Commission and IOU staff receive training in community engagement, 2) that communities themselves have a regular source of funding for their involvement in community engagement and 3) that communities receive clear information on the purposes and goals of their involvement. The commenters note that successful community engagement requires each of these elements.

GRID asserts that successful community adaptation to the impacts of climate change will require investments in physical and human capital, and an

intentional focus on meaningful community input from vulnerable and disadvantaged communities is critical to ensuring equity. However, GRID states, current avenues of resource acquisition (*e.g.*, intervenor compensation) are too irregular and inaccessible for most CBOs, so the Commission should dedicate a dependable and predictable funding source to enable CBOs to provide outreach activities in communities across the state, with prioritization for disadvantaged communities.

CalPA asks that the Commission and IOUs clarify the purpose of each vulnerability assessment to encourage engagement and efficient use of community time and resources. CalPA notes that presentations on community engagement best practices at the May 21, 2019 working group meeting conveyed that when community engagement is done poorly, it can lead to more distrust and disengagement. Speaker Abigail Solis, of Self-Help Enterprises, noted that if the anticipated outcome of engagement is not of interest to a community, the community will tend not to engage. CalPA is concerned that absent a clearly stated and specific purpose of the vulnerability assessments, the endeavor could result in wasting ratepayer funds, time, and the goodwill of communities.

CalPA also asks the Commission as part of the process to adopt existing guidance for state agencies on climate adaptation – as described in *Planning and Investing for a Resilient California*¹⁴ – as minimum baseline guidance for IOUs. It states that there are significant benefits to using this state guidance as a baseline. The guidance was vetted by experts, CBOs, and state agency staff. CBOs, environmental justice advocates, IOUs, and the Commission were represented in the technical advisory committees which developed the guidance.

¹⁴ *Planning and Investing in a Resilient California: Guidebook for State Agencies*, prepared by the Governor's Office of Planning and Research per Executive Order B-30-15.

Using existing state guidance as a baseline would harmonize the IOUs' adaptation efforts with the adaptation efforts of the state agencies they rely on and interface with, including the California Energy Commission and CAL FIRE among others.

CEJA/LC assert it is essential for the Commission to ensure adequate funding for these collaborative efforts. At a minimum, the Commission should work with CBOs to develop resources that can provide funding for continued outreach and engagement post-Commission decisions to ensure adequate implementation.

2.2.2.2. Discussion – Training for Community Engagement

We agree that training is essential to meaningful community engagement. Funding will have to be considered as well, either in IOUs' General Rate Cases or a separate proceeding. In IOUs' Community Engagement Plans required by this decision, IOUs shall set forth how their personnel have been or will be trained in community engagement so that their interactions with disadvantaged communities are productive and engender trust.

2.2.3. Commission Should Rely on Its Existing Environmental Justice and Disadvantaged Community Guidance and Process

2.2.3.1. Party Comments – Existing Commission Environmental Justice and Disadvantaged Community Processes

The Commission has already conducted work on environmental justice and disadvantaged communities, and GRID asks the Commission to use the outcomes of that work here. GRID urges the Commission to rely on its own

Environmental Justice and Social Justice Action Plan (ESJ Action Plan)¹⁵ as well as the Disadvantaged Communities Advisory Group's (DACAG) Equity Framework.¹⁶ The ESJ Action Plan goals and DACAG Equity Framework elements are summarized below for reference.

ESJ Action Plan Goals

1. Consistently integrate equity and access considerations throughout CPUC proceedings and other efforts;
2. Increase investment in clean energy resources to benefit ESJ communities, especially to improve local air quality and public health;
3. Strive to improve access to high-quality water, communications, and transportation services for ESJ communities;
4. Increase climate resiliency in environmental and social justice ESJ communities;
5. Enhance outreach and public participation opportunities for ESJ communities to meaningfully participate in the CPUC's decision-making process and benefit from CPUC programs;
6. Enhance enforcement to ensure safety and consumer protection for ESJ communities;
7. Promote economic and workforce development opportunities in ESJ communities;
8. Improve training and staff development related to environmental and social justice issues within CPUC's jurisdiction; and

¹⁵ CPUC Environmental Justice and Social Justice Action Plan at 15-17, available on the Commission's website at <https://www.cpuc.ca.gov/esjactionplan/>.

¹⁶ Disadvantaged Communities Advisory Group Equity Framework is included as Appendix D to the 2019 Environmental and Social Justice Action Plan, available on the Commission's website at <https://www.cpuc.ca.gov/esjactionplan/>.

9. Monitor the CPUC's environmental and social justice efforts to evaluate how they are achieving their objectives.

DACAG Equity Framework

1. Health & Safety;
2. Access & Education;
3. Financial Benefits;
4. Economic Development; and
5. Consumer Protection.

2.2.3.2. Discussion - Existing Commission Environmental Justice and Disadvantaged Community Processes

We agree that the existing Environmental Justice and Social Justice Action Plan and Disadvantaged Communities Advisory Group Equity Framework should be relied upon in the climate adaptation process. This decision requires the IOUs, in their Community Engagement Plans, to include discussion of how they will implement both sets of guidance. Before submitting their Community Engagement Plans for Commission review, the IOUs shall share draft(s) with the parties to this proceeding and reflect party input on the foregoing tools (as well as other issues), in the version they submit to the Commission.

We will also ask the DACAG to comment on any IOU Community Engagement Plans submitted in this proceeding and require the IOUs to consult the DACAG when developing their Community Engagement Plans. The IOUs shall work with the Commission staff responsible for the DACAG to make sure this item is on an appropriate DACAG meeting agenda in time for meaningful Community Engagement Plan review.

2.2.4. Community-Based Organization Involvement

2.2.4.1. Party Comments – Community-Based Organization Involvement

The parties universally support CBO involvement in community engagement with communities this decision identifies. GRID and NRDC assert such communities need to be involved early in the IOUs' data collection and analysis scoping process to ensure trust, transparency, and responsiveness to community needs. GRID also asks the Commission to set goals to encourage non-profit organizations to take leadership roles in the administration of community engagement efforts.

SBUA states that to provide actionable data, CBOs need to be involved early in the IOUs' data collection and analysis scoping process to determine search parameters and relevant granularity. If the initial research parameters are suboptimal, later corrections may be costly and time consuming. Providing inappropriate data to community members could also damage credibility and harm future opportunities for community engagement.

SoCalGas asserts that while CBOs can represent their communities, participants with empirical, firsthand experience on the front line of climate change-driven events are best suited to provide the most informative and useful insight. SCE asks for input from the CPUC's Disadvantaged Communities Advisory Group and other experts from organizations engaged in climate change adaptation research and policy, noting that these expert stakeholders understand both the power system and the needs of vulnerable and disadvantaged communities.

2.2.4.2. Discussion – Community-Based Organization Involvement

We agree that CBOs should be involved in all aspects of the community engagement process. We also agree that trusted and experienced CBOs should be considered for program administration roles, both in carrying out vulnerability assessments and implementing actual climate adaptation measures. This decision deals only with vulnerability assessments, while upgrades to actual utility infrastructure, operations and services will be part of separate IOU applications or their General Rate Cases. Therefore, for purposes of Phase 1, the IOUs' Community Engagement Plans should address how to ensure communities and CBOs are involved in scope analysis, goal development, implementation, administration and review of the utility vulnerability assessments, as well as taking leadership roles in their areas of expertise on vulnerability assessments and climate adaptation implementation in DVCs.

IOUs of course will have the freedom to conduct their own internal vulnerability assessment work, but should also be involved in community engagement after doing this initial work. Parties will also have the opportunity to weigh in on IOUs' Community Engagement Plans, but funding itself will have to be part of a separate ratesetting process.

We disagree with SoCalGas that community members must have "empirical, firsthand experience on the frontline of climate change-driven events" in order to participate effectively in community engagement efforts. While such experience is useful, other experience may be equally useful. Hence, we do not require any particular credentials for CBOs or community members, except for a desire to assist in helping the relevant community to adapt to climate change and a demonstrated track record of effective community engagement.

It is up to the IOUs, local governments, CBOs with climate-change experience, this Commission, parties in this proceeding and others to ensure that communities and CBOs have adequate information and opportunity for input. To the maximum extent, community members and CBOs should lead conversations about what is needed to assist DVCs in climate adaptation. However, funding for any such adaptation will come separately. Further, before considering new infrastructure, the Commission will need to understand whether existing infrastructure is adequate in light of projected climate change effects. The vulnerability assessments will provide the information the Commission and stakeholders need to determine whether infrastructure or service changes will be needed as a means of climate adaptation.

Thus, before preparing and submitting their Community Engagement Plans (CEPs), the IOUs shall 1) meet with CBOs and communities participating in this proceeding to develop an outline of what the CEPs should include, using the materials submitted by CalPA and NRDC as a starting point for the discussion; 2) disseminate their draft CEPs widely to CBOs and parties to this proceeding before filing them in this proceeding for comment, 3) accept and acknowledge input from CBOs and communities in their draft CEPs, and explain all input they received whether followed or not, and 4) gauge interest and availability of CBOs for meaningful program administration and other leadership roles, and disclose any CBO or community interest in such roles.

2.2.5. Community Engagement Should Be Based on Best Practices

2.2.5.1. Party Comments – Best Practices for Community Engagement

Several parties urge study of best practices for community engagement and modeling of any community engagement carried out in connection with climate adaptation to be modeled after best practices.

CEJA/LC cite the Commission's experience in the San Joaquin Valley Affordable Energy Proceeding as an example of proven meaningful community engagement. They note that "community preference" formed a guiding principle for the authorization of affordable energy pilot projects and that a "community energy navigator" role is poised to continue community engagement throughout deployment of pilot projects. They assert the benefits of such a community "liaison" are clear and consistent with the CEC's Barriers Study, and include centralizing a source of feedback for IOUs, improving efficiencies and decreasing transaction costs. The Barriers Study includes the key recommendation to "encourag[e] collaboration with community-based organizations in new and existing programs."¹⁷

CEJA/LC note that other relevant best practices may also be learned from the implementation of Senate Bill (SB) 160 (Jackson), which would integrate community input in emergency protocols and promote engagement and coordination with community-based organizations. CEJA/LC agree with the West Oakland Environmental Indicators Project (WOEIP) observation that stakeholders must be brought in early and often, which the SJV Affordable Energy Proceeding's outreach and engagement model accomplished.

¹⁷ California Energy Commission, Final Report for the SB 350 Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-Income Customers and Small Business Contracting Opportunities in Disadvantaged Communities Barriers Study, Recommendation 10, at 9, 48-49, 82.

In communities that lack a trusted community-based organization, CEJA/LC state the Commission should require the IOUs to collaborate with non-profits in other sectors (for instance, housing and community development), faith-based organizations, or other local service providers.

CEJA/LC echo a concern expressed by WOEIP at the second Working Group 4 meeting. They state that local government may not adequately represent the interests of their constituent vulnerable and disadvantaged communities, and to address this would require collaboration with other recommended local service providers. The Public Advisor and the Commission's other environmental justice staff could also assist in efforts to mirror best practices with a trusted CBO.

2.2.5.2. Discussion – Best Practices for Community Engagement

We agree that to the extent the Commission has already adopted community engagement practices that are effective and that empower local communities, the IOUs should continue to use them. For example, in the context of Wildfire Mitigation Plans (R.18-10-007 and Resolution WSD-001), and Public Safety Power Shutoff (PSPS, R.18-12-005), the Commission has already adopted significant community engagement requirements. To the extent these proceedings lead to community networks that have an interest in longer term climate adaptation, the IOUs should ensure they are consulted in connection with the community engagement work we order here. However, for the most part, the Wildfire Mitigation Plans and PSPS decisions are focused on the near term.

After the IOUs conduct their outreach to communities, CBOs, and representatives that have participated in this proceeding, the IOU CEPs should

include and list best practices of community engagement. Where there are credible concerns that local government is not engaged with its disadvantaged residents, the community engagement shall include persons or organizations that are non-governmental.

2.3. Question 3: How Should Investments and Other Activities Benefitting Disadvantaged Communities in the Context of Climate Change Impacts Be Identified and Prioritized?

The parties' comments on how to identify and prioritize climate adaptation investments in disadvantaged communities focus on several topics that are also relevant to Topic 5. We list them here, but to the extent they are relevant to overall climate adaptation, rather than focused on adaptation in disadvantaged communities, we discuss requirements in the context of Topic 5.

2.3.1. Reporting on Effectiveness of Vulnerability Assessment and Community Engagement

2.3.1.1. Party Comments – Reporting on Effectiveness of Vulnerability Assessment and Community Engagement

The staff report recommends that the IOUs submit an evaluation report every three years after the initial vulnerability assessment is prepared. Staff also suggests that the report include information “on the type of outreach, number of meetings and participants, and shall include summaries of comments and feedback received from local governments, CBOs, and vulnerable and disadvantaged communities.”

Several parties agree with the need for post-hoc evaluations of vulnerability assessments and related community engagement. GRID and CEJA/LC ask the Commission to include retrospective evaluations within vulnerability assessments, including analysis of whether the goals in previous

vulnerability assessments were or were not achieved, why, and what changes can and should be made. CEJA/LC and CalPA also request an interim written report to ensure adequate progress with Community Engagement Plans.

CalPA recommends requiring future vulnerability assessments to include an analysis of whether and how the goals of the preceding vulnerability assessment were – or were not – met and propose any necessary changes to assessment methodology. These additional requirements would help IOUs and the Commission to track whether the vulnerability assessments and community engagement efforts are making meaningful differences in adaptation. They would also help IOUs and the Commission adjust future engagement and vulnerability assessments to better meet the needs of vulnerable and disadvantaged communities and ratepayers.

2.3.1.2. Discussion – Reporting on Effectiveness of Vulnerability Assessments and Community Engagement

The Commission does not set a schedule for post-hoc evaluation of the accuracy of vulnerability assessments at this time. The very nature of climate adaptation involves planning over the long term. Whether vulnerability assessments are accurate may not become apparent for many years or even decades. Thus, we will not adopt post-hoc evaluations here. Rather, if the Commission, an IOU or a stakeholder believes there is a need for adjustment in a vulnerability assessment in the years after the Commission reviews it, the Commission will consider the need for such adjustment at that time.

We have had reports, especially in connection with utility Wildfire Mitigation Plans and Public Safety Power Shutoff (PSPS) that community outreach before, during and after a wildfire or PSPS event leaves many community members out. To demonstrate that their community engagement is

productive and engenders trust, we will require IOUs to survey DVCs and CBOs with which they work, and report the results of those surveys every four years, starting on June 30, 2021.

In the wildfire context, Decision (D.) 20-03-004 in Rulemaking (R.) 18-10-007 requires such a survey, and we adopt analogous requirements here. That requirement is as follows, with certain deletions not pertinent here, and added text relevant to the outreach and community engagement discussed in this decision:

[T]he IOUs ... shall prepare, file and serve the results of an independent survey that assesses the effectiveness of the[] community outreach [and engagement discussed in this decision]. ... At a minimum, the IOUs ... shall:

- Ask communities and individuals to which the IOU ... has conducted outreach [and community engagement] if the outreach [and community engagement] was effective in helping them [with the vulnerability assessment process].
- Provide survey responses categorized by type of outreach – *e.g.*, community meetings, over the air broadcast information, social media, print media, etc. – so that there is data in the proceeding showing what outreach [and community engagement] is most effective that the Commission and stakeholders may use to direct future outreach.
- File and serve any existing survey results that assess the effectiveness of outreach [and community engagement discussed in this decision].

Prior to conducting either survey, the IOUs ..., alone or in combination, shall gather input from the parties to this proceeding on appropriate survey questions and methodology through a meet and confer process that is open to all parties. This meet and confer process shall conclude no later than 30 days before the surveys are conducted.

In addition to surveys, the IOUs ... should use metrics to determine the reach of their efforts. One set of metrics should be quantitative in nature, and include data related to web site visits, click rates, conversions, in-person meetings, radio spots, number of partners, number of customers reached, customer acknowledging information, read receipts, video shares, and other quantitative measurement.

Another set of metrics should document comprehension of the [vulnerability assessment process].... Such metrics can be more qualitative in nature and include metrics collected from surveys and post-event interviews/sessions with stakeholders and partners. Metrics should capture satisfaction with outreach and engagement from utility, understanding of information and whether communities or individuals feel equipped to act, and whether communities or individuals feel connected to resources [relevant to vulnerability assessments].... Potential avenues for collecting this information include debriefs with partners to discuss what could be improved, public listening sessions to discuss what could be improved, and customer surveys to understand what could be improved. See D.20-03-004 at 21.

2.3.2. IOU Role in Community Engagement

2.3.2.1. Party Comments – IOU Role in Community Engagement

The IOUs ask that they not have a lead role in conducting community engagement for vulnerability assessments, asserting instead that the Commission and/or another relevant State agency is the most appropriate convener for community engagement regarding climate adaptation. Several parties respond that IOUs must take a lead role, even if the Commission and other parties are extensively involved in oversight.

PG&E states that it views its role as determining what infrastructure to build, where, and when, in order to continue serving customers in the face of climate change. It asserts that California's energy IOUs do not have the

expertise, authority, or resources to develop and implement the full range of climate adaptation plans communities across the state will need to adopt because such plans will need to include efforts beyond those needed solely for the energy sector.

SCE states that convening and organizing the stakeholders to contribute to community-scale adaptation planning processes should be led by the localities, the Commission, or both in partnership, in coordination with the Governor's Office of Planning and Research's Integrated Climate Adaptation and Resiliency Program efforts. Water, transportation, and other key infrastructure stakeholders should participate in the community engagement process, as these systems are inextricably linked with energy service.

SCE asserts that utilities' adaptation plans will likely focus on modifications to infrastructure and operations, but SCE questions what community input the Commission is expecting in such a technical process driven by engineering analysis and solutions. Further, SCE asserts that a comprehensive scoping process would target not just electric and gas sector vulnerabilities, but all critical infrastructure vulnerabilities that may affect these communities, such as water, transportation, and other key sectors inextricably linked with energy service.

SDG&E makes essentially the same argument: energy-system resilience should be considered alongside other aspects of infrastructure resilience, as SDG&E's ability to build resilience to climate change is limited to the energy infrastructure it operates. SDG&E does not provide transport assets, supply water, or build flood embankments, nor does it provide community health services, for example. Consequently, in a Commission-mandated setting of a community climate vulnerability assessment led by SDG&E, SDG&E would be

required to raise the issue of climate change risks that are beyond its ability to mitigate. SDG&E concludes by saying that it should not lead such a process. Rather, city and county governments are much better situated to coordinate integrated, place-based vulnerability assessments, and local governments have the clear mandate to do so under the SB 379.

SoCalGas makes similar arguments, stating that it is not possible for the IOUs, nor is it the role of IOUs, to conduct comprehensive vulnerability assessments for every climate vulnerable community. SoCalGas states that such assessments are required by law (SB 379) to be completed by local governments by 2022, and this responsibility does not extend to IOUs. Nonetheless, SoCalGas states that it supports assisting these communities to complete their assessments by providing information, such as data, maps, studies, etc. that SoCalGas owns with the caveat that such information sharing is not prevented by confidentiality or physical and cyber security rules. SoCalGas also supports updating information as needed to identify potential hot-spot communities in its service territory that may be impacted via disruption of service from climate impacts to its infrastructure.

Finally, the Joint Utilities assert that community-scale adaptation planning processes should be led by the localities, the Commission, or both in partnership with appropriate state agencies like the Governor's Office of Planning and Research's Integrated Climate Adaptation and Resiliency Program. They state that community-scale adaptation planning should ideally be holistic and, to the degree possible, cover multiple climate hazards and adaptation planning issues (within which energy-system vulnerability is embedded). Water, transportation, and other key infrastructure stakeholders should, to the maximum degree

possible, be a part of the community engagement process, as these other systems are inextricably linked with energy service.

GPI argues that utilities are not the best entities to initiate broad-spectrum community engagement activities. Climate adaptation needs of climate vulnerable and disadvantaged communities are not limited to issues related solely to utility infrastructure, but rather are far broader.

CEJA/LC ask the Commission to oversee community engagement and adopt best practices for community engagement. They ask that the staff proposal for guidelines governing community engagement be modified to require translated materials and translation during outreach events.

In contrast to the utilities' assertions, CEJA/LC agree that the IOUs should coordinate with local governments to ensure that solutions are cross-referenced, complementary and consistent. However, they state, leaving this task to only local government will produce a far less robust assessment, particularly specific to the energy sector. While CEJA/LC appreciate the IOUs' willingness to coordinate information-sharing with local government under SB 379, as noted above, this narrow partnership will miss several opportunities to develop disadvantaged and vulnerable community-specific solutions in partnership with community-based organizations or community residents. They note that certain local governments may not adequately represent the interests of disadvantaged and vulnerable communities, many having demonstrated in our experience a lack of interest and/or outright hostility to planning and investment focused on low-income communities of color. Local governments also lack the knowledge that the IOUs have regarding existing and future Commission programs and proceedings that should be leveraged.

2.3.2.2. Discussion – IOU Role in Community Engagement

The staff proposal for Topic 4 suggests that the Commission and local government take the lead on climate adaptation in disadvantaged communities, and we agree that this Commission and local governments have a role to play. However, the IOUs must be deeply involved in the effort to bring climate change adaptation measures affecting their infrastructure, operations and services to disadvantaged communities. As we stated in D.19-10-054 on Topic 1 (the definition of climate adaptation), adaptation in the context of Commission regulation focuses “on utility planning, facilities maintenance and construction, and communications, to support safe, reliable, affordable and resilient operations....” (D.19-10-054 at 21.)

The energy utilities are, as they assert, the most familiar with their own infrastructure and operations. Their facilities, services and operations are those that will have to change to meet the challenges of climate change in the energy utility context. They should be best situated to determine infrastructure changes required to meet known and foreseen climate risks. Thus, they will do the actual work to adapt their infrastructure, and in that sense, they will also lead in the effort to adapt their facilities. They may have to work in concert with other entities, public and private, but they are key players in the state’s approach to climate adaptation.

Further, the energy utilities are accustomed to working with disadvantaged communities. In many programs, this Commission has adopted special requirements aimed at ensuring the benefits of the green economy accrue to all Californians, including disadvantaged communities. And while some disadvantaged community programs are new, for decades the energy utilities

have served California's low-income energy customers through the CARE (California Alternative Rates for Energy) and ESAP (Energy Savings Assistance Program, formerly Low-Income Energy Efficiency or LIEE) programs. Recent Wildfire Mitigation Plan, Public Safety Power Shutoff or De-Energization (PSPS), and Disaster Relief decisions in R.18-10-007 (Wildfire Mitigation Plans), R.18-12-005 (PSPS) and R.18-03-011 (Disaster Relief) also require high levels of community engagement.

We agree with the energy utilities that “[w]ater, transportation, and other key infrastructure stakeholders should, to the maximum degree possible, be a part of the community engagement process, as these other systems are inextricably linked with energy service.” The Scoping Memo for Phase 2 states that it is anticipated “future phases will consider ... guidance for climate change adaptation for the smaller energy utilities, water and telecommunications utilities....” However, we expect the entities that offer water, telecommunications and transportation services themselves to take the lead in climate adaptation efforts for their assets. The energy utilities will not lead such efforts.

IOUs will be required to take the lead on the development of vulnerability assessments related to their infrastructure, operations and services, whether for DVCs or other communities. While local government is required pursuant to SB 379 (2015, Jackson) to conduct its own climate adaptation work,¹⁸ this

¹⁸ “This bill would, upon the next revision of a local hazard mitigation plan on or after January 1, 2017, or, if the local jurisdiction has not adopted a local hazard mitigation plan, beginning on or before January 1, 2022, require the safety element to be reviewed and updated as necessary to address climate adaptation and resiliency strategies applicable to that city or county. The bill would require the update to include a set of goals, policies, and objectives based on a vulnerability assessment, identifying the risks that climate change poses to the local

proceeding is focused on what the Commission should require of the IOUs under its jurisdiction. The Commission does not have jurisdiction to formulate requirements for local jurisdictions, but it does regulate the IOUs. The Commission would be remiss if it did not assign a significant climate adaptation planning and leadership role to the IOUs that own and operate vast infrastructure serving most of the state's residents.

We require the IOUs to take the following steps:

- Assess the vulnerability of their infrastructure, operations and services to the climate change listed in this decision.
- Furnish CEP for DVCs, providing for community engagement work that allows CBOs and community members, as well as government entities in those communities, to participate in vulnerability assessments in their areas of expertise, suggesting sources of data or other information to be used in the assessments, reviewing and contributing to the text of vulnerability assessments, and commenting on assessments. However, as noted above, the decisions about how to upgrade utility infrastructure will principally be made by the IOUs and the Commission.
- Ensure vulnerability assessments cover “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,” as required by D.19-10-054, Ordering Paragraph 1.

2.3.3. Cost Recovery

2.3.3.1. Party Comments – Cost Recovery

PG&E asks the Commission to allocate funding for vulnerability assessments, stating that conducting a meaningful climate vulnerability analysis

jurisdiction and the geographic areas at risk from climate change impacts, and specified information from federal, state, regional, and local agencies.”

update in line with the Commission's vision will require significant time and resources. At the appropriate juncture, PG&E states that it will request Commission approval of a two-way balancing account to track the actual costs.

SCE agrees with PG&E that setting up a balancing account to address the costs associated with undertaking this assessment may be a prudent option. Any requirements imposed via this OIR would likely impose additional costs above those contemplated in the GRC, and therefore, will need a cost recovery mechanism.

2.3.3.2. Discussion – Cost Recovery

We are not prepared to guarantee funding at this time, because we believe climate adaptation measures should be proposed in IOU applications or General Rate Cases. However, we will allow IOUs to set up memorandum accounts, titled "Climate Adaptation Vulnerability Assessment Memorandum Account – CAVAMA" for the purpose of tracking costs directly related to the vulnerability assessments ordered in this decision. The memorandum account shall not be used for other assessments, including assessments prepared in the past or assessments that are not submitted in this proceeding.

2.3.4. Gas Utilities

2.3.4.1 Party Comments – Gas Utilities

SoCalGas claims that vulnerability assessments for gas utilities should be far less robust than those for electric utilities. It states that studies have shown that the natural gas system is inherently resilient to climate change impacts as the infrastructure is mostly underground.¹⁹ On the other hand, SoCalGas asserts, the

¹⁹ SoCalGas cites ICF, Case Studies of Natural Gas Sector Resilience Following Four Climate-Related Disasters in 2017, <https://www.socalgas.com/1443742022576/SoCalGas-Case-Studies.pdf>, at 19, 25, 27-29, 30.

electric infrastructure, which is almost entirely aboveground is more vulnerable to climate events such as wildfires and weather events.

SoCalGas therefore advocates for a dual energy system (gas and electric) for resiliency purposes. Because the gas system is less exposed, SoCalGas states, it can be used as a solution to increase energy system resiliency of vulnerable communities reliant on electric infrastructure, by the use of gas microgrid based technologies such as combined heat and power systems and fuel cells and therefore can be used as a utility investment mechanism to harden overall energy supply.

2.3.4.2 Discussion – Gas Utilities

SoCalGas has not provided support for its assertion that vulnerability assessments for gas infrastructure need not be as robust as those for electrical infrastructure, and parties have not had the opportunity to comment on such arguments. SoCalGas' arguments for dual energy systems are being considered in other proceedings and are not relevant here. SoCalGas shall provide a robust CEP and vulnerability assessment containing the same elements and on the same timelines as ordered here for electric utilities.

2.3.5. Other Commission Proceedings to Consider Adaptation Strategies

2.3.5.1. Party Comments – Other Commission Proceedings

CEJA/LC suggest that the Commission implement and prioritize projects and solutions for climate adaptation in at least the following proceedings: Demand Response (Application (A.) 17-01-012), Energy Efficiency (R.13-11-005), Building Decarbonization (R.19-01-011), Affordable Energy in San Joaquin Valley Disadvantaged Communities (R.15-03-010), Utility Wildfire Mitigation Plans (R.18-10-007), and IRP (R.16-02-007).

2.3.5.2. Discussion – Other Commission Proceedings

We will not designate existing proceedings as the venue for new climate adaptation projects since this proceeding is focused in Phase 1 on vulnerability assessments and not specific projects. We defer consideration of the precise process for the IOUs to seek infrastructure, operations and service upgrades to adapt to climate change.

3. Topic 5 – Vulnerability Assessments

Topic 5 is the cornerstone of Phase 1 because it involves taking the tools already developed in this proceeding and applying them to energy utility infrastructure and operations. That is, the energy utilities, using the Topic 1 definition of climate adaptation, the Topic 2 tools for identifying the greatest climate change risks, and the Topic 4 definition of disadvantaged communities that may need extra resources in adapting to climate change, should begin assessing where their facilities are most at risk through vulnerability assessments.

The discussion below considers the scope of utility vulnerability assessments, how to prioritize adaptation efforts, the process for developing such assessments, the appropriate intervals for vulnerability assessments, whether IOUs should consider green improvements as mitigation in the assessments as well as traditional mitigation, and guidance on what climate impacts the IOUs should plan for in their vulnerability assessments.

The energy utilities must use their vulnerability assessments to prioritize infrastructure at greatest risk first – that is, infrastructure with the greatest risk of impact from the most likely climate change scenarios with the greatest human consequences. The assessments will help them identify and prioritize these highest risk facilities and activities.

Once they identify the most vulnerable infrastructure, they should begin planning modifications and other mitigations to harden, move or remove the infrastructure before the effects of climate change make such adaptation impossible. If generation, transmission, distribution or storage must be hardened, moved or removed, the energy utilities must begin to identify which facilities are most vulnerable now.

The process of altering infrastructure to reduce or eliminate climate change impacts may involve billions of dollars in ratepayer funding to reduce the risk. This phase of the proceeding does not address funding, which should be part of utility General Rate Cases or other ratesetting applications. Nonetheless, it is critical for the IOUs to assess where they need to replace, remove or upgrade their facilities and operations to adapt to climate change, and that is what vulnerability assessments will do.

Topic 5 covers the following 3 issues, as set forth in the Scoping Memo:

4. How should the CPUC and utilities consider and apply climate risks to key utility functions (generation, transmission, distribution, storage) and major investments in long-life, climate- vulnerable assets?
5. What additional reporting by utilities is necessary to enable decision-making and accountability? Examples include a framework for the utilities to conduct climate vulnerability assessments, a framework for development of adaptation pathways, outcome magnitudes and probabilities, climate-related metrics, disadvantaged and vulnerable community impacts.
6. In what procedural venue, such as General Rate Cases or specific climate change adaptation applications, should climate change adaptation-related proposals be made?

An initial staff proposal was issued in response to these three questions.

The parties attended a workshop addressing these topics and proposals on

November 15, 2019 and submitted the Topic 5 Workshop report on January 16, 2020.

The relevant issues for Topic 5 crystalized at and after the workshop. Therefore, we structure this decision around the ALJ's Ruling of January 29, 2020 asking for comment on the Topic 5 Workshop report. The Ruling sought comment as paraphrased below, and we have structured the discussion in the order set forth below:

1. Should the vulnerability assessments address utility operations and services as well as infrastructure?
2. Should the Department of Water Resources' (DWR's) methodology for assessing vulnerability be adopted here for energy utilities? The strategy provides a two-step methodology that 1) combines exposure and sensitivity to determine risk, and 2) combines risk and adaptive capacity to determine vulnerability.
3. Should off-ramps be included - *e.g.*, if exposure is deemed low for a particular facility, should utilities end the analysis?
4. Should the utilities include within scope facilities that they do not own but which utilities have some ability to influence (*e.g.*, long-term contracts for energy, capacity, reliability)?
5. Should a flexible adaptation pathway approach as ICF discussed at the Topic 5 workshop be adopted to facilitate long-term planning?
6. Is the staff proposal to update the vulnerability assessments every three years appropriate? DWR plans to update every five years.
7. What should be the intermediate and long-term time horizons for vulnerability assessments? 30 years? 50 years? Should there be multiple time frames for different climate change adaptation objectives? Should vulnerability assessments look at the long term (10 years to 50 years)

- separately from annual capacity planning and climate risks in the short term (10 years and under)?
8. How should utilities use existing vulnerability assessments; should they be allowed to update those assessments as their first submissions to the Commission in lieu of entirely new vulnerability assessments?
 9. Should updates to the vulnerability assessments align with the general rate case (GRC) cycle? If so, should they be due at the same time, or should they be staggered so the vulnerability assessments may be used to inform the utilities' GRC requests? Should the vulnerability assessment process be viewed as a complement to the Risk Assessment Mitigation Phase process as proposed by Pacific Gas and Electric Company? Should it be an independent planning process?
 10. Should the Commission identify the universe of climate variables analyzed in the vulnerability assessments, or should it identify a minimum set of variables to analyze? (E.g., DWR analyzed changes in wildfires, extreme heat, sea level rise, long-term persistent hydrological changes, short-term extreme hydrological changes, and habitat and ecosystems, but did not analyze precipitation directly.)
 11. Should energy utilities have "climate change teams" with representatives across departments? How can the Commission best ensure that climate planning and adaptation functions within the utilities are prioritized at the most senior executive or board levels? Should the Commission require the utilities add climate planning and adaptation related positions at the most senior executive or board levels?
 12. How should the Commission require utilities to incorporate vulnerability assessments into annual capacity planning?
 13. How should the Commission analyze green and sustainable infrastructure alternatives to utility infrastructure investments (using natural systems to

achieve infrastructure goals, *e.g.*, protecting coastal infrastructure by enhancing or rehabilitating coastal wetlands in lieu of seawalls)? Should the Commission require utilities to analyze green infrastructure alternatives when proposing climate adaptation measures?

3.1. Infrastructure, Operations and Services

3.1.1. Party Comments – Infrastructure, Operations and Services

The first question we address is whether the vulnerability assessments should consider infrastructure only or include IOU operations and services, as well as assets such as substations and transmission lines.²⁰

PG&E states that all aspects of utility management should be climate informed. According to PG&E, energy IOUs should have the flexibility to structure their vulnerability assessments in a way that focuses on the utility activities most exposed and sensitive to climate-driven risk. PG&E urges focus on those energy assets, operations and services over which the IOUs have significant influence. PG&E suggests that risk management is a key purpose of the assessments, commenting that selecting a particular mitigation will depend on the nature of the risk.

Similarly, SCE suggests that utilities can evaluate grid solutions by analyzing how existing infrastructure, including infrastructure planning and operations, can continue to serve customers during a climate event. SCE agrees

²⁰ The comments for the Topic 5 portion of this decision include comments on the relevant subjects the parties made in their Topic 4 comments. Where a position in the Topic 5 comments contradicts a position taken earlier on Topic 4, the January 29, 2020 ruling told parties to so state. Therefore, the positions set forth here should reflect parties' current positions. If any position included in the Topic 5 discussion is now out-of-date, the party shall identify such comments in comments on the Proposed Decision.

that the scope of the assessments can be expanded to include operations and services that are directly related to the impacted infrastructure.

On the other hand, SDG&E urges the Commission to focus on infrastructure for the assessments and allow IOUs to manage their operations and services to adapt to climate change as needed and provide optimal solutions for the company and customers.

SoCalGas states that the assessments should cover operations and services as well as infrastructure. The assessments should include priority utility operations and services that, if impacted, would significantly affect utility operations or customers.

CalPA, NRDC and GPI recommend the Commission not limit IOU climate vulnerability analysis to infrastructure-related issues. CalPA urges the Commission to include all operations and service that climate change may impact, including staff activities, information technology and communications. It states the Commission should require the IOUs to conduct an exposure analysis on all their services and operations and that vulnerability assessments should aid the IOUs in prioritizing adaptation options.

At a minimum, NRDC states, the vulnerability assessment should address how climate change will impact energy availability and energy affordability for all utility customers. Assessments should seek to avoid building new assets in vulnerable locations and mitigate risks to existing assets as well as to utility operations and services. NRDC believes assessments should focus on operations and services, and should address the impact of climate change on energy affordability.

In addition to arguing that assessments should focus on operations and services as well as infrastructure, GPI urges that assessments focus on avoiding

new assets in climate vulnerable areas. GPI urges redesigning, protecting and removing assets in vulnerable areas, and evaluating whether operational changes instead of physical modifications can mitigate risk.

CEJA/LC comment that “operations” should include, but not be limited to, the utilities’ demand response programs, rate-setting measures, and other general non-infrastructure programs that impact customers. Thus, CEJA/LC urges the Commission to consider all customer-facing services and operations in the assessments, focusing on programs and services that could be impacted by utility decision-making.

3.1.2. Discussion - Infrastructure, Operations and Services

The IOUs’ assessments should be broader than simply focusing on what infrastructure upgrades will be required. We find that the assessments should consider climate risks to operations and service as well as to utility assets over which energy IOUs have direct control. In addition to reviewing their infrastructure, IOUs should conduct an exposure analysis on all their services and operations as a means of identifying which operations and services they should include for further analysis in their vulnerability assessments. In addition, the assessments should include an array of options for dealing with vulnerabilities, ranging from easy fixes to more complicated, longer term mitigation.

3.2. Use of Department of Water Resources Approach

3.2.1. Party Comments – DWR Approach

Parties also furnish comments on DWR's two-step methodology for vulnerability assessments. The approach first combines exposure and sensitivity to determine risk, and then combines risk and adaptive capacity to determine vulnerability.

CalPA believes the IOUs should use DWR's vulnerability assessment methodology as it aligns with existing state guidance for climate adaptation and includes operations and staff activities. NRDC states that DWR's two step methodology is a common-sense method for determining vulnerability and should be adopted.

PG&E agrees that DWR's assessment process utilizes a generally accepted risk assessment paradigm. PG&E states its own vulnerability assessments will be like DWR's but asks for flexibility, since energy utilities and DWR have different risks. SDG&E agrees that DWR's methodology is reasonable for energy utilities. SDG&E suggests that the Commission also align assessments with the Intergovernmental Panel on Climate Change (IPCC) process, where vulnerabilities are defined in the context of a given hazard: Sensitivity + Capacity + Vulnerability + Exposure = Risk.

SBUA supports DWR's approach and urges that energy IOUs break down risks into manageable buckets. It points to I.15-08-019 (the Commission's investigation into PG&E's safety culture) for guidance on how to institutionally integrate climate change risk assessments into utility organizational structures.

SCE states that the DWR analysis is generally acceptable, but suggests replacing the term "risk" with "impact" since "risk" has specific use and meaning for utilities. SDG&E agrees with SCE's recommendation stating that it

is impact and adaptive capacity, rather than risk and adaptive capacity, that combine to determine vulnerability.

CEJA/LC comment that DWR's methodology can provide a starting place but does not ensure that communities are consulted and their specific climate vulnerabilities considered. GPI also asks that IOUs engage early with affected communities in designing the assessment and selecting objectives. CEJA/LC point out a fundamental difference between DWR and the energy IOUs - DWR does not serve any residential customers. Thus, according to CEJA/LC, using DWR's methodology would result in an incomplete assessment of climate vulnerability with respect to electric utility assets, services, operations and customers.

3.2.2. Discussion – DWR Approach

We support using DWR's two-step vulnerability assessment methodology that 1) combines exposure and sensitivity to determine risk, and 2) combines risk and adaptive capacity to determine vulnerability. DWR's assessment process utilizes a generally accepted risk assessment paradigm, aligns with existing state guidance for climate adaptation, and includes operations and staff activities. We will use it as a starting point for our guidance to energy utilities. By using DWR's analysis as a model, the Commission will generally align with the IPCC, where vulnerabilities are defined in the context of a given hazard: Sensitivity + Capacity + Vulnerability + Exposure = Risk.

The term "risk" has a specific use in the context of General Rate Cases, since risk assessment takes place in our GRC-Risk Assessment Mitigation Phase (RAMP) process, as discussed in the GRC section below. As long as terms are defined and explained, we will not require or preclude use of DWR's terminology.

The energy IOUs may need the flexibility to focus on different climate vulnerabilities. We will provide the IOUs with this flexibility, yet we will hold the utilities responsible for fully assessing and ranking the relevant climate vulnerabilities in their service territories. CEJA/LC's comment on community engagement is addressed in the Topic 4 discussion above.

3.3. Off-Ramps for Assets at Low Risk

3.3.1. Party Comments – Off-Ramps for Assets at Low Risk

The January 29, 2020 ALJ Ruling asks whether IOUs should end the analysis if exposure to a climate risk for a particular asset is deemed low. GPI agrees but adds the caveat that risks change over time, so there should be a mechanism for reconsidering low risk assets over time. PG&E agrees, stating that a key purpose of conducting a climate vulnerability assessment is to prioritize mitigation efforts based on risk level of the asset. SDG&E, SCE and SoCalGas also agree that off-ramps should be included.

3.3.2. Discussion – Off-Ramps for Assets at Low Risk

We agree with the general consensus that the assessments should include off-ramps for assets with low climate risk. A key purpose of conducting a vulnerability assessment is to prioritize risk mitigation efforts based on the relative levels of risk revealed by the assessment. Off-ramps should be included to account for uncertainty in climate change models and the potential for adaptation efforts outside utility scope that result in the elimination or reduction of risk for utility assets. And as SoCalGas states, a screening process that removes assets with little or no exposure to a climate hazard from unnecessarily detailed levels of assessment makes sense.

While we agree conceptually with off-ramps for low-exposure risks, we agree with GPI that there must be a mechanism to reassess risks deemed to be low exposure at a particular point in time in the vulnerability assessment process. Commission decisions on vulnerability assessments should contain such a requirement; a risk that is entitled to an off-ramp in the short term may require further assessment, and adaptation, in the long term.

3.4 Contracted Assets

3.4.1. Party Comments - Contracted Assets

The next topic is whether assets to be identified and analyzed in vulnerability assessments should include assets under contract, such as long-term contracts for energy, capacity and reliability.

PG&E plans to start assessing energy supply risk with utility-owned assets, such as natural gas plants and hydroelectric facilities, but will also consider third-party resources that are integrated into the grid. PG&E notes, however, that an assessment focused on assets and activities that the IOU has the most influence over provides the most actionable insights.

SDG&E, SCE and SoCalGas oppose including contracted assets in assessments. SCE questions how utilities can be expected to influence climate adaptation by facilities they do not own or operate, even if they could conduct a vulnerability assessment based on limited available information from third parties.

GPI states that while IOUs do not have responsibility for managing assets they do not own, utilities should consider in their assessments any vulnerabilities that third-party generators might have that could affect the grid. GPI recommends that the utilities include within scope facilities over which the IOUs have some ability to influence behavior. SCE agrees with GPI's suggestion for

creating a pathway for independent generators to assess their own vulnerabilities.

CEJA/LC suggest that assessments should analyze assets that IOUs do not own but that could be impacted by utility-decision making.

3.4.2. Discussion – Contracted Assets

Energy utilities have contracted for large amounts of energy and capacity through purchased power agreements. While we understand that utilities have varying levels of control over assets under contract, we expect that going forward utilities will endeavor to include climate change considerations in their negotiations while contracting with third parties. In the meantime, energy IOUs should identify those facilities they have contracts within their vulnerability assessments. During the assessment process, IOUs should communicate with the operators and ask them to report their own facility's exposure to climate risk. The risk assessment should include any exposure to climate risks that facility operators report, and the IOUs' contingency planning in case the third-party asset experiences failure due to climate change.

However, we will not require the IOUs to conduct their own extensive analysis of third-party facilities at this time. The IOUs should prioritize their own assets, of which there are many. They have many long-term generation contracts, and analysis of the assets those contracts relate to could delay the IOUs' critical analysis of their own infrastructure, operations and services.

In the future, when energy IOUs sign new contracts for power, capacity or reliability, the utility should take steps to identify risks and obtain information from the operator. In entering a new long-term contract of 15 years or more, there should be an acknowledgement in the contract that the operator has consider long-term climate risk. A facility safety plan considering climate risks

should be included when the purchased power agreement is submitted for approval. This due diligence by the operator should then be included in the utility's assessment of risk for that particular asset.

Thus, over time, we expect the energy IOUs to move from simply identifying risks of contracted assets in their vulnerability assessments to including substantive risk assessments of third-party contracts in their vulnerability assessments. The reason for this is clear: whatever climate risks contracted assets face may also impact IOU infrastructure, operations and services in the future.

3.5. Flexible Adaptive Pathway Approach

The January 29, 2020 Ruling asks whether the vulnerability assessments facilitate a “flexible adaptation pathway,” as explained below, and whether the flexible adaptation pathway approach should be adopted to facilitate long-term climate adaptation planning. Flexible adaptation pathways can be used in adaptation planning and implementation to address the challenge of planning in the face of uncertainty. The tool allows flexibility in the future by proposing alternative strategies for combating climate change. If a chosen adaptation later is found to be unworkable, the utility has flexibility to choose one of the alternatives without going back to the drawing board.

The process requires monitoring of “signposts” related to climate conditions that signal the need for a change in approach (“transformation points”). A flexible adaptation pathway would have IOUs execute adaptation plans in the near term, while allowing them to adjust future adaptation strategies based on the actual climate conditions that emerge. The IOUs may identify actions to implement now that protect against near-term climate changes and actions that are low and no regret, while leaving options open to protect against

the wide range of plausible changes emerging later in the century. Such an approach is preferable to implementing actions now that are optimized for present-day conditions or a single future outcome that ignores uncertainty.

As an example, one can consider a flexible adaptation pathway for a hypothetical adaptation plan for a coastal substation threatened by sea level rise. In this hypothetical, the substation would be designed assuming a specific amount of sea level rise. Under a flexible adaptation pathway approach, if sea level rise deviates from what is assumed, the IOU might need to implement changes to the substation on an accelerated (or delayed) schedule. In the foregoing example, it is assumed that the substation already has existing protection to the FEMA floodplain + 3 feet. Once sea levels rise 1 foot, the FEMA + 3-foot protection will become inadequate. By contrast, a trigger slightly under FEMA + 1 foot allows the IOU to pursue the first adaptation option to supplement the existing protections with enhanced sump pump capacity. A sump pump will always be useful, but eventually becomes insufficient alone. The second option is triggered when sea level rise approaches 2 feet, and includes building a new barrier to protect up to FEMA + 5 feet. A 3-foot rise requires the IOU to relocate the substation. Each trigger is far enough in advance of the risk threshold (here, each foot of sea level rise) that there is time to change course. The iterative process of such a plan also allows for incorporation of changing external conditions, like technological innovations or public policy changes. While the IOUs may still need to seek approval for infrastructure spending in their GRCs or other proceedings, an adaptation plan informed by a flexible adaptation pathways approach ensures strategic long-term planning.

3.5.1. Party Comments – Flexible Adaptation Pathway

GPI supports using the flexible adaptation process as a model for the development of the methodology the Commission adopts for energy IOUs. According to PG&E, the adaptation pathways approach is one framework for planning adaptive action in response to climate-driven natural hazards. PG&E further explains that a vulnerability assessment is a precursor step to any adaptation planning framework. PG&E opposes a requirement that utilities use an adaptive pathways approach when planning climate risk mitigations because additional discussion is needed to determine its usefulness.

SCE also opposes requiring the use of a flexible adaptation pathway approach at this time, asserting that it would be premature. SCE is experimenting with this approach on a pilot basis to evaluate its usefulness in a regulated environment where utilities need certainty regarding which actions to pursue.

While SoCalGas believes flexible pathways could be useful in principle, it opposes adoption of the approach at this time.

SDG&E supports the flexible pathways approach, because it accommodates uncertainties in long-term planning. It cautions, however, that the Commission should not adopt a one-size fits all requirement since different utilities may need different frameworks. SDG&E agrees with GPI that adaptation pathways allow for early adjustments as there are small intermediary steps leading to a comprehensive adaptation strategy. This approach allows community feedback to be incorporated through the adaptation process instead of only distinct start and stop points.

CEJA/LC suggest that a flexible adaptation pathway may be appropriate for future long-term adaptation planning, but state it is less suited to shorter time frames. Using a flexible adaptation pathway approach from the outset could hamper the near-term implementation of projects or actions that could provide immediate benefits to vulnerable communities.

3.5.2. Discussion – Flexible Adaptation Pathways

The flexible adaptation pathway approach shows promise for dealing with the uncertainties inherent in long-term planning, but we decline to adopt it as a utility requirement at this time. We require more information on how the approach fits in with the vulnerability assessments we require today and with the Commission's existing regulatory processes.

Nonetheless, we will require the IOUs' vulnerability assessments to 1) identify vulnerabilities due to climate change and 2) provide options for mitigation. As discussed in the GRC section below, we expect IOUs to use their vulnerability assessments in conjunction with their RAMP process. They will file vulnerability assessments a year prior to the GRC itself, where funding for projects is considered.

Instead of dictating a pathway for how to mitigate impacts of climate change, the vulnerability assessments should identify any challenges the IOUs will face due to climate change, and describe possible solutions ranging from easy to difficult. Thus, the assessments themselves will identify vulnerabilities and include a suite of options for consideration. The specific projects and mitigations themselves will be chosen in the GRC or other application seeking project funding.

Thus, vulnerability assessments are an intermediate step in identifying options, and funding will be left to other decisions. While we are interested in learning more about the flexible adaptation pathway approach and how it can complement our processes, it is not yet clear what this approach accomplishes in addition to the vulnerability assessments or how a prescriptive adaptive pathway approach can provide the flexibility to coordinate with the Commission's regulatory approach.

3.6. Frequency of Vulnerability Assessments

3.6.1. Party Comments – Frequency of Vulnerability Assessments

The question of how often the Commission should require IOUs to prepare and submit vulnerability assessments arose both in Topic 4 and Topic 5. This section focuses on the timing of the initial Commission-ordered vulnerability assessment as well as intervals for future assessments.

Several parties support a requirement that the IOUs update climate vulnerability assessments ordered in this proceeding on a regular basis – with the most common interval being three years. CalPA, CEJA/LC and GRID all support such a requirement, asserting that updates will allow for feedback and the ability to adapt faster to new research or lessons learned.

SCE estimates that it may be able to complete a focused analysis of specific climate risks within 12 to 24 months of this Decision, but states that it may take 3 to 5 years to complete a comprehensive asset vulnerability analysis. SCE must develop detailed electric system modeling to be able to run simulations to understand potential failure points on the system caused by climate change threats, and SCE has not yet begun this level of analysis. It has started to inventory assets that may be impacted by climate change such as hydroelectric generation stations, substations, and transmission towers.

The Joint Utilities make similar points. Previously, utilities have determined, at varying levels of specificity, the exposure of major utility infrastructure to future climate impacts given several possible future scenarios. Extending scenario-based exposure analysis to infrastructure sensitivity and corresponding likelihood of impact on customers is a much more complex task, in part because California's energy systems are built with multiple redundancies to support reliability, and also due to the varied geographic size and heterogeneity of utility service areas. Most utilities will likely require many years to conduct vulnerability assessments.

3.6.2. Discussion – Frequency of Vulnerability Assessments

This decision orders the first set of Commission-required vulnerability assessments, as well as updates to existing assessments where appropriate (as explained below). Rather than require all IOUs to submit their vulnerability assessments at the same time, in the section below related to IOU GRCs we require timing of vulnerability assessments with those proceedings.

Regarding the appropriate interval for the vulnerability assessments, we find that assessments should be performed every four years – the same timeframe currently applicable to the IOUs' GRCs. We agree that vulnerability assessments would be best staggered to coordinate with the various energy utility GRCs. The assessments should be coordinated with RAMP, which occurs one year prior to the IOU's GRC.

3.7. Time Period Covered by Vulnerability Assessments

3.7.1. Party Comments – Time Period Covered by Vulnerability Assessments

Parties comment on what the appropriate intervals for intermediate and long-term horizons for vulnerability assessments should be. GPI urges the

Commission to set time horizons based on two characteristics: the lifetime of long-lived infrastructure and the expected time over which several climate impacts are expected to occur. PG&E states that a responsible assessment of climate risk to IOUs can be achieved via a single, mid-century target date (2050). PG&E intends to consider 2035, 2050, and 2080 time horizons, but in all cases PG&E's climate vulnerability assessments will look to a 2050 time horizon. According to PG&E, it is a best practice in climate modeling to average values over a 30-year climatological period to ensure valid statistical results.

SDG&E states it originally focused on 30-year assessments to align with asset lives and is in the process of reviewing assets with useful lives between 40-50 years. SoCalGas suggests that the intermediate and long-term horizons should be consistent with those currently being used by the California Energy Commission and the current State Climate Change Assessments.

SCE recommends that intermediate time horizons of 10 years and long-term horizons of 30 years be used, to align timing in the assessments with both utility capacity planning cycles and with State goals to achieve 100% carbon neutrality by 2045. Utilities already plan to a 10-year time horizon in their capacity planning efforts, so SCE contends it would make sense to have the intermediate time horizons for the vulnerability assessment align with the utilities' established planning cycles. CEJA/LC suggest that for the first cycle of vulnerability assessments, the intermediate time horizon should examine 5, 10, 15, 20, and 25 years, with a focus on the 5 and 10-year timeframes.

3.7.2. Discussion – Time Period Covered by Vulnerability Assessments

On the issue of time periods covered by vulnerability assessments, we envision a multi-decade plan providing risk assessment and options. We concur

with parties that the intermediate time frame should address the next 10-20 years while the long-term time frame should address the next 30-50 years. The key time frame to be considered by the vulnerability assessment should focus on the next 20-30 years.

We expect the main takeaways from the vulnerability assessments to be included as a chapter in the IOUs' GRC filings. We anticipate giving further guidance on what the filing should look like at a later time. Generally, the chapter should contain 1) a list of vulnerabilities, 2) proposals addressing those vulnerabilities (with options), and 3) long-term goals for adapting to climate risks.

3.8. Existing Vulnerability Assessments

An ALJ ruling issued in the proceeding on November 14, 2019 asked the four large IOUs - PG&E, SCE, SDG&E and SoCalGas - to identify vulnerability assessments they have already performed, regardless of how they are titled. On November 25, 2019, the four IOUs produced their existing assessments. The January 29, 2020 ruling asked parties to comment on how to use existing vulnerability assessments.

3.8.1. Party Comments - Existing Vulnerability Assessments

In response to the January 29, 2020 ruling, PG&E states that its 2016 climate vulnerability assessment provided an initial screen of the exposure of PG&E infrastructure to climate-driven natural hazards and identified priority hazards based on the then-available data. PG&E intends to consider the 2016 assessment in scoping its next assessment as more granular data becomes available. SDG&E will use its earlier vulnerability assessment as a starting place for its next, which will result from this proceeding. SDG&E expects to use the

California Energy Commission template for its next assessment and to include new science as available.

SCE states that the existing assessments should be used to inform future vulnerability assessments, while CEJA/LC agree that they can be used as a starting point, so long as the analysis is relevant to the requirements adopted in this proceeding. In this regard, CEJA/LC note that the existing assessments are highly variable as to the topics included, and that the Commission's guidance in this proceeding is critical to ensuring the IOUs are analyzing the vulnerabilities

3.8.2. Discussion – Existing Vulnerability Assessments

We agree with the general consensus that existing vulnerability assessments should be used as a reference, but that future vulnerability assessments should not simply update what the IOUs have already submitted. To the extent vulnerability assessments the IOUs have already performed are relevant to the assessments this decision requires, they may use those assessments as part of their work for this proceeding but shall ensure the assessments they submit in the future include everything this decision requires.

We do not approve SDG&E's recommended adoption of the Energy Commission's template for its next assessment, because this decision provides specific guidance for energy utility vulnerability assessments. Further, we do not agree with SCE that energy IOUs should update their assessments only when new science updates are available.

3.9. Relationship Between Vulnerability Assessments and General Rate Cases

Climate change-driven risks and proposed investments to adapt to and plan for those risks could be considered in venues such as the Risk Assessment and Mitigation Phase (RAMP) proceedings, GRC cycles for each utility, and

standalone applications for utility infrastructure additions. We envision vulnerability assessments as part of a process informing the GRC as to climate risks and vulnerabilities the utility will be facing in the long term of 20 to 50 years.

We solicited comments on this issue in the January 29, 2020 Administrative Law Judge (ALJ) Ruling by asking whether updates to the vulnerability assessments should align with the GRC cycle. We also asked whether all IOUs' vulnerability assessments should be due at the same time, or whether to stagger them according to each utility's GRC cycle. The Ruling also asked whether the vulnerability assessment process should be viewed as a complement to the RAMP process or whether it should be an independent planning process. Finally, we asked whether the assessment should be used to determine which climate resilience effort to carry out.

3.9.1. Party Comments – Vulnerability Assessments and General Rate Cases

PG&E and SoCalGas state that future climate vulnerability assessments should be aligned and staggered to fit into the preparation schedule for each utility's upcoming GRC, so that the assessment results can inform IOU planning and funding requests. PG&E believes that the best way to manage climate-driven risk is to integrate it, to the degree possible, within the standard RAMP/GRC processes. SDG&E states that, assuming new climate science is available, alignment of assessments with the GRC funding request cycle makes sense with respect to requesting funding for assessments and mitigation efforts identified as part of past assessments.

Similarly, CEJA/LC recommend staggering the assessments and the GRCs to allow the utilities to plan adaptation projects identified in the vulnerability

assessments and obtain Commission approval of cost recovery in the GRC. However, CEJA/LC state the utilities should not be permitted to seek approval of adaptation projects in the GRC but should instead seek approval in relevant proceedings or via new applications.

Incorporating vulnerability assessments into RAMP and GRCs, according to SDG&E, will best incorporate adaptation planning into existing utility planning. SDG&E asserts that CEJA/LC's recommendation that IOUs seek approval in proceedings other than the GRCs runs the risk of isolating adaptation efforts.

SCE opposes CEJA/LC's proposal that all projects above a certain amount in the GRC be approved only if the IOU has considered climate adaptation for the project, asserting that such a requirement could be duplicative. SoCalGas also urges rejection of CEJA's proposal to tie GRC funding for projects to climate adaptation considerations.

CalPA urges the Commission to consider incorporating IOU adaptation planning into formal Commission proceedings to maintain oversight and accountability of the IOUs' adaptation processes. According to CalPA, a vulnerability assessment submitted to the Commission every few years, by itself, is no guarantee that best practices will be followed without a review structure that guarantees public participation, regulatory oversight and iterative learning.

Parties also comment on whether vulnerability assessments should be viewed as part of RAMP or as an independent planning process. While PG&E and SDG&E agree that assessments should be a complement to RAMP, SCE and SoCalGas contend that vulnerability assessments should be an independent planning process from RAMP, whose results could then be used to develop scenarios/sensitivities for the RAMP process. SoCalGas suggests that if the

Commission is considering including the climate change adaptation vulnerability assessment as part of RAMP, it would be more appropriate to include it in the Safety Model Assessment Proceeding (S-MAP). CEJA/LC state that the vulnerability assessment process must be independent of RAMP because the RAMP process is focused on utility infrastructure and does not consider or analyze climate adaptation needs of DVCs.

Lastly, some parties comment that the vulnerability assessment is intended to identify the potential risk that changing climate conditions have on the electric and gas infrastructure. SDG&E states that the results of the assessment should then be used to inform and to be incorporated into a broader risk mitigation such as RAMP. SCE states that while the assessment can identify actions to address risks associated with a utility's assets, operations or management, approval of any particular action should occur in a proceeding where approval of projects occurs.

3.9.2. Discussion – Vulnerability Assessments and General Rate Cases

The question of how, where and when the vulnerability assessments will fit in with energy utility planning for infrastructure and operations is a key focus of Topic 5. We need to determine whether vulnerability assessments are the final step before an energy utility seeks funding for a specific project or whether an intermediate step needs to occur. We agree that vulnerability assessments would be best staggered to coordinate with the various energy utility GRCs.

Coordinating the vulnerability assessments with RAMP helps to ensure that the latest climate science will be reflected in the options considered and projects adopted for funding in the GRCs.

Earlier in this decision we determine that vulnerability assessments should be performed every four years. We agree with those parties that contend that vulnerability assessments should be coordinated with RAMP, which occurs one year prior to the IOU's GRC. Since RAMP and the GRCs are on a four-year cycle, we expect the IOUs to prepare a new vulnerability assessment every four years. Energy utilities are not precluded from updating their assessments at any time in view of new information that could not have been known at the time of the earlier assessment.

A related issue is the state climate change assessment described in the Topic 1 and 2 decision, D.19-10-054, which issues every five years. Depending on when in an IOU's four-year cycle the state assessment issues and to what extent the state assessment contains game-changing information, some update by the IOUs to their vulnerability assessments may be required. We anticipate the IOUs would have to address such significant changes by seeking relief in the GRC itself, either through a petition for modification or motion to reopen.

The IOUs are at different points in their GRC cycles. The Commission recently issued a decision on Sempra's GRC, which covers SDG&E and SoCalGas. PG&E's GRC is pending, but there have been settlement talks. This decision requires Sempra (for SDG&E and SoCalGas) and PG&E to file vulnerability assessments in coordination with their next RAMP filings. SCE filed its current 2021 GRC application (A.19-08-013) in 2019. Our decision today therefore will apply to SCE's next RAMP filing due in three years, for its 2025 rate case.

The relationship between the assessments, RAMP, the GRCs and other IOU applications will evolve over time through an iterative process. Initially, we expect that RAMP and the vulnerability assessments will be filed one year before

the GRC and that the GRC filing will contain a chapter devoted to the vulnerability assessment. The vulnerability assessment will be an intermediate step to identify the risks of climate change and mitigation options, leading to approval of alternatives and associated financing in the GRC or other project approval applications.

We expect the vulnerability assessments to project impacts of various climate risks and describe an array of mitigation options ranging from easy to difficult. However, the Commission will not, in reviewing the vulnerability assessments, choose alternatives and approve financing. Parties will have an opportunity to comment on vulnerability assessments when they are filed, and the Commission will issue a decision accepting vulnerability assessment before an IOU submits its GRC. We expect over time the IOUs and other stakeholders will develop more sophisticated mechanisms for fully integrating climate change risks into GRCs and other applications for infrastructure asset funding.

3.10. Guidance from the Commission on Which Climate Risks to Assess

3.10.1. Party Comments – Climate Risks to Assess

The January 29, 2020 ALJ Ruling asked for comment on whether the Commission should identify the universe of climate variables analyzed in the vulnerability assessments or whether the Commission should provide a minimum set of variables for the IOUs to consider. For example, DWR considers the following risks: wildfires, extreme heat, sea level rise, long-term persistent hydrological changes, short-term extreme hydrological changes, and habitat and ecosystems.

Most parties that commented agree that the Commission should prescribe a minimum set of climate variables. In contrast, PG&E asks that IOUs be allowed

to determine their priority risks, based on knowledge of their specific assets and unique service areas.

SDG&E suggests establishing a base set of variables for scoping vulnerability assessments that will inform actionable alternatives. The baseline could include sea-level rise, groundwater effects, wildfires, heatwaves, and extreme rain events.

Similarly, SCE urges the Commission to identify a minimum set of climate variables to analyze in the assessments. Ultimately, however, SCE states that it should be the responsibility of the IOUs to identify the relevant variables for their service territories.

SoCalGas recommends that the Commission use variables consistent with those analyzed by the IPCC for the development of the vulnerability assessments. SoCalGas notes that cascading events, such as mudslides after rainstorms, may be analyzed.

GPI recommends that the Commission adopt common, specific variables appropriate for energy utilities.

In their Topic 4 comments, CEJA/LC suggest that the Commission require the IOUs' vulnerability assessments to include daily and not just "extreme" events. For example, higher temperatures, while not extreme, will require more frequent use of air conditioning units – a climate adaptation mechanism that may be easier for some communities to utilize than others. As such, the Commission and IOUs should consider daily climate-related events, and not only extreme events, when defining vulnerability so as to account for communities' differing degrees of vulnerability.

3.10.2. Discussion – Climate Risks to Assess

Based on discussion at the working group meetings, the working group report, and party comments, we adopt below a minimum set of variables for use by all energy IOUs. We note that while we are including wildfires as a variable, the IOUs' wildfire mitigation plans deal with short-term rather than long-term risks, and thus may use a different risk assessment than should be used in the climate change adaptation vulnerability assessment. In addition, we encourage IOUs to use other variables that reflect the physical characteristics of their unique service territories.

Below, we provide the minimum set of criteria we expect the energy IOUs to consider in their vulnerability assessments, followed by examples that provide illustrative context but do not constitute a comprehensive list:

- Temperature: Analyzing hourly maximum temperature is necessary but insufficient, and the utilities should also evaluate other temperature changes for their impacts on infrastructure, operations and personnel. Some infrastructure is able to tolerate high temperatures so long as nighttime temperatures remain sufficiently low to enable passive cooling.
- Sea level: Evaluating height of high tide sea level is necessary but insufficient, and the utilities should also evaluate contingencies like the impact of storm surge, king tides, salt corrosion, etc.
- Variations in precipitation: Variations in precipitation include, among other things:
 - Snowpack – precipitation falling as rain instead of snow increases short-term water flow into hydroelectric dams while decreasing water flow later in the season, impacting hydroelectric generation.
 - Extreme precipitation events – bigger storms pose a threat to utility assets and operations.

- Long-term precipitation trends – higher or lower long-term precipitation may impact localized flooding and hydroelectric generation, among other important factors.
- Drought – drought may impact hydroelectric generation, and act as a compounding factor on other risks, like wildfires and subsidence.
- Subsidence – decreased groundwater may cause localized subsidence, posing a physical threat to infrastructure as the ground shifts.
- Wildfire: Wildfire is a major variable that is likely to increase over the coming century. The IOUs should use their wildfire risk assessments from other proceedings in their vulnerability assessments.
- Cascading impacts: multiple parties have raised concerns that cascading or compounding incidents (*e.g.*, wildfires burn hillsides and rainstorms cause mudslides) have multiple negative impacts that are greater than the sum of the parts. The IOUs should consider cascading impacts relevant to their service territory.

3.11. Climate Change Teams and Executive and Board Involvement

The ALJ’s January 29, 2020 Ruling asked whether energy IOUs should create “climate change teams” with representatives across departments and how to ensure climate change planning and adaptation is prioritized at the most senior executive and board levels.

3.11.1. Party Comments - Climate Change Teams and Executive and Board Involvement

As to climate change teams across departments, PG&E agrees that IOUs need to develop the institutional capacity to integrate climate change risk assessment and data into all relevant planning and decision-making across the companies. This requires support not from senior level executives and board

members but at levels where the assessments are being performed. SDG&E states it has a climate advisory group, consisting of leadership from operational groups throughout the company, as well as a Chief Risk Officer and sustainability group. SDG&E cautions against requiring specific positions, which it asserts would be overly prescriptive and reduce flexibility for utilities to manage the process appropriately.

Both SCE and SoCalGas reject the idea of dedicated climate change teams. Rather, utilities should have the flexibility to design a management structure that most effectively develops and implements climate change policy. SCE points out the climate change analysis requires collaboration among multiple organizations and diverse functions throughout the enterprise rather than creating a stand-alone organizations. SCE points to its large cross-company effort focused on risks related to climate change driven wildfires, with multiple groups working collaboratively to identify, recommend mitigation, and implement those measures once approved by the Commission.

CEJA/LC support IOUs creating climate change teams, given the multidisciplinary nature of the effects of climate change.

As to designated executive level and board positions for climate change, PG&E believes it has the right governance structure to address climate change planning and adaptation and does not see the need for new officer or board positions. SDG&E agrees, stating that creating new positions would be overly prescriptive and would fail to provide utilities with sufficient flexibility to manage their operations. Similarly, SCE states that the Commission should not require SCE to create climate planning and adaptation positions at the senior executive or board level. SoCalGas asks for the independent authority to

establish such functions at the executive levels, as necessary, based on the level and type of risk presented by the company's infrastructure.

CEJA/LC believe that senior level executives and board members should be tasked with climate change adaptation. Further, CEJA/LC suggest that the Commission establish a new requirement for GRCs that projects over a certain dollar amount will only be approved as just and reasonable if the utility has considered climate adaptation in developing that project. By linking consideration of climate change to approval of projects, the Commission will ensure that senior executives and board members are aware of the importance of climate change planning.

3.11.2. Discussion - Climate Change Teams and Executive and Board Involvement

We will require the energy IOUs to create "climate change teams" across departments to ensure a comprehensive approach to risk is developed. As in the safety context, climate risk analysis must be conducted on a utility-wide basis to prevent competition among business units. SBUA suggests that the Commission's decisions in Investigation (I.) 15-08-019 provide guidance on how to institutionally integrate climate change risk assessments into utility organizational structures, but we will not require a particular approach.

We agree with GPI's suggestion that climate change teams with cross-departmental responsibilities be created and report directly to senior level executives and/or board members. SCE has established a cross departmental team to deal with wildfire risk and mitigation. The broader topic of climate change, with its numerous risks to energy utility infrastructure, operations and services, similarly warrants high level management attention.

We adopt a requirement that each energy utility create a cross-departmental climate change team and have that team report directly and independently to an executive at the senior vice president level or above. A cross-departmental team will reduce the possibility that any climate change team within one department will be siloed within the energy utility. By requiring collaboration by team members, competition between departments should be reduced. And, by specifically tasking a senior level executive with the utility's climate change planning, we hope to ensure that this vital topic is given the attention it deserves.

We are not persuaded that these two requirements in any way reduce the flexibility of energy utilities to address climate change. We do not at this time direct the IOUs to charge a board member with the duty to consider climate adaptation. Since we envision that the senior level executive will brief the board regularly on climate change and associated planning, we expect all board members to take responsibility for climate adaptation planning for infrastructure, operations and services.

To ensure compliance with this requirement, we direct the large energy IOUs to file a Tier 1 advice letter with the Commission's energy division listing both the individuals and their departments named to the climate change team. The advice letter should also name the senior level executive to whom the climate change team will directly report. This advice letter filing should be updated annually and when the senior level executive changes.

We considered CEJA/LC's proposal that we only approve those projects over a certain dollar amount in the GRC if the utility has considered climate change risks and mitigations. We agree that this requirement would get attention at the senior executive and board level. However, we find this

recommendation redundant to our requirement that the energy IOUs include a chapter in their GRC filing addressing climate change risks and options for mitigation for which the IOU requests funding, regardless of dollar amount. It also appears unnecessary in view of our requirement that the IOUs create climate action teams and designate a senior level executive to oversee the climate change team and report to the board on a regular basis on vulnerability assessment activities.

Finally, there are persuasive arguments in favor of and against including large projects in a GRC. The GRC can provide a good snapshot of spending an IOU anticipates over the subsequent years, if most of the spending is represented there. Having large projects in separate applications can complicate the tasks of assessing all IOU expenditures and predicting ratepayer impact over time. By the same token, separate applications can ensure that parties that do not typically participate in the GRC process nonetheless have the opportunity to weigh in on a subject that is important to them, without the added work of addressing the wide array of GRC issues. For this reason, we do not believe it is appropriate to be prescriptive as to where IOUs should seek funding of particular climate adaptation mitigation measures.

3.12. Annual Capacity Planning

The relationship between vulnerability assessments and annual capacity planning was also raised in the January 29, 2020 Ruling. Parties took a variety of positions on this question. The planning process is a multi-agency one that is tied to the California Energy Commission's Integrated Energy Planning Report (IEPR) and thus is beyond the scope of this proceeding. The Commission will continue to work with the California Energy Commission and others to ensure

that climate change impacts are fully incorporated into forecasting and planning processes.

3.13. Green Alternatives

3.13.1. Party Comments – Green Alternatives

The January 29, 2020 ALJ Ruling asked for party comment on whether vulnerability assessments should analyze green and sustainable infrastructure alternatives to traditional utility infrastructure investments when proposing climate adaptation measures, such as wetland restoration.

The utilities ask for flexibility in considering green alternatives. PG&E views the scope of traditionally engineered adaptation alternatives versus green alternatives as beyond the scope of this discussion. Other forums, such as the GRC, are more appropriate for considering which solutions are appropriate, balancing environmental concerns and cost-effectiveness, according to PG&E. SCE points out it considers potential green alternatives to traditional infrastructure in the annual capacity planning process. SCE suggests that green and sustainable infrastructure adaptation alternatives could result from collaboration with impacted communities. SDG&E states it considers infrastructure alternatives in proposing projects. SoCalGas asks for flexibility in identifying affordable long-term investments for customers, including sustainable alternatives.

CEJA/LC urge the Commission to require the IOUs to analyze green alternatives when proposing climate adaptation measures and suggests working with other state agencies developing such projects. GPI strongly supports requiring utilities to consider green and sustainable alternatives to mitigate climate risks.

3.13.2. Discussion – Green Alternatives

We decline to require utilities to analyze green and sustainable infrastructure alternatives to traditional utility infrastructure investments when proposing climate adaptation measures in their vulnerability assessments. We agree that other forums, such as the GRC, or collaboration with communities or other state agencies may more appropriate for considering which solutions, sustainable or otherwise, are appropriate to mitigate climate risks. For example, deciding whether wetlands restoration could substitute for building a seawall would be an analysis undertaken by the Coastal Commission in reviewing whether a seawall (if even allowed) is appropriate mitigation to the risk of sea level rise.

While green improvements appear to be at least one level above what we contemplate as the focus for the vulnerability assessments, at the same time we direct the utilities to consider green and sustainable remedies for the vulnerable infrastructure identified in assessing mitigation measures in their vulnerability assessments. Raising green and sustainable alternatives early in the risk assessment and mitigation process will help ensure that green alternatives will be considered in higher level Commission proceedings such as the GRC that will fund climate adaptation projects or by other agencies in their approval processes or in proceedings held by other agencies such as the Coastal Commission.

3.14. Use of Experts

This proceeding was initially expected to make recommendations on the use of experts in the decision on Topics 1 and 2. In D.19-10-054 , which addressed those topics, the Commission found that it would benefit from additional record on this topic, and stated the following (at 47):

The comments lead us to conclude that further analysis and input are necessary on the type of panel and its mandate. We

agree with Climate Resolve, NRDC, Cal[PA] and the energy utilities that there are existing bodies focused on determining the most up-to-date climate models and data, and this decision answers the question for the foreseeable future. What is lacking is expert input on which model(s) and dataset(s) to apply to energy utility infrastructure and operations, and how to apply such tools to the electric and gas utility context. This task will require familiarity with utility infrastructure and operations as well as knowledge of climate adaptation modeling and data. The essential task will be to use expert input to determine which of the studies within the Fourth Assessment can be used to examine climate impacts on utility operations and infrastructure for the vulnerability assessments the Commission will address as part of Topic 5. We will take additional input on the issue via the Staff Proposal on Topic 5 and address the matter further in a subsequent decision.

Consistent with this language, the staff report on Topic 5 contains a proposal on the IOU use of experts to inform and support their vulnerability assessments.²¹ Specifically, the October 22, 2019 staff proposal included the following discussion regarding experts:

Working with Climate Scientists

Staff proposes that utilities each identify and contract with climate scientists as needed for these impact studies. While the [state's] Fourth Assessment [on Climate Change] offers tools and existing studies, it is possible that utilities will need a range of expert support on technical issues such as which [Global Climate Model (GCM(s))] to use, how to apply a GCM to their service territory, and how to further downscale a climate impact study to their service territory. Utilities would assess the gaps in their expertise and work with appropriate scientists, such as those who worked on studies within the

²¹ The recommendations in the staff report supplant an earlier staff recommendation that the Commission form an advisory board to advise IOUs on the vulnerability assessments, and we do not consider establishment of such a board further.

Fourth Assessment or who are associated with the academic climate change community in California or other states.

This idea replaces the statewide expert panel that was the subject of earlier discussion in this proceeding. Staff proposes that having scientists work directly with each utility will yield impact studies that are more accurate and relevant to a given service territory.²²

3.14.1. Party Comments – Use of Experts

CEJA/LC urge the Commission to establish a statewide expert panel of climate scientists, asserting that utility contracting introduces potential conflicts of interest and may not be as impartial as an expert panel. They add that while the impacts of climate change vary regionally, climate science does not, so there is no obvious need to have one expert for each service region.

A few speakers at the working group echoed CEJA/LC's comments about establishing a statewide expert panel of climate scientists, and raised concerns that IOUs may select unvetted consultants who may improperly call themselves climate scientists without the expertise. Conversely, others raised concerns that the granularity of analysis required for a climate vulnerability assessment necessitates a detailed, in-depth review that a statewide panel would be unable to provide. Parties also raised concerns that while climate science does not vary by locale, the expertise required to make informed decisions on climates as varied as those found in California likely require flexibility and a wide range of personnel.

²² The staff proposal was sent to the service list on October 22, 2019 and is attached to this decision as Appendix B.

3.14.2. Discussion – Use of Experts

We believe it is essential that the Commission have available to it experts that do not have a conflict of interest due to prior work for an IOU or other party. However, the Commission is often required to assess whether a particular expert has a conflict of interest as part of its state contracting process, and there is no need to specify how to do so separately here. We are not prepared to tell the IOUs (or any other party) to use or not use a particular expert as part of their vulnerability assessment work.

4. Categorization and Need for Hearing

This rulemaking is quasi-legislative. There is no need for evidentiary hearings.

5. Comments on Proposed Decision

The proposed decision in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the CPUC's Rules of Practice and Procedure.

Comments were filed on _____ and reply comments were filed on _____.

6. Assignment of Proceeding

Liane M. Randolph is the assigned Commissioner and Regina DeAngelis is the assigned ALJ in this proceeding.

Findings of Fact

1. The Commission opened this climate adaptation rulemaking on April 26, 2018.
2. The Commission in D.19-10-054 addressed Topics 1 and 2 set forth in the rulemaking, as follows: Topic 1, Definition of climate adaptation for utilities. Topic 2, Appropriate data sources, models, and tools for climate adaptation decision-making.

3. The Commission in this decision addresses Topics 4 and 5 set forth in the rulemaking, as follows: Topic 4, Identification and prioritization of actions to address the climate change related needs of vulnerable and disadvantaged communities; and Topic 5, Framework for climate-related decision-making and accountability. In addition, the Commission addresses issues in the rulemaking identified as Topic 3 (addressed as part of Topic 5 herein). Topic 3 issues include guidelines for utility climate adaptation assessment and planning.

4. The Commission in this decision also addresses one issue from Topic 2 set forth in the rulemaking. This issue was moved to Topic 5 herein and is as follows: a proposal for the utilities to rely on experts in their vulnerability assessments.

5. DVCs require extra attention to ensure equity when the IOUs begin making infrastructure, operational and service changes as part of their climate adaptation efforts.

6. DVCs are vulnerable socioeconomically and will have difficulty adapting to climate change due to their inability to afford resiliency measures that wealthier communities may be able to afford.

7. DVCs are communities at danger of climate change impacts of various types.

8. DVCs have both high socioeconomic burdens and high exposure to one or more adverse climate impacts and require extra resources to adapt to climate change.

9. Adaptive capacity contributes to communities' vulnerability in the context of climate adaptation. When a community's adaptive capacity is low, relative to climate change exposure and sensitivity, a community is more vulnerable to climate change. The term "prioritization" within the context of DVCs means

that a community that is a DVC may require extra resources, and more engagement and attention, because it is less able to fund or organize adaptation efforts on its own.

10. CalEnviroScreen is one tool for determining which communities are DVCs, but CalEnviroScreen alone is insufficient to identify all DVCs for purposes of climate adaptation.

11. To identify all DVCs for purposes of climate change adaptation, the results of using the CalEnviroScreen to identify communities in the 25% highest scoring census tracts must be expanded to capture tribal lands and sparsely populated census tracts that score the highest 5% of Pollution Burden within CalEnviroScreen.

12. To concentrate resources for climate adaptation in communities that are most at need, DVCs should include census tracts with median household incomes less than 60% of state median income.

13. Small businesses do not require special designation as DVCs. DVCs are determined at the community level, not based on business type or sector of the economy.

14. Specific methods to address and engage disadvantaged and vulnerable communities within the context of climate adaptation must be established.

15. IOUs need to develop Community Engagement Plans on all aspects of scope, analysis, data gathering, goal development, implementation and review to guide engagement with DVCs on climate adaptation.

16. raining is essential to meaningful community engagement with DVCs in the climate adaptation context.

17. The Commission has already begun work on environmental justice and disadvantaged communities, for example through the Environmental and Social

Justice Action Plan and the Disadvantaged Communities Advisory Group's Equity Framework, which can be relied upon in the climate adaptation context.

18. CBOs are a critical part of the community engagement process in both carrying out vulnerability assessments and implementing actual climate adaptation measures.

19. Community members do not need empirical, firsthand experience on the frontline of climate change-driven events to participate effectively in the IOUs' community engagement efforts for climate adaptation. While such experience is useful, other experience may be equally useful.

20. Community engagement in the context of climate adaptation must be based on best practices from past experiences of the Commission and IOUs. For example, in the context of Wildfire Mitigation Plans (R.18-10-007 and Resolution WSD-001), and Public Safety Power Shutoff (PSPS, R.18-12-005), the Commission adopted significant community engagement requirements.

21. To the extent other Commission proceedings have resulted in community networks that have an interest in longer term climate adaptation, the IOUs should consult these networks in connection with the community engagement work in climate adaptation.

22. A separate report by the IOUs that evaluates the vulnerability assessments is not needed at this time. However, to demonstrate that the IOUs' community engagement is productive and engenders trust, IOUs should survey DVCs and CBOs with which they work and report the results of those surveys every four years, starting on June 30, 2021.

23. The IOUs should have a lead role in conducting community engagement for the vulnerability assessments since IOUs are best situated to determine

infrastructure changes required to meet known and foreseen climate change risks.

24. The IOUs need funding for vulnerability assessments, but the IOUs should request this funding in a different proceeding, such as an application proceeding or General Rate Case. In the meantime, the IOUs should track costs directly related to vulnerability assessments in a memorandum account.

25. Vulnerability assessments for gas utilities should be as robust as those for electric utilities.

26. Vulnerability assessments should include infrastructure upgrades, IOU operations and services, and assets over which IOUs have direct control, such as substations and transmission lines.

27. In their vulnerability assessment, the IOUs should use the DWR's two-step vulnerability assessment methodology that 1) combines exposure and sensitivity to determine risk, and 2) combines risk and adaptive capacity to determine vulnerability.

28. IOUs should be permitted to end the analysis of an asset in their vulnerability assessments if exposure to a climate risk for a particular asset is deemed low.

29. IOUs have contracted for large amounts of energy and capacity through purchased power agreements and have varying levels of control over assets under contract but utilities are expected include climate change considerations in their negotiations while contracting with third parties.

30. The "flexible adaptation pathway" tool allows flexibility in the future by proposing alternative strategies for combating climate change.

31. The appropriate intervals for intermediate time frame for vulnerability assessments is 10-20 years and for long-term horizons it is the next 30-50 years. The key time frame for the vulnerability assessment is the next 20-30 years.

32. The IOUs have existing reports similar to the vulnerability assessments required in this decision and these existing reports can be used as a starting point for developing the required vulnerability assessments.

33. Vulnerability assessments may be used as part of a process for informing the GRC as to climate risks and vulnerabilities the utility will be facing in the long term of 20 to 50 years.

34. DWR considers the following risks in its vulnerability assessment: wildfires, extreme heat, sea level rise, long-term persistent hydrological changes, short-term extreme hydrological changes, and habitat and ecosystems.

35. The IOUs should address minimum set of variables in their vulnerability assessment to ensure a comprehensive assessment.

36. The IOUs need to ensure a comprehensive approach to climate change risk is developed across all departments to ensure a comprehensive approach to climate change.

37. IOUs must ensure climate change planning and adaptation is prioritized at the most senior executive and board levels.

38. The utilities need to consider green and sustainable remedies for the vulnerable infrastructure identified in assessing mitigation measures in their vulnerability assessments.

39. A particular expert will not be designated for the IOUs' vulnerability assessments.

Conclusions of Law

1. This decision completes Phase 1 of the proceeding.
2. The staff definition of communities that are the most vulnerable to climate change should be adopted with the modifications to median income levels contained in Section 2 herein. The adopted definition is as follows:

“Disadvantaged Vulnerable Communities,” or “DVCs.” The Commission adopts and the IOUs shall apply the following definition of Disadvantaged Vulnerable Communities for this purpose: Disadvantaged Vulnerable Communities consists of communities in the 25% highest scoring census tracts according to the most recent version of the California Communities Environmental Health Screening Tool (CalEnviroScreen), as well as all California tribal lands, census tracts with median household incomes less than 60% of state median income, and census tracts that score in the highest 5% of Pollution Burden within CalEnviroScreen, but do not receive an overall CalEnviroScreen score due to unreliable public health and socioeconomic data.
3. The term “disadvantaged” should be included in the definition of vulnerable communities in the context of climate adaptation because the Commission has applied the term to include communities that require extra funding, outreach and attention due to socioeconomic factors, pollution burden, and adaptive capacity.
4. To ensure it is clear that the reference to disadvantaged communities also refers to communities exceptionally vulnerable to climate change because of their disadvantage, the term “vulnerable” should be included in the description of these communities.
5. DVCs will require extra attention to ensure equity when the IOUs begin making infrastructure, operational and service changes as part of their climate adaptation efforts.

6. The term “prioritization” within the context of DVCs means a community that is a DVC may require extra resources, and more engagement and attention, because it is less able to fund or organize adaptation efforts on its own.

7. Vulnerability assessments for DVCs should include their adaptive capacity.

8. When IOUs begin to seek funding to adapt their infrastructure, operations and services to climate change in DVCs, such requests shall include extra treatment, including funding, outreach and education, to promote equity between communities with low adaptive capacity and those outside DVCs with high incomes or other indicia of strong ability to adapt to climate change

9. The vulnerability assessments should identify areas, including DVCs, in need of extra funding, outreach, and education.

10. Requests for funding equity needs for DVCs should be included either in the IOUs’ GRCs, a separate ratesetting proceeding, or in applications filed by the IOUs.

11. In preparing both the vulnerability assessments and Community Engagement Plans, IOUs should include analysis of how to promote equity in DVCs based on the DVC’s adaptive capacity and funding so that DVCs are not left behind due to their inability to garner their own resources to fund climate adaptation measures.

12. In determining levels of adaptive capacity, IOUs should consult with and rely on the other parties to this proceeding that submitted comments on the issue.

13. In discussing adaptive capacity in Community Engagement Plans, the IOUs should include a discussion of whether extra funding will be sought in the future, along with discussion of any extra outreach and education that IOUs will need to conduct in order to promote equity for DVCs.

14. The Commission Staff's reliance on CalEnviroScreen with modifications is appropriate for definitional purposes for DVC.

15. Other tools such as CCHViz or Cal-Adapt should not be used to exclude communities from DVC status if using CalEnviroScreen or the rural and tribal lands referred to in the definition of DVCs would include them.

16. The Commission Staff's proposal to expand on the output of CalEnviroScreen to capture tribal lands and the census tracts that score in the highest 5% of Pollution Burden within CalEnviroScreen, but that do not receive an overall CalEnviroScreen score due to unreliable public health and socioeconomic data, is reasonable.

17. Small businesses should not be treated differently than the communities in which they are located, and a small business does not fall within the DVCs definition unless its surrounding community qualifies as such.

18. Each IOU should prepare, file and serve a Community Engagement Plan in this proceeding. The starting point for this Community Engagement Plan should be the outline provided by CalPA/NRDC in Reply Comments.

19. IOUs should share draft Community Engagement Plans with all parties to this proceeding as soon as possible and solicit input before filing the Community Engagement Plans.

20. The IOUs' first Community Engagement Plans are due no later than 90 days from the effective date of this decision. Subsequent Community Engagement Plans are due every four years, 180 days before the due date of their vulnerability assessments.

21. Training of IOU personnel is essential to meaningful community engagement with disadvantaged communities and funding for training will be considered in either the IOUs' General Rate Cases or in a separate proceedings.

22. In IOUs' Community Engagement Plans, IOUs shall set forth how their personnel have been or will be trained in community engagement so that their interactions with disadvantaged communities are productive and engender trust.

23. The Commission's existing Environmental and Social Justice Action Plan and Disadvantaged Communities Advisory Group Equity Framework should be relied upon in the climate adaptation process.

24. The IOUs, in their Community Engagement Plans, should include a discussion of how they will implement the Environmental and Social Justice Action Plan and Disadvantaged Communities Advisory Group Equity Framework.

25. The DACAG should comment on any IOU Community Engagement Plan submitted in this proceeding and the IOUs should consult the DACAG when developing their Community Engagement Plans.

26. The IOUs should consult with the Commission Staff responsible for the DACAG to make sure the Community Engagement Plans are on an appropriate DACAG meeting agenda in time for meaningful Community Engagement Plan review.

27. CBOs should be involved in all aspects of the community engagement process. Trusted and experienced CBOs should be considered for program administration roles, both in carrying out vulnerability assessments and implementing actual climate adaptation measures.

28. The IOUs' Community Engagement Plans should address how to ensure communities and CBOs are involved in scope analysis, goal development, implementation, administration and review of the utility vulnerability assessments, as well as taking leadership roles in their areas of expertise on vulnerability assessments and climate adaptation implementation in DVCs.

29. No particular credentials are required for CBOs or community members to participate in the IOUs' climate adaptation engagement efforts, except for a desire to assist in helping the relevant community to adapt to climate change and a demonstrated track record of effective community engagement.

30. The vulnerability assessments will provide the information the Commission and stakeholders need to determine whether infrastructure or service changes will be needed as a means of climate adaptation.

31. To the extent the Commission has already implemented community engagement practices that are effective and that empower local communities, the IOUs should continue to use them.

32. The IOUs' Community Engagement Plans should include best practices for community engagement relied upon.

33. Where there are credible concerns that local government is not engaged with its disadvantaged residents, the IOUs' community engagement regarding climate adaptation shall include persons or organizations that are non-governmental.

34. The IOUs are required to survey DVCs and CBOs with which the IOUs work and report the results of those surveys every four years, starting on June 30, 2021, to demonstrate that their community engagement on climate adaptation is productive and engenders trust.

35. The Commission and local governments have a role to play in bringing climate change adaptation measures to disadvantaged communities but IOUs must be deeply involved in the effort to bring climate change adaptation measures affecting their infrastructure, operations and services to disadvantaged communities.

36. IOU funding for climate adaptation measures should be addressed in separate proceedings but a memorandum account should be authorized in this decision to track costs directly related to the vulnerability assessments ordered herein.

37. No support exists for the assertion that vulnerability assessments for gas infrastructure need not be as robust as those for electrical infrastructure.

38. SoCalGas shall provide a robust Community Engagement Plan and vulnerability assessment containing the same elements and on the same timelines as ordered here for the large electric utilities.

39. Existing Commission proceedings will not be specifically designated at this time as the venue for new climate adaptation projects.

40. In addition to reviewing their infrastructure in their vulnerability assessments, IOUs should conduct an exposure analysis on all their services and operations.

41. The vulnerability assessments should include an array of options for dealing with vulnerabilities, ranging from easy fixes to more complicated, longer term mitigation.

42. DWR's two-step vulnerability assessment methodology should be used that 1) combines exposure and sensitivity to determine risk, and 2) combines risk and adaptive capacity to determine vulnerability.

43. The IOUs should be provided with flexibility to focus on different climate vulnerabilities in their vulnerability assessments but are responsible for fully assessing and ranking the relevant climate vulnerabilities in their service territories.

44. The vulnerability assessments should include off-ramps for components with low climate risk, but there must be a mechanism to reassess risks deemed to

be low risk at a particular point in time in case the risk of the component increases over time.

45. The IOUs should endeavor to include climate change considerations in their negotiations while contracting with third parties for power, capacity or reliability.

46. The IOUs should identify in their vulnerability assessments those facilities they have third-party contracts with for power, capacity or reliability.

47. During the vulnerability assessment process, IOUs should communicate with the operators of facilities they have contracts with for power, capacity or reliability and ask them to report their own facility's exposure to climate risk. The risk assessment in the vulnerability assessment should include any exposure to climate risks that facility operators report and the IOUs' contingency planning in case the third-party asset experiences failure due to climate change.

48. The IOUs are not required to conduct their own extensive analysis of third-party facilities at this time.

49. In the future, when IOUs sign new contracts for power, capacity or reliability, the IOUs should take steps to identify climate change risks and obtain information from the operator. New long-term contracts of 15 years or more should include an acknowledgement in the contract that the operator has considered long-term climate risk.

50. A facility safety plan considering climate risks should be included when the purchased power agreement is submitted to the Commission for approval. The facility safety plan should then be included in the utility's assessment of climate change risks for that particular asset.

51. Over time, IOUs should move from simply identifying climate change risks of contracted assets in their vulnerability assessments to including

substantive risk assessments of third-party contracts in their vulnerability assessments.

52. The flexible adaptation pathway approach shows promise for dealing with the uncertainties inherent in long-term planning, but now it should not be adopted as a requirement.

53. The vulnerability assessments should identify any challenges the IOUs will face due to climate change and describe possible solutions ranging from easy to difficult. The specific projects and climate change mitigations themselves will be chosen in the GRC or other application seeking project funding.

54. Rather than require all IOUs to submit their vulnerability assessments at the same time, the timing of each vulnerability assessment should be related to each IOU's GRC filing and be performed every four years – the same timeframe currently applicable to the IOUs' GRCs. The vulnerability assessments should be coordinated with RAMP, which occurs one year prior to the IOU's GRC.

55. On the issue of time periods covered by vulnerability assessments, a multi-decade plan providing risk assessment and options is appropriate.

56. The IOUs' existing vulnerability assessments should be used as a reference, but future vulnerability assessments should not simply update what the IOUs have already submitted. IOUs shall ensure the vulnerability assessments they submit in the future include everything this decision requires.

57. The IOUs are not precluded from updating their vulnerability assessments at any time in view of new information that could not have been known at the time of the earlier assessment.

58. A minimum set of variables for use by all IOUs in their vulnerability assessments should be adopted. In addition, IOUs should use other variables that reflect the physical characteristics of their unique service territories.

59. No schedule is adopted for post-hoc evaluation of the accuracy of vulnerability assessments at this time.

60. The IOUs should create “climate change teams” across departments to ensure a comprehensive approach to climate change risk is developed. These climate change teams should have cross-departmental responsibilities and report directly and independently to an executive at the senior vice president level or above.

61. All board members should take responsibility for climate adaptation planning for infrastructure, operations and services.

62. The IOUs should consider green and sustainable remedies for the vulnerable infrastructure identified in assessing mitigation measures in their vulnerability assessments.

63. No requirement is adopted regarding experts to be engaged for the IOUs’ vulnerability assessments.

O R D E R

IT IS ORDERED that:

1. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, Southern California Gas Company (collectively “IOUs”) shall refer to disadvantaged communities in the climate adaptation context as “Disadvantaged Vulnerable Communities,” or “DVCs.” The Commission adopts and the IOUs shall apply the following definition of Disadvantaged Vulnerable Communities for this purpose: Disadvantaged Vulnerable Communities consist of communities in the 25% highest scoring census tracts according to the most recent version of the California Communities Environmental Health Screening Tool (CalEnviroScreen), as well as all California tribal lands, census tracts with median household incomes less than 60% of state

median income, and census tracts that score in the highest 5% of Pollution Burden within CalEnviroScreen, but do not receive an overall CalEnviroScreen score due to unreliable public health and socioeconomic data.

2. The Commission adopts, and Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, Southern California Gas Company shall apply the following definition of the term “adaptive capacity” in the climate adaptation context: The broad range of responses and adjustments to daily and extreme climate change-related events available to communities. This includes the ability and resources communities have to moderate potential damages, take advantage of opportunities, and cope with consequences.

3. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, Southern California Gas Company shall consult with and rely on the other parties to this proceeding (or successor proceeding) that submitted comments on the issue in determining levels of adaptive capacity for Disadvantaged Vulnerable Communities.

4. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, Southern California Gas Company (collectively “IOUs”) shall each prepare, file and serve their first Community Engagement Plan in this proceeding no later than 90 days from the effective date of this decision. Subsequent Community Engagement Plans shall be filed in this proceeding (or successor proceeding) every four years, 180 days before filing their vulnerability assessments. The purpose of the Community Engagement Plan shall be to identify and prioritize climate adaptation investments in Disadvantaged Vulnerable Communities (DVCs). The Community Engagement Plan shall include, at a minimum, the following:

- 1) Analysis of how IOUs promote equity in DVCs based on the communities' adaptive capacity.
- 2) Description of how the IOU's personnel have been or will be trained in community engagement.
- 3) Description of how the IOUs will implement the Commission's existing Environmental and Social Justice Action Plan and Disadvantaged Communities Advisory Group Equity Framework. The IOUs shall consult with the Disadvantaged Communities Advisory Group when developing their Community Engagement Plans. The IOUs shall also work with the Commission staff responsible for the Disadvantaged Communities Advisory Group (DACAG) to make sure the Community Engagement Plan is on an appropriate DACAG meeting agenda in time for meaningful review of the Community Engagement Plan. The IOUs shall also include a discussion of the input from parties to this proceeding (or successor proceeding) and affected communities on the Environmental and Social Justice Action Plan and Disadvantaged Communities Advisory Group Equity Framework (as well as other issues).
- 4) Discussion that accepts and acknowledges input from community-based organizations (CBOs) and communities, and explains all input received, whether followed or not.
- 5) Discussion that gauges interest and availability of CBOs for meaningful program administration in the vulnerability assessments and climate adaptation implementation and other leadership roles, and discloses any CBO or community interest in such roles.
- 6) Description of how the IOUs will ensure communities and community-based organizations are involved in scope analysis, goal development, implementation, administration and review of the utility vulnerability assessments, as well as taking leadership roles in their areas of expertise on vulnerability assessments and climate adaptation implementation in DVCs.

- 7) List of best practices relied upon for outreach after the IOUs conduct outreach to communities, CBOs and their representatives that have participated in this proceeding.
 - 8) Where credible concerns exist that local government is not engaged with its disadvantaged residents, the IOUs' community engagement shall include persons or organizations that are non-governmental. The Community Engagement Plans shall list the non-governmental organizations contacted and the reason contacted
5. When preparing Community Engagement Plans, Pacific Gas and Electric Company), Southern California Edison Company, San Diego Gas & Electric Company, Southern California Gas Company shall act as follows:
- 1) meet with community-based organizations (CBOs) and communities participating in this proceeding to develop an outline of what the Community Engagement Plans should include, using the outline submitted by California Public Advocates Office and Natural Resources Defense Council in this proceeding and the requirements set forth in this decision as a starting point for the discussion; and
 - 2) disseminate a draft of the Community Engagement Plan widely to CBOs and on the service list of this proceeding (or successor proceeding) before filing the plan in this proceeding for comment. The final version of the Community Engagement Plan filed with the Commission shall reflect the input of affected communities and parties on the service list of this proceeding (or successor proceeding).
6. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company (collectively "IOUs") shall survey Disadvantaged Vulnerable Communities (DVCs) and community-based organizations with which the IOUs work. The goal of the survey shall be to assess the effectiveness of the community

outreach and engagement discussed in this decision. The IOUs shall include the results of the surveys every four years in a survey report. The first survey report is due on June 30, 2021. The IOUs shall file and serve on the service list of this proceeding (or successor proceeding) the survey reports. In preparing the survey report, the IOUs shall, at a minimum, act as follows:

- 1) Assess and describe in the survey report the effectiveness of the community outreach and engagement discussed in this decision.
- 2) Ask communities and individuals to which the IOU has conducted outreach and community engagement if the outreach and community engagement was effective in helping them with the vulnerability assessment process. Include results in the survey report.
- 3) Provide survey responses in the survey report categorized by type of outreach - *e.g.*, community meetings, over the air broadcast information, social media, print media, etc. - so that there is data in the proceeding showing what outreach and community engagement is most effective that the Commission and stakeholders may use to direct future outreach.
- 4) Within 60 days for the effective date of this decision, file and serve on the service list in this proceeding any existing survey results that assess the effectiveness of outreach and community engagement discussed in this decision.
- 5) Prior to conducting the survey, the IOUs, alone or in combination, shall gather input from the parties to this proceeding on appropriate survey questions and methodology through a meet and confer process that is open to all parties. This meet and confer process shall conclude no later than 30 days before the surveys are conducted.
- 6) Use metrics to determine the reach of the IOUs' outreach and community engagement efforts. One set of metrics

shall be quantitative in nature, and include data related to website visits, click rates, conversions, in-person meetings, radio spots, number of partners, number of customers reached, customer acknowledging information, read receipts, video shares, and other quantitative measurement. Another set of metrics shall document comprehension of the vulnerability assessment process. Such metrics can be more qualitative in nature and include metrics collected from surveys and post-event interviews/sessions with stakeholders and partners. Metrics shall capture satisfaction with outreach and engagement from the utility, understanding of information and whether communities or individuals feel equipped to act, and whether communities or individuals feel connected to resources relevant to vulnerability assessments. The metrics and the results shall be included in the survey reports.

7. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall take the lead on the development of vulnerability assessments related to their infrastructure, operations and services, whether for Disadvantaged Vulnerable Communities or other communities.

8. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company (collectively "IOUs") shall file every four years a vulnerability assessment that includes the following:

- 1) Consider and identify climate risks to operations and service as well as to utility assets over which the IOUs have direct control. In addition to reviewing their infrastructure, IOUs shall conduct an exposure analysis on all their services and operations as a means of identifying in the vulnerability assessment which operations and services they shall include for further analysis. The vulnerability assessments shall include an array of options

- for dealing with vulnerabilities, ranging from easy fixes to more complicated, longer term mitigation.
- 2) Identify facilities they have third-party contracts with for power, capacity, or reliability in their vulnerability assessments. During the vulnerability assessment process, IOUs shall communicate with the operators of these third-party contract facilities and ask them to report the facility's exposure to climate risk. In the vulnerability assessment, the risk assessment shall include any exposure to climate risks that facility operators report, and the IOUs' contingency planning in case the third-party asset experiences failure due to climate change.
 - 3) Address the key time frame to be considered by the vulnerability assessment of the next 20–30 years. Also address the intermediate time frame of the next 10-20 years and the long-term time frame of the next 30–50 years.
 - 4) Consider and identify the green and sustainable remedies for the vulnerable infrastructure identified in assessing mitigation measures in the vulnerability assessments.
 - 5) Include an analysis of how IOUs promote equity in Disadvantaged Vulnerable Communities (DVCs) based on the communities' adaptive capacity. The IOUs shall also address whether extra funding is or will be sought and shall identify extra outreach and education needed so that IOUs promote equity in the DVCs.
 - 6) Include in the vulnerability assessments the Community Engagement Plans for DVCs, providing for community engagement work that allows community-based organizations and community members, as well as government entities in those communities, to participate in vulnerability assessments in their areas of expertise, suggesting sources of data or other information to be used in the assessments, reviewing and contributing to the text of vulnerability assessments, and commenting on assessments.

- 7) Address in the vulnerability assessments “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,” as required by Commission Decision 19-10-054, Ordering Paragraph No. 1.
- 8) Use DWR’s two-step vulnerability assessment methodology that 1) combines exposure and sensitivity to determine risk, and 2) combines risk and adaptive capacity to determine vulnerability.
- 9) Include off-ramps for assets with low climate risk but also a mechanism to reassess assets that may require further risk assessment as climate risks change.
- 10) Consider the following minimum set of criteria in the vulnerability assessments (in the list, each item is followed by examples that provide illustrative context; this does not constitute a comprehensive list):
 - a. Temperature: The IOUs shall analyze hourly maximum temperature and also evaluate other temperature changes for their impacts on infrastructure, operations and personnel.
 - b. Sea level: The IOUs shall consider height of high tide sea level and also evaluate contingencies like the impact of storm surge, king tides, salt corrosion, etc.
 - c. Variations in precipitation: Variations in precipitation include, among other things:
 - i. Snowpack – precipitation falling as rain instead of snow increases short-term water flow into hydroelectric dams while decreasing water flow later in the season, impacting hydroelectric generation.
 - ii. Extreme precipitation events – bigger storms pose a threat to IOU assets and operations.
 - iii. Long-term precipitation trends – higher or lower long-term precipitation may impact localized

flooding and hydroelectric generation, among other important factors.

- iv. Drought – drought may impact hydroelectric generation, and act as a compounding factor on other risks, such as wildfires and subsidence.
- v. Subsidence – decreased groundwater may cause localized subsidence, posing a physical threat to infrastructure as the ground shifts.
- d. Wildfire: The IOUs shall use wildfire risk assessments from other proceedings in their vulnerability assessments.
- e. Cascading impacts: The IOUs shall consider cascading impacts (*e.g.*, wildfires burn hillsides and rainstorms cause mudslides) that have multiple negative impacts that are greater than the sum of the parts relevant to their service territory.

9. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall each file a Tier 1 Advice Letter with the Commission’s Energy Division to establish a memorandum account, titled “Climate Adaptation Vulnerability Assessment Memorandum Account – CAVAMA” for the purpose of tracking costs directly related to the vulnerability assessments ordered in this decision. The effective date of the memorandum account shall be the date the Tier 1 Advice Letter is filed. The memorandum account shall not be used for other costs or assessments. The investor-owned utilities shall serve a copy of this Advice Letter on the service list of this proceeding (or successor proceeding).

10. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall use their vulnerability assessments in conjunction with their general rate case (GRC)-Risk Assessment Mitigation Phase (RAMP) process. Every four years, the

investor-owned utilities shall file vulnerability assessments, in conjunction with the RAMP process. The RAMP process is initiated a year prior to the GRC.

11. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall include in their general rate case filings the main takeaways from the vulnerability assessments as a separate section or chapter that contains, at a minimum: 1) a list of vulnerabilities, 2) proposals addressing those vulnerabilities (with options), and 3) long-term goals for adapting to climate risks.

12. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company (collectively "IOUs") shall create "climate change teams" across departments, with cross-departmental responsibilities and that will report directly and independently to an executive at the senior vice president level or above. All board members shall take responsibility for climate adaptation planning for infrastructure, operations, and services. IOUs shall file a Tier 1 Advice Letter with the Commission's Energy Division listing both the individuals and their departments named to the climate change team and the name of the senior level executive to whom the climate change team will directly report. This Advice Letter filing shall be updated annually, or when the senior level executive changes. The IOUs shall serve a copy of this Advice Letter on the service list of this proceeding (or successor proceeding).

13. When Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, Southern California Gas Company begin to seek funding to adapt their infrastructure, operations and services to Disadvantaged Vulnerable Communities (DVCs), such requests shall

include extra treatment, including funding, outreach and education, to promote equity between communities with low adaptive capacity and those outside of DVCs with high incomes or other indicia of strong ability to adapt to climate change.

14. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, Southern California Gas Company (collectively "IOUs") shall take steps to identify risks and obtain information from the facility operator when IOUs sign new contracts for power, capacity or reliability. In entering a new long-term contract of 15 years or more for power, capacity or reliability, there shall be an acknowledgement in the contract that the operator has considered long-term climate risk and the IOUs shall include a facility safety plan considering climate risks when the purchased power agreement is submitted to the Commission for approval. This due diligence shall be included in the IOU's assessment of risk for that particular asset.

15. Rulemaking 18-04-019 remains open.

This order is effective today.

Dated _____, at San Francisco, California

Appendix A - Staff Report on Topic 4

Appendix B - Staff Report on Topic 5