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## SDG&E Comments - SB 100 Joint Agency June 2 2021, Next Steps for Resource Build Workshop

*Additional submitted attachment is included below.*

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June 22, 2021

California Energy Commission
Docket Office
1516 Ninth Street
Sacramento, CA 95814-5512

**RE: San Diego Gas & Electric Company Comments on the SB 100 Joint Agency June 2, 2021, Next Steps for Resource Build Workshop; Docket No.** 21-**SIT-01**

Dear Commissioner Douglas, Commissioner Gunda, President Batjer, and Vice President Millar,

San Diego Gas & Electric Company (SDG&E) appreciates the opportunity to submit comments regarding the June 2, 2021, Next Steps for Resource Build Workshop on Implementation Planning for Senate Bill 100 (SB 100) jointly hosted by the California Energy Commission (CEC), the California Independent System Operator (CAISO) and the California Public Utilities Commission (CPUC).

SDG&E is committed to enabling and accelerating the transition to zero-carbon electricity in every feasible way on behalf of our customers and the communities we serve. We support the SB 100 report, Integrated Resource Planning (IRP), and 20-Year Transmission Outlook efforts as they serve as a starting point to provide high level estimations of the costs, multiple pathways, procurement planning and evaluation of grid feasibility to achieve zero-carbon electricity.

As was made clear in the workshop and in the final SB 100 report, the goals set forth in SB 100 call for a complete transformation of the way energy is generated, delivered, and consumed. This call to action requires a massive infrastructure overhaul that can only be accomplished by adopting a multifaceted approach that prioritizes reliability, flexibility /technology inclusivity, and cost minimization. Further, the 2020 blackouts confirm that to preserve reliability we must assure an adequate and flexible energy supply consisting of a mix of technologies and dual fuel pathways as we continue to shape the paths to achieve California's 100% renewable and zero-carbon electricity goals. Similarly, evidence of severe and systemic

economic disparities, heightened by the recent pandemic confirms that we must minimize costs. And we must do these things even as we push to achieve decarbonization.

We offer the following suggestions that focus on the following three key pillars: reliability, flexibility/technology inclusivity and cost minimization supported by more frequent analysis/reporting as necessary considerations for next steps in the SB 100 implementation process.

**SB 100's success hinges on reliability.**

- **Next steps need to incorporate reliability assessments in modeling**
  SDG&E appreciates the commitment to include reliability assessments in upcoming SB 100 modeling efforts. SDG&E encourages the California Air Resources Board (CARB), CEC and CPUC (the SB 100 Joint Agencies) to ensure that the upcoming reliability assessment consider limitations of availability-limited resources (such as batteries or pump storage) in the next round of modeling. For example, as peak load shifts to after sunset, an 8760-hour analysis that considers charging constraints will be essential to ensure that batteries are not modeled beyond their limitations. Furthermore, this 8760-hour analysis would need to coordinate with the Transmission Planning Process (TPP) to ensure there is enough transmission capacity to charge batteries when needed. SDG&E looks forward to seeing these results in the next SB 100 report. However, SDG&E is still concerned that despite acknowledging the lack of reliability assessments, the final Report and the workshop presentation continue claiming SB 100 is achievable. Until reliable operation is modeled in upcoming reports, today's claim that the desired SB 100 outcome is "achievable with existing technologies" is premature.

- **Next steps need to incorporate land use in modeling**
  SDG&E appreciates the commitment to include land use in upcoming SB 100 modeling. This is important because limitations of available land presents a reliability concern. The unprecedented build out of new wind and solar resources in all SB 100 modeled scenarios begs the question of where these resources will be built and whether there is enough land available to support these builds. Indeed, a study convened by the Environmental Defense Fund and the Clean Air Task Force indicate that, without clean firm power, the amount of solar/wind build-out may exceed the amount of land available in California.[1] The study concludes that clean firm power is necessary to meet California's decarbonization goals. Thus, excluding land-use as a constraint also challenges the legitimacy of claiming that SB 100 is "achievable with existing technologies." Next steps must therefore include running new analysis that incorporates reliability assessments and land use restrictions modeling as soon as possible.

- **Local needs should be considered when modeling resource allocation**
  The SB 100 Report presents a good opportunity to analyze the resource mix of the future.

[1] Long, Jane C.S., Ejeong Baik, Jesse D. Jenkins, Clea Kolster, Kiran Chawla, Arne Olson, Armond Cohen, Michael Colvin, Sally M. Benson, Robert B. Jackson, David G. Victor, and Steven P. Hamburg. "Clean Firm Power is the Key to California's Carbon-Free Energy Future." *Issues in Science and Technology* (March 24, 2021)

However, it is also important that in future analysis, resources are mapped according to need. One way the CAISO and the SB 100 Joint Agencies could accomplish this task could be to commensurate commercial interest throughout the system. This can be done by using a resource allocation ratio based on the CAISO's Generation Interconnection (GI) Queue to assign resources to each Transmission Access Charges (TAC) area geographically.

- **Geographical diversity and resiliency will be important for reliability**
  Not only must system reliability be modeled but local reliability constraints must also be considered to complete the full picture. Several stakeholders indicated that in-basin resources are needed to provide stability to the grid. Next steps should incorporate local grid support necessary for CAISO to maintain grid reliability. For most urban centers, large scale solar and wind cannot fulfil the requirement to provide local grid reliability, thus potentially different sets of resources would be selected by a model that includes the requirement of in-basin resources. The SB 100 Joint Agencies should work with CAISO to ensure that these requirements are represented in upcoming modeling.

  Mapping resources throughout the CAISO footprint might also give an indicator regarding the benefits of having a resilient resource portfolio and transmission system. If, for example, most of the resources are located in the northern part of the CAISO system, the lack of resiliency and diversity of location can pose a serious threat to the reliability of the entire CAISO system. This would be true if a major natural event (such as a wildfire or earthquake), similar to ones that have happened in the past, occurs in close proximity to where the resources are located.

- **SB 100 implementation needs to include protections against transmission overload**
  Currently the California grid is protected by an abundance of Remedial Action Schemes (RASs) to help protect the grid by potentially tripping generation if a transmission overload is detected. These RAS safeguards help minimize costs since their existence obviates the need of more expensive deliverability upgrades. However, the current system may not be feasible in an SB 100 future that requires large amounts of generators coming online. SDG&E is concerned that relying solely on RAS presents substantial risk to the grid if a large amount of those generators were intentionally tripped by RAS which would cause system reliability to degrade. Thus, SDG&E cautions against assuming that an RAS-only solution will be able to protect the gird without specifically studying its potential to negatively affect the reliability of the Transmission & Distribution system. SDG&E urges the CAISO to work with the SB 100 Joint Agencies to consider multiple options, including non-RAS solutions, to protect against grid overload and to keep in mind the various cost assumptions.

**<u>All pathways and portfolios to SB 100 should support flexibility and technology inclusivity</u>**

- **Emerging technologies should be encouraged**
  SDG&E supports technology inclusivity and is encouraged with the SB 100 final report's conclusion that "[p]ortfolio diversity, both technological and geographical, is generally valued by the model" and that this diversity lowers overall costs. However, the current

report also sends market signals that certain technologies are unlikely to be selected, thus potentially reducing investment interest in those technologies. All future reports should instead focus on encouraging enabling technologies like carbon capture, utilization, and storage (CCUS) and green hydrogen and other clean fuels as drop-in fuels. These emerging technologies hold the key to innovative and transformative breakthroughs and can provide discernable long duration grid reliability benefits. The broadening of technology diversity will help make SB 100 pathways more cost effective and reliable. Pre-determining the future success of potential emerging technologies into SB 100 reports is a disservice to California. Given the magnitude of the climate challenges we face today, all viable technologies should be considered.

- **SB 100 Report should be clear which resources will be eligible for to meet SB 100**
  The final SB 100 Report interpreted "zero-carbon resources" as resources that either qualify as RPS eligible or resources that generate zero greenhouse gas emissions on site. Yet, the report limited its Core Scenario modeling to a subset of "zero-carbon resources." Stakeholders, Investors, and other agencies are left to wonder whether omitted resource types would qualify as a "zero-carbon resource." For example, green hydrogen as a drop-in fuel was intentionally omitted as a resource in all SB 100 scenarios. Meanwhile, the CPUC's IRP proposed decisions under its Midterm Reliability procurement order specifically approve the Investor-Owned Utilities (IOUs) to procure green hydrogen as generation fuel. LADWP is transitioning its Intermountain Power Plant to run on 100% green hydrogen and other utilities have also made commitments to convert some portion of their natural gas generation to green hydrogen. The SB 100 report should be clear that un-modeled resources that generate zero GHG on site are still eligible to meet SB 100. Otherwise in the example, utilities procuring green hydrogen as a drop-in fuel will have made investments that will likely be abandoned in the future; these stranded costs will burden ratepayers for decades to come.

  Further in the next SB 100 Report, the SB 100 Joint Agencies should re-define "zero-carbon resources" to include resources that generate **net** zero greenhouse gas emissions on site. Zero-carbon should include combustion of renewable natural gas and combustion of natural gas with carbon capture, utilization, and sequestration, (CCUS). SDG&E believes that these resource types are essential to provide reliability and to support renewable energy in California.

- **SB 100 Scenarios and the IRP should retain Natural Gas plants and infrastructure to ensure resource diversity and reliability**
  Natural gas will continue to play an important role by supporting reliability in California's clean energy future. Both the SB 100 Core Scenario analysis and the current CPUC Midterm Reliability Proposed Decisions (R.20-05-003) continue to conclude that some level of natural gas, albeit decreasing amounts, is needed to help bridge our transition to a decarbonized grid. Indeed, the final SB 100 report states: "Natural gas capacity is largely economically retained in the SB 100 core scenario, but fleetwide utilization decreases by half compared to a 60 percent RPS future. The gas fleet is primarily retained because natural gas capacity is the most economic option to provide capacity for reliability needs" and the CPUC's Mid-Term Reliability Proposed Decision on page 41 states" Having [natural gas plants] available, but running at their minimum

levels or not running at all, still acts as an insurance policy during the operational transition to more renewables and energy storage on the system, as we make steady and significant progress towards the SB 100 decarbonization goals for 2045." SDG&E agrees with the conclusions of both. However, SDG&E continues to be concerned with the SB 100 Report's presentation of the No Combustion scenario as a feasible and low-risk scenario. This scenario, which completely eliminates combustion, has the opposite effect of technology inclusivity. The No Combustion scenario would categorically eliminate multiple resource types and reduce the flexibility and availability of resources to achieve SB 100 goals in a least cost manner. Without combustion, multiple viable *zero-carbon and potentially negative carbon* solutions, such as carbon capture, utilization, and sequestration (CCUS), renewable natural gas (RNG) generation, and green hydrogen (H2) combustion generation, are categorically eliminated. These are important tools that can help California achieve its zero carbon goals while meeting the reliability standards of the electric grid in an economical way. Removing these decarbonized firm resources would decrease the diversity of resources and overall reliability of the grid. Fewer choices typically lead to higher costs and reduced resource availability, thus potentially jeopardizing the robustness and stability of the electric system. The next iteration of the SB 100 report is expected to include a full resource adequacy analysis, which should determine whether the No Combustion scenario is reliable. But independent of the reliability question, the next iteration of SB 100 modeling and reporting, the SB 100 Joint Agencies should stop modeling the No Combustion scenario since it's too costly and removes too many decarbonization technologies.

**Next Steps should enable solutions that minimize costs to ratepayers.**

- **Modeling should all be viewed from a long-term lens**
  SDG&E urges all agencies modeling SB 100 pathways to view all scenarios with a long-term lens. Not only is it essential that SB 100 modeling include reliability assessments, but it is equally imperative that modeling also incorporate a long-term outlook. SDG&E appreciates the SB 100 report's approach to view each pathway as such and is encouraged that the CAISO is also taking a longer-term view in its 20-year Transmission Outlook. The CPUC's IRP proceeding should follow suite and extend its modeling and planning horizon beyond 2030. As stated in our verbal comments[2], a resource mix that fits the needs of today's grid may not be the best mix for the future, thus the future must be considered even when performing short-term or mid-term planning. As such, all SB 100 modeling should all be viewed from a long-term lens.

- **A Central Procurement Entity should be established**
  Customer choice is driving an increased interest in Community Choice Aggregators or CCAs and Direct Access providers. In SDG&E's service territory, SDG&E is expected to be serving a minority percent of the region's load as soon as next year, with additional load departure possible in the years to come. This decentralization of load serving entities provides a level of uncertainty at a time when long-term planning is critical and

[2] A written version of SDG&E's verbal comments is provided at the end of this letter.

an absolute necessity to achieve SB 100 goals. SDG&E has advocated for a Central Procurement Entity to act as a backstop when procurement by individual LSEs is not enough. Indeed, in order to ensure California maintains its progress to meeting SB 100, the recent Proposed Decisions of the CPUC's current Mid-Term Reliability Procurement Track is proposing that Investor-Owned Utilities (IOUs), like SDG&E, perform backstop procurement in the event that individual LSEs become deficient. Creating a backstop ensures progress continues, however, backstop procurement can result in higher costs due to the late nature of backstop procurement. Instead, a Central Procurement Entity should be providing backstop procurement. The Central Procurement Entity should be an independent and financially viable entity with the ability to provide aggregated front-stop procurement of long-lead-time projects for multiple LSEs. By performing this function, the independent Central Procurement Entity would not only maintain progress of SB 100 goals but would also save money for ratepayers. A Central Procurement Entity will be a critical component to ensure California accomplishes the necessary procurement to meet SB 100 goals on time and at the lowest cost possible.

- **Minimize costs to support decarbonization pathways in other sectors**
  It is important that electric sector decarbonization efforts are mindful of costs since high costs for electricity can dis-incentivize other sectors from switching from carbon fuels to greener electrons. In particular, lower electricity costs will likely accelerate transportation and building electrification. Conversely, high prices can be detrimental to electrification as stated in the white paper *Designing Electricity Rates for An Equitable Energy Transition* published by Next 10 and the Energy Institute at Haas "decarbonizing the economy most likely requires electrification of transportation and space and water heating, but high prices push against such a transition."[3] Accordingly, minimizing costs is key to help lower emissions and air pollution in other sectors. The CPUC, other procurement mandating agencies, and the SB 100 Joint Agencies should keep this cross-sector end goal in mind when mandating procurement and when modeling and selecting SB 100 scenarios. Assessing the inter-sector trade-offs and impacts can materially impact costs and portfolio needs. Successful modeling in both IRP and SB 100 requires a thoughtful balance to minimize customer costs while meeting State policy goals. It is also critical that efforts must be made to reduce costs, not just today, but in the long term.

SDG&E believes the path to incorporating the three pillars above necessitates more frequent analysis to capture updated reliability information, model upgrades, new information on emerging technologies, and updated cost assumptions. Every four years is not frequent enough to address the urgency of addressing climate change and to send appropriate market signals to develop and adopt emerging technologies that continue to evolve at a rapid pace. It is imperative that SB 100 modeling and reporting be conducted more often. SDG&E recommends that at a minimum the SB 100 modeling be done at least once every two years to better align with the IRP process.

[3] Page 9 https://www.next10.org/sites/default/files/2021-02/Next10-electricity-rates-v2.pdf

In summary, SDG&E urges the SB 100 Joint Agencies to consider more frequent analysis and reporting. SDG&E further urges the CAISO and the SB 100 Joint Agencies to incorporate the SDG&E's three pillars when planning the implementation of SB 100 (i) prioritize robust **reliability** assessments that consider land use in its examination of opportunities to decarbonize and to retain strategic components of the gas fleet and gas infrastructure to ensure reliability, (ii) remain **flexible and technology inclusive** as a mix of solutions will likely reveal opportunities for reliability and cost minimization, and (iii) make progress toward **cost minimization** of SB 100 by ensuring modeling and input cost assumptions are conducted via a long-term lens and use the best available data. SDG&E believes that these considerations will enable California to achieve the goals of SB 100 without sacrificing reliability or resulting in higher costs.

SDG&E looks forward to working collaboratively with the CAISO and the SB 100 Joint Agencies to enable a transition to 100% renewable and zero-carbon electricity.

Sincerely,

*/s/ Miguel Romero*

Miguel Romero
Vice President
Energy Supply

# June 2, 2021, SB 100 Next Steps Workshop
# IOU/CCA Panel Discussion
# SDG&E Verbal Comments

**Intro:** I am pleased to be here today to talk about these important issues. My role as the Strategy and Policy Manager is to lead a team that develops the energy procurement strategy for SDG&E.

Let me start by saying that SDG&E supports SB 100 goals and has made substantial progress towards helping decarbonize California. We understand that reaching these goals will be an unprecedented challenge. SDG&E believes we can show the world that decarbonizing the electric sector is both necessary and possible. But we must ensure that reliability is not sacrificed along the way.

**Questions:**

- **What are your priorities for how we transition the electric grid to carbon-free resources?**

  To answer the first question regarding our priorities.
  SDG&E is not unique in that we must balance investments made to mitigate climate change impacts such as wildfires with investments to reduce our own emissions and provide the necessary infrastructure to enable sectors like transportation to reduce their carbon emissions through clean vehicle investments. SDG&E is well positioned to meet these challenges.

  **Climate Change Impacts:**
  With regards to mitigating climate change impacts such as an ever-growing wildfire season, SDG&E is proud to be the national leader in wildfire-risk mitigation. Over the past decade, we have invested nearly $2 billion in a variety of safety measures to prevent catastrophic wildfires — and we were the first utility in the country to develop a dedicated Fire Science & Climate Adaptation Department to combat this growing threat.

  **Clean Vehicles:**
  With regards to investing in clean vehicle infrastructure it's important to note that the transportation sector represents the single largest GHG emissions

source — more than half of the GHG emissions in San Diego County. To reduce those emissions, SDG&E installed more than 3,000 electric vehicle chargers at over 250 locations, including apartments, condominium complexes and offices. SDG&E also aims to:

• OPERATE A 100% ZERO EMISSION VEHICLES (ZEV) FLEET BY 2040

**Energy Supply:**

With regards to cleaning our own emissions, SDG&E's Renewable Portfolio Standard for Compliance Period 3 (2017-2020) was 42%, which is above the program requirements. SDG&E also recognizes that much more needs to be done. As such, in March, we announced our climate pledge which commits to being net-zero for all scope 1, 2 and 3 emissions by 2045.

- **What priorities may not be adequately accounted for in current planning efforts?**

Moving to the next question, our concerns with the current planning efforts in SB 100 focus on reliability. The important role of natural gas as a critical partner to provide reliability and to support renewable energy in California needs to be supported by the Joint Agencies' "zero-carbon" definition. Zero-carbon should include combustion of renewable natural gas and green hydrogen and combustion of natural gas with carbon capture and sequestration. SDG&E believes that these resource types are essential to provide reliability and to support renewable energy in California.

Natural gas will continue to play an important role by supporting reliability in California's clean energy future as the CPUC points out in their Mid-Term Reliability Proposed Decisions. The importance of both reliability and clean energy is summed up perfectly in the Mid-Term Reliability Proposed Decision on page 41 which says:

"failure to provide insurance to keep grid reliability is a far greater threat to public confidence and public health than running state-of-the-art fossil-fueled generators a few extra hours a year."

In addition, SDG&E is beginning a pilot project to further clean one of our natural gas combined cycle generators, Palomar Energy Center, by blending green hydrogen with natural gas into the fuel mix. Palomar Energy Center will soon be able to provide cleaner electrons to the grid. It is SDG&E's vision that, with the help of green hydrogen and Renewable Natural Gas, power from natural gas resources can provide the necessary reliability without sacrificing our climate goals.

- **What factors or values must be considered when assessing whether a particular option or scenario for this transition is a good idea?**

When we consider what factors to assess it is essential that SB 100 modeling include a reliability assessment, and that it be performed often and incorporate a long-term outlook. All modeling and scenarios need to fully address reliability in order to validate each scenario's viability. In order to adequately capture emerging clean technologies and changing market dynamics, the SB 100 modeling needs to be conducted more frequently than every four years.

The recent SB 100 report noted that modeling favored a diversity of technologies. Technologies and their cost assumptions are evolving at a rapid pace and the SB 100 modeling needs to be able to incorporate viable resource types as soon as possible.

A resource mix that fits the needs of today's grid may not be the best mix for the future. All scenarios must be looked at via this long-term lens. The CAISO's 20-year transmission study is a good start to plan for long-term reliability. In addition, the CPUC's Integrated Resource Plan should also extend their modeling beyond 2030.

It is important that our electric sector decarbonization efforts are mindful of costs since high costs for electricity can dis-incentivize other sectors to switch from carbon fuels to greener electrons. Efforts must be made to reduce costs, not just today, but in the long term.

- **What should be the role of DERs (distributed energy resources) in meeting/addressing reliability concerns?**

  Regarding Distributed Energy Resources or DERs, they need to be a part of the solution as they can help reduce land use, new resource build, and distribution and transmission infrastructure. However, SDG&E warns that the cost compensation for DERs and the avoided cost used to evaluate DERs need to be fair and accurate, otherwise DERs could result in higher costs.

- **How do you see the role of the customer changing during the transition?**

  Moving on to the last question. Customers can help mitigate the challenges of tomorrow's grid by choosing to respond to price signals through efficient rate design and by participating in Demand Response Programs. Done properly, this customer choice translates into load flexibility which can help reduce resource and infrastructure costs.

  Customer choice is also driving an increased interest in Community Choice Aggregators or CCAs and Direct Access providers. In our service territory, SDG&E is expected to be serving the minority of the region's load as soon as next year,

with additional load departure possible in the years to come. This decentralization of load serving entities provides a level of uncertainty at a time when long-term planning is critical and an absolute necessity to achieve SB 100 goals. SDG&E has advocated for a Central Buyer to act as a backstop when procurement by individual LSEs is not enough. The Central Buyer should be an independent and financially viable entity. Without independence, the function is vulnerable to costly litigation and disputes, and without the financial backing to secure the necessary resources, the function cannot be relied upon as a safety net. A Central Buyer will be a critical component to ensure California accomplishes the necessary procurement to meet SB 100 goals.

In conclusion, SDG&E must prioritize investments that will enable our grid to integrate more renewable energy and we believe we have a very important role as a clean infrastructure company. SDG&E remains committed to providing safe and reliable energy delivery to all customers.