



Chris A. Summers
Director
Origination, Energy Supply
Dispatch
SDG&E
8326 Century Park Ct.
San Diego, CA 92123



Kevin Barker
Senior Manager
Energy and Environmental Policy
SoCalGas
555 West 5th St
Los Angeles, CA 90013

November 19, 2021

Rajinder Sahota
Deputy Executive Officer
California Air Resources Board
1001 I Street
Sacramento, CA 95814

**RE: San Diego Gas & Electric Company and Southern California Gas Company
Comments on the November 2, 2021, 2022 Scoping Plan Update – Electricity
Sector Technical Workshop**

Dear Ms. Sahota,

San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas) appreciate the addition of the November 2, 2021, 2022 Scoping Plan Update – Electricity Sector Technical Workshop jointly hosted by the California Air Resources Board (CARB), California Energy Commission (CEC), the California Public Utilities Commission (CPUC), and the California Independent System Operator (CAISO), the Joint Agencies. The workshop notice succinctly stated the important role of the electricity sector and outlined challenges that must be addressed in order to enable increasing levels of electrification across all sectors of the California economy:

“The sector needs to substantially reduce emissions, while demand rises, as other sectors such as transportation and buildings look to electrification to migrate from fossil fuels to reduce their own emissions. This transition will require unprecedented build rates of new renewable and zero-carbon generation and storage resources, while simultaneously addressing concerns regarding **reliability, resiliency, competing priorities for land use, and consumer affordability.**”

SDG&E and SoCalGas recognize the importance of the workshop’s challenges as they closely intersect with SDG&E’s three decarbonization pillars from which to measure the feasibility of

the Scoping Plan scenario options: **reliability, flexibility/technology inclusivity, and energy affordability.**

SDG&E and SoCalGas are committed to doing our part by enabling and accelerating the transition to carbon neutrality on behalf of our customers and the communities we serve. We are proud of our role in helping reach the AB 32 goals four years before the 2020 target. And both companies have made a climate pledge to reach net zero greenhouse gas (GHG) emissions by 2045, which includes direct emissions as well as those from our customers' consumption of energy.¹ We are committed to California's collective decarbonization effort and partnering with CARB and other state agencies to reach our goals via the incorporation of the workshop's challenges and SDG&E's decarbonization pillars.

SDG&E and SoCalGas believe that incorporating these challenges and pillars will result in scenarios that represent **realistic and feasible** paths to decarbonization. We re-emphasize our belief - scenarios that are unattainable or unsustainable should not be entertained as they would detract much needed time and resources from feasible scenarios and, if selected as final Scoping Plan scenarios, could cause California to fail in reaching its carbon neutrality targets.

In this letter, SDG&E and SoCalGas comment on the following topics that were raised, or not addressed, at the workshop:

1. Electric Sector Scoping Plan 2030 Targets Should be Consistent with Integrated Resource Planning (IRP)
2. A Complete Loss of Load Expectation (LOLE) Analysis is Critical to Ensuring Electric Reliability
3. Land-Use Limitations and Supply Chain Issues can be Reduced via Technology Diversity and Inclusivity
4. Transmission Needs and their Long-Lead Timelines Must be Considered in Scenario Creation and Timeline Determination
5. Consumer/Energy Affordably and Rate Impacts are an Important Consideration that Must be an Independent Metric in Scoping Plan Analysis
6. Resource Limitations Need to be Included in Scenario Development
7. Inter-Agency Collaboration is Critical for Policy and Planning Coordination

Electric Sector Scoping Plan 2030 Targets Should be Consistent with IRP

Both the IRP's Midterm Reliability Decision, D.21-06-035,² and the ruling on the 2022-2023 proposed Preferred System Plan (PSP) determined that the 2030 Electricity Sector target should

¹ Scope 1, 2, and 3 emissions are included in the net zero pledge. Available at <https://www.sempa.com/sdge-pledges-reach-net-zero-ghg-emissions-2045#:~:text=SDG%26E%27s%20climate%20pledge%20to%20achieve%20net%20zero%20emissions,direct%20emissions%2C%20but%20also%20those%20generated%20by%20customers> and <https://www.sempa.com/southern-california-gas-company-sets-bold-net-zero-emissions-pledge>

² Decision 21-06-035; Conclusion of Law 4 states: "The Commission should adopt the 38 MMT GHG limit for 2030 when considering the aggregated IRPs of all LSEs when we consider the PSP later this year as long as the resource mix results in a reliable system with a 0.1 LOLE or less."

be 38 million metric tons (MMT). To the extent that the 2022 Scoping Plan will set GHG targets or target ranges, SDG&E and SoCalGas respectfully recommend that CARB set the 2030 target at 38 MMT, consistent with the IRP. Planning is already underway to reach this target. Utilities and market participants are making commitments for new resources and new supporting infrastructure. Changing the target in 2022, only eight years prior to 2030, may not provide sufficient time for resource and transmission buildout. For this reason, if CARB plans to lower California's economy-wide 2030 target, CARB should lean on other sectors for additional reductions.

If the Scoping Plan intends to set 2035, 2040 and/or 2045 targets, SDG&E and SoCalGas request that these targets be fixed numbers, not target ranges as were issued in the 2017 Scoping Plan, and that the targets are allocated to sectors via a pro rata share of emission reductions. Planning is critical, and ambiguous ranges could lead to changing targets, as seen in the IRP,³ and moving targets can hinder the planning needed for supporting buildouts.

A Complete LOLE Analysis is Critical to Ensuring Electric Reliability

California's decarbonization success is dependent on a reliable and resilient decarbonized electric grid. The state's economic sectors are counting on the Scoping Plan's economy-wide modeling to ensure that each scenario's resulting electric portfolio can reliably produce and deliver clean energy 24x7 for all days and all seasons of the year.

The workshop was clear that reliability was a critical challenge that the electric sector needs to address simultaneously with decarbonizing the grid. Yet the workshop was silent on how Scoping Plan modeling would assess reliability. The fact that the all-day workshop, dedicated solely to electricity, did not address reliability assessments is concerning and may imply that the Scoping Plan modeling effort does not intend to perform this critical validation of reliability assessments for its scenarios. The lack of reliability modeling is of utmost concern. Many stakeholders including SDG&E and SoCalGas have expressed⁴ the importance of assessing reliability of Scoping Plan scenarios. Some of these stakeholders have further urged CARB to use the reliability modeling industry-accepted approach which includes LOLE reliability assessments with a planning target of 0.1 days/year, or 1 day in 10 years, to ensure scenarios are reliable, and therefore feasible, while minimizing cost. Modeling efforts that attempt to take short-cuts such as using only a Planning Reserve Margin (PRM), may provide a false sense of security. LOLE studies address all 8,760 hours of the year and are thus able to assess the reliability contributions of all resource types including intermittent resources and use-limited resources.

³ Decision 18-02-018 adopted a 42 MMT target for the CAISO footprint-jurisdiction LSEs (equivalent to 46 MMT electric sector 2030 target). More recently, the IRP Midterm Reliability Decision, D. 21-06-035, and the PSP ruling have reduced the target to 38 MMT.

⁴ PG&E Comments on the June 2021 Workshops; Southern California Gas Company (SoCalGas) Comments on the August 17, 2021 Scenario Concepts Workshop; Joint POUs on the September 30, 2021 Scenario Inputs Workshop; SDG&E Comments on the September 30, 2021 Scenario Inputs Workshop.

SDG&E and SoCalGas note that while the recent SB 100 workshop on reliability committed to performing a reliability assessment for its 2025 SB 100 Report,⁵ completion of such analysis will occur well after the Scoping Plan's 2022 release and thus should not be relied upon as the venue for Scoping Plan reliability assessment. Additionally, the 2021 SB 100 Report did not include a reliability assessment, thus the 2021 SB 100 Report itself cannot be the Scoping Plan's source of reliability validation. Further, the Scoping Plan scenarios include greater levels of electrification than the scenarios used to inform the 2021 SB 100 report analysis and thus warrant their own reliability analysis.

SDG&E is committed to the goal of a reliable and decarbonized California grid and strongly urges CARB to perform LOLE reliability analyses of the electric grid for each of its Scoping Plan scenarios.⁶ SDG&E and SoCalGas believe that scenarios that do not undergo a LOLE analysis should only be considered potential scenarios and not recommended paths for California's decarbonization.

Land-Use Limitations and Supply Chain Issues can be Reduced via Technology Diversity and Inclusivity

The workshop's SB 100 Presentation estimated that solar and wind build rates will need to nearly triple.⁷ Siting these large renewable resources will require substantial land and as identified in the workshop notice, "competing priorities for land use" will be a critical factor in realizing this resource build. This concern was discussed in at least two separate presentations. EDF listed land as a predominant factor in limiting the project development of large renewable buildouts. And the CPUC and CEC presentation summarizing the Joint Agencies' September 29, 2021 report, "Report to the Governor on Priority SB 100 Actions to Accelerate the Transition to Carbon-Free Energy" (Priority Actions Report), also stated concern for land-use planning as it pertains to Clean Electricity Generation and Storage Project Permitting Considerations. SDG&E's takeaway from EDF's presentation is that California's long-term goal to decarbonize the grid, (as mandated by SB 100), is achievable. However, constraints, including limited available land for large renewable buildouts as shown in the red portions of the map below, should be considered when designing long-term scenarios to achieve grid decarbonization.⁸

Prior work by three independent studies that analyzed land constraints further found that in order to decarbonize California's electric portfolio, diversity is both important and necessary.⁹ The studies concluded that decarbonizing California beyond 60% is not possible using exclusively

⁵ Slide 65 of the November 1, 2021 SB 100 workshop slides clearly shows reliability modeling as the last step in the upcoming SB 100 modeling process.

⁶ If the Scoping Plan process will not include reliability modeling, then CARB must make clear to stakeholders and regulators that Scoping Plan scenario results may result in an unreliable grid. CARB should also inform stakeholders of the venue in which the necessary reliability assessment will take place.

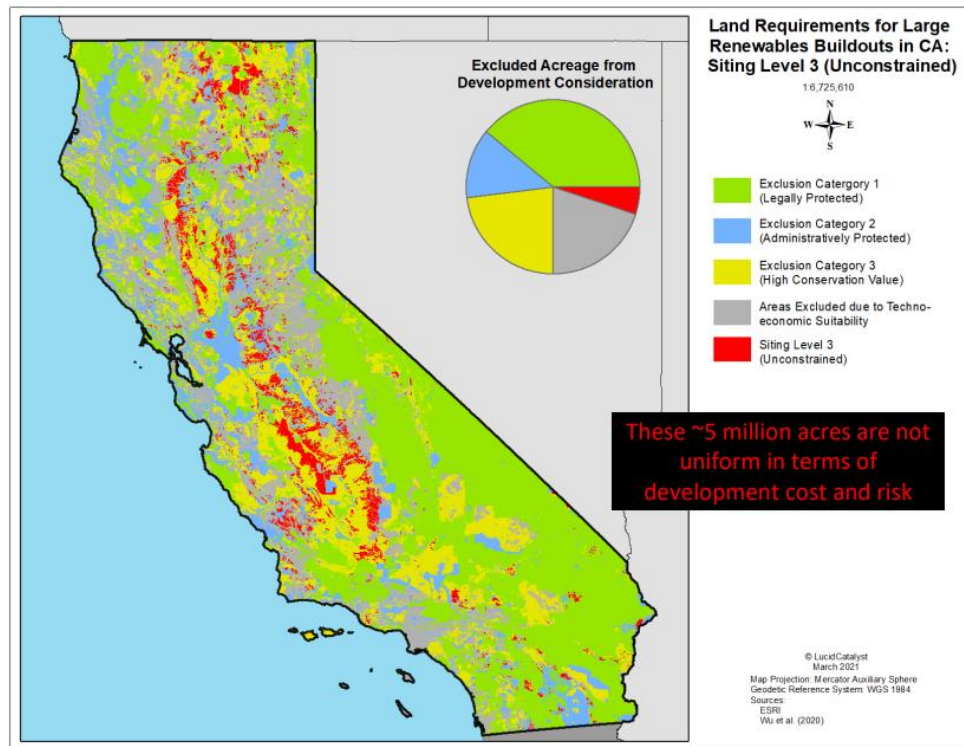
⁷ Slide 8 of the workshop slides summarizing SB 100 titled "Achieving 100% Clean Electricity in California."

⁸ From the November 2, 2021 Scoping Plan workshop presentation by EDF titled "Building a Zero Carbon California Grid: Moving From Models to an Implementable Plan."

⁹ See "California needs clean firm power, and so does the rest of the world: Three detailed models of the future of California's power system all show that California needs carbon-free electricity sources that don't depend on the weather" at

<https://www.edf.org/sites/default/files/documents/SB100%20clean%20firm%20power%20report%20plus%20SI.pdf>

renewables. Achieving renewable/clean energy penetration beyond 60% will require other solutions to maintain grid reliability and serve California's expected electricity needs. Not only do scenarios need to be reliable, but their ability to be implemented must be grounded in reality. Land availability and its antidote of portfolio diversity need to be precursors to constructing scenarios as it will be beneficial and save time.



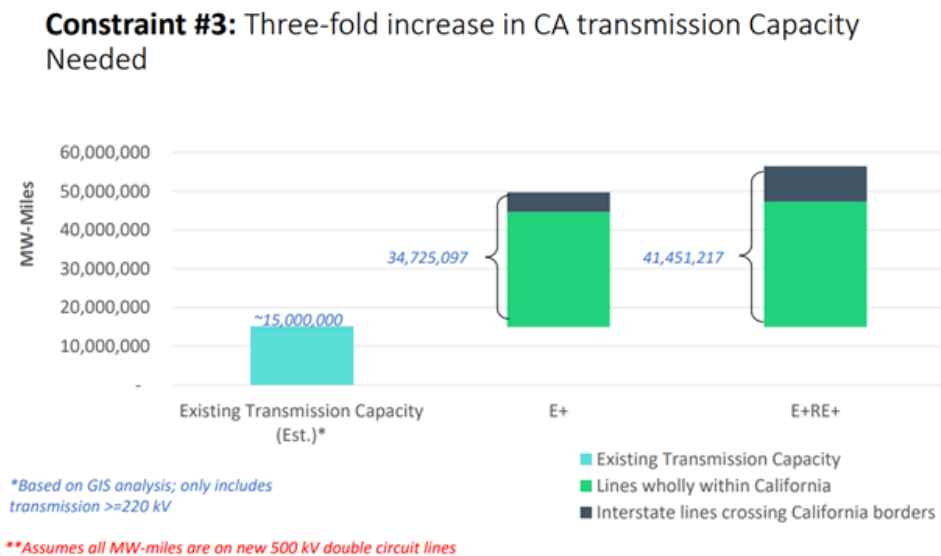
The Priority Actions Report presentation also addressed supply chain issues and stated that it “may be necessary for the CPUC to order load serving entities (LSEs) to pursue a mix of resources and technologies simply to mitigate reliability risks associated with bringing new clean resources online in a timely fashion.”¹⁰ SDG&E and SoCalGas agree with the Priority Actions Report and urge CARB to include technology diversity and inclusivity in its Scoping Plan scenarios such that the scenarios are constructed of resource mixes that will both help minimize supply chain issues due to diversification and that are NOT dependent on large territorial footprints thus reducing the effect of land constraints.

Transmission Needs and Long-Lead Timelines Must be Considered in Scenario Creation and Timeline Determination

In addition to land-use constraints, the CEC/CPUC Priority Actions Report presentation and presentations by CAISO, EDF, and SCE identified transmission needs and interconnection delays as barriers to delivering clean energy from the unprecedented increase of new solar and wind resources to homes, businesses and industry.

¹⁰ Page 10 of the “Report to the Governor on Priority SB 100 Actions to Accelerate the Transition to Carbon-Free Energy,” (Priority Actions Report).

The EDF presentation included an estimate of how much new transmission capacity will be necessary to connect the unprecedented buildout of resources to meet California’s economy-wide climate goals (see EDF’s Constraint #3 in the chart below). CAISO’s presentation showed that they are already seeing a significant increase in demand for new transmission and SCE cautioned that transmission projects can take up to 10 years. SDG&E and SoCalGas note that long-lead transmission projects need to be considered when creating scenarios and setting Carbon Neutrality timelines. SDG&E agrees that transmission projects can take 10-years and also notes that the transmission requirement would likely necessitate constructing multiple transmission projects simultaneously in every potential Carbon Neutrality timeline, with the aggressive timelines exacerbating the issue. This should be taken into consideration when examining and determining the Scoping Plan’s Carbon Neutrality timeline and the feasibility of each scenario’s resource portfolios.



SDG&E and SoCalGas agree with EDF’s suggestion to prioritize utilization of existing right-of-way (ROW) for new transmission builds¹¹ and along highways and railways. This strategy of prioritizing existing ROWs and any other strategies with potential to accelerate transmission planning and interconnection queues should be explored. We need to plan for and ensure reliability now. Regardless of the Carbon Neutrality timeline, SDG&E and SoCalGas recommend that CARB utilize its Scoping Plan to set clear priorities and issue calls to action to other agencies, LSEs, project developers, and the public. The Scoping Plan and electricity emissions targets can set the groundwork for electricity regulators to begin the work of setting policy and decisions in alignment with the Scoping Plan and with all other California sectors’ roles.

¹¹ The SB 100 final report also suggests prioritizing existing ROWs in its discussion on the use of the “Garamendi Principles,” (Page 112).

Consumer/Energy Affordability and Rate Impacts are an Important Consideration that Must be an Independent Metric in Scoping Plan Analysis

AB 32 identifies consideration of the “provision of reliable and affordable electrical service” as integral to Scoping Plan development. SDG&E agrees that energy affordability is of great concern and re-iterates its position that electricity rates need to be an independent metric in Scoping Plan scenario analysis. Simply grouping the cost of electricity with overall scenario costs will not adequately address whether “affordable electrical service” is achieved. It is imperative that electricity rates remain affordable, particularly insofar as a scenario entails fuel switching to electricity. Thus, in addition to considerations of costs and savings due to health and other societal impacts, it is important to consider energy costs and energy affordability in Scoping Plan modeling. Energy cost inputs such as electricity rates, natural gas rates, and gasoline costs should all be analyzed and considered when selecting final Scoping Plan scenarios. In particular, the Scoping Plan modeling should include an electric rate impact analysis. As stated by the CPUC at the June 8, 2021 Scoping Plan Overview and Framework workshop: “Broader implementation of economy-wide decarbonization measures will rely in large part on maintaining electric cost affordability.” If the success of California’s decarbonization is dependent on electricity rates, then part of the scenario selection and modeling process should include an evaluation of each scenario’s electricity rate impact so rate impacts can be compared across scenarios. This will be critical in assessing which scenario provides the necessary GHG emissions reductions with the least impact on energy affordability. Affordable electricity is paramount to decarbonization because it will facilitate decarbonization in other sectors, like transportation and buildings.

Both the Priority Actions Report presentation and all of Panel 3 addressed the issue of electricity rates and some ideas on how to address re-imagining electricity rates. SDG&E supports discussions on rate design to help keep rates affordable and still support the state’s decarbonization goals. Establishing a new retail rate structure for all residential customers – one that prices electricity closer to the marginal cost it takes to provide that electricity – will support decarbonization through electrification by ensuring continued affordability, reliability, increasing equity, and promoting price efficiency and rate stability.

SDG&E recognizes that CARB and the Scoping Plan do not have jurisdiction over electric rate design and that the CPUC does not have the authority to restructure residential rate design to incorporate meaningful fixed cost recovery, which would reduce the volumetric price of energy to better reflect marginal costs. SDG&E therefore suggests the Scoping Plan narrative include recommendations that the Legislature consider lifting the legislative limits on electricity rate fixed charges. As stated in SDG&E’s comments on the CPUC’s February 24, 2021 En Banc on Energy Rates and Costs and the CPUC’s white paper entitled “Utility Costs and Affordability of the Grid of the Future,” SDG&E is ready and willing to partner with the CPUC and other regulatory agencies to remove unnecessary limitations and restructure outdated residential rates to align with California’s ambitious climate goals.

Resource Limitations Need to be Included in Scenario Development

The SB 100 Joint Agency Report models 10 GW of offshore wind capacity by 2045. The Department of Interior announced plans to sell seven offshore leases by 2025 on the west coast;

however, only two lease sales will be located in California. The proposed Morro Bay and Humboldt County lease sales could support the development of 4.6 GW of offshore wind capacity. Without clear viable sites for additional offshore wind capacity, all scenarios that exceed 4.6 GW of offshore wind should include a caveat that additional offshore leases need to be acquired.

We commend CARB staff for the inclusion of clean fuels in the alternatives to be modeled for the electricity sector. There is also a strong need for creative solutions to integrate renewables, increase the electric system's flexibility, and maintain electric system reliability.

While Alternative 1 excludes combustion-based generation resources regardless of fuel, it recognizes the need for clean fuels by selecting hydrogen fuel cells. It does this almost at a MW for MW reduction of gas-fired existing capacity. As electricity demand becomes more volatile (see the ZEV charging dragon curve¹²) and is supplied by higher percentages of intermittent supply side resources, making sure the system remains in balance is paramount. Electric system operators must quickly ramp up or shut down generation resources to meet an increasing/decreasing electricity demand over a short period of time. According to CAISO, the actual net load and 3-hour ramp needs are about four years ahead of the CAISO's original estimate due to exponential increase and under-forecasting of renewables integration in the State.¹³ The growth of battery installations will help integrate renewables and support reliability, but it's not enough. The system still needs flexible regulation and ramping attributes that are currently provided by the thermal generation fleet, which can maintain reliability as additional technologies are integrated into the system. As stated above, the growth of ramping needs has consistently exceeded CAISO's estimates, and new projections are expected to exceed 25,000 MW in 2030. The SB 100 Core Scenario includes about 10,000 MW of battery storage capacity by 2030, which can help meet some of the 25,000 MW ramping needs identified by CAISO. Using blended, low or zero carbon feedstocks like renewable hydrogen, RNG, or synthetic gas, and potentially new emerging technologies in addition to battery storage, could further reduce emissions, and can play a significant role in complementing intermittent renewables for the State. We believe fuel diversification would make it possible to create reliable power supplies, which could enhance the State's energy security and ensure there is enough power to meet Californians' demands.

Inter-Agency Collaboration is Critical for Policy and Planning Coordination

The growing intersections of climate-related work done by multiple California agencies is creating an increasing need for more inter-agency collaboration. Agency-specific regulations, programs, proceedings, and expertise on important topics need to be conducted such that timing and data flow to other agencies support our collective efforts to analyze, model and implement decarbonization solutions. To improve the timing and interaction of various agency deliverables such as the Scoping Plan, the CPUC's IRP proceeding, the SB 100 Joint Agency Report, and the CAISO's Transmission Planning Process (TPP), SDG&E and SoCalGas recommend that the

¹² See "CEC: California EV chargers will add 1 GW of peak demand by 2025," at <https://www.utilitydive.com/news/cec-california-ev-chargers-will-add-1-gw-of-peak-demand-by-2025/519517/>.

¹³ See California ISO April 4, 2019 Presentation on Flexible Capacity and Availability Assessment Hours Technical Study for 2020, at <http://www.caiso.com/Documents/Presentation-PreliminaryFlexibleCapacityNeeds-AvailabilityAssessmentHourRequirements.pdf>.

agencies synchronize their processes such that they make consistent assumptions and are able to use one another's outputs. In this way, each process can inform the upcoming processes. Similarly, new directives on rate design, reliability analysis, technology changes and/or updates to cost curves can be incorporated by whichever proceeding is active in a given year.

In addition to policy coordination by the agencies, most electricity planning aspects require input and collaboration by multiple agencies. For example, the SB 100 Report describes the multi-agency alignment that is necessary for building new transmission. The report states that "[t]o reach 100 percent clean electricity by 2045, a unified planning process for developing utility-scale energy projects and the respective transmission lines must be considered.¹⁴" Further, EDF's presentation warned that "[a]chieving SB 100 is currently dependent on the coordination among a substantial number of groups, some of whom, do not always have aligned interests/ remits.¹⁵" SDG&E and SoCalGas agree that tighter collaboration between agencies responsible for electricity and/or decarbonization policy and/or planning is essential. SDG&E and SoCalGas encourage CARB to incorporate suggestions for improved coordination within its Scoping Plan and to potentially explore EDF's suggestion for a "Single Point of Responsibility."

Conclusion

Reliability, flexibility/technology inclusivity, and energy affordability are essential to the success of California's decarbonization efforts. LOLE studies and adequate planning for transmission buildouts will be needed to address reliability, technology inclusivity and diversity can help alleviate land-use and supply chain issues, and energy affordability needs to be secured in order to enable electrification and ultimately decarbonization. Further, setting clear targets and increased interagency collaboration is necessary to set the foundation scaffolding on which to build a decarbonized California grid. SDG&E and SoCalGas strongly believe that these considerations will help lead to a Scoping Plan that can help California achieve its 2030 goals and ultimately carbon neutrality by 2045.

Sincerely,

/s/ Chris A. Summers

Chris A. Summers
Director
Origination, Energy Supply Dispatch
SDG&E

/s/ Kevin Barker

Kevin Barker
Senior Manager
Energy and Environmental Policy
SoCalGas

¹⁴ The 2021 SB 100 Report, (Page 131).

¹⁵ Slide 16 of EDF's presentation at the November 2, 2021 Scoping Plan Electricity Workshop.