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## **SDG&E Comments on the Draft 2023 IEPR**

Please find SDG&E comments attached.

*Additional submitted attachment is included below.*



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Commissioner Patricia Monahan  
California Energy Commission  
Docket Unit, MS-4  
Docket No. 23-IEPR-01  
715 P Street  
Sacramento, CA 95814-5512

*Submitted via electronic upload to Docket #23-IEPR-01*

**SUBJECT: SDG&E Comments on the Draft 2023 Integrated Energy Policy Report  
(Docket # 23-IEPR-01)**

Dear Commissioner Monahan:

San Diego Gas & Electric Company (SDG&E) appreciates the opportunity to provide comments on the California Energy Commission's Draft 2023 Integrated Energy Policy Report (Draft IEPR). The IEPR and its associated California Energy Demand Forecast are integral in advancing state energy policy. The focus of this year's IEPR highlights foundational aspects of the electricity grid. SDG&E appreciates the CEC's approach to evaluate the energy transition in a more holistic manner and encourages further consideration be given to the integrated nature of electricity and gas infrastructure. As California gets deeper into decarbonization, understanding the interdependencies between the two systems will be increasingly important to ensure that equity, affordability, and reliability are effectively addressed.

SDG&E's additional commentary on the Draft IEPR chapters is provided below.

**Chapter 1: Plugging In – Speeding Deployment and Connection of Clean Resources to the Grid**

The Draft IEPR includes an in-depth review of transmission and distribution interconnection and load energization processes. To meet our decarbonization goals, the State will need historic amounts of new, clean generation resources over the next two decades. Nimble processes and collaborative planning will be critical to the timely deployment of resources and the infrastructure needed to deliver power to Californians. These investments must balance the importance of reliability, resiliency, and the

advancement of clean technologies that reduce greenhouse gas emissions while limiting ratepayer cost burdens.

As the Draft IEPR notes, a variety of factors can influence the timeline for interconnecting new resources and completing transmission and distribution upgrades. The IEPR appropriately recognizes that, in recent years, supply chain challenges, workforce availability, local permitting and approval processes have contributed to delays in clean infrastructure projects coming online to deliver power. SDG&E commends the CEC for its interest in working with stakeholders to reduce barriers and identify solutions that allow for a faster pace of generation deployment to align with the timelines of our state decarbonization policy objectives.

SDG&E respectfully offers the following input on specific recommendations included in the Draft IEPR:

**1) Addressing affordability will be critical to the success of an equitable clean energy transition.**

The Draft IEPR appropriately highlights the energy industry's challenge of mitigating rate impacts while rapidly preparing the grid for future energy demand.<sup>1</sup> Successful decarbonization requires affordable energy. In recent years, the federal government has made an unprecedented amount of funding available to support energy infrastructure. Identifying alternative funding sources can facilitate steady investment in clean energy resources and infrastructure while reducing the costs shouldered by ratepayers. SDG&E continues to evaluate opportunities to pursue federal and state sources of funding. Public funding sources can provide valuable support for reducing ratepayer cost burdens. Having clear support from state regulatory agencies on both policy context and procedural mechanism would improve the competitiveness of California entities' applications for federal awards.

**2) Tangible opportunities exist to streamline transmission permitting processes while retaining robust environmental review and stakeholder engagement processes.**

The Draft IEPR states that the CPUC's average time to complete the analysis for a new transmission line is 18 months.<sup>2</sup> However, in SDG&E's experience, the actual time for analyzing a new transmission line is significantly longer when factoring in steps leading up to the CPUC's review process. An 18-month CPUC review timeline likely only considers actions taken once a proponent submits an application to the CPUC. Prior to submitting an application, the project proponent must prepare an environmental assessment. The drafting of this Proponent Environmental Assessment (PEA) and

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<sup>1</sup> See recommendations on p. 44 of the Draft IEPR.

<sup>2</sup> See page 53 of the Draft IEPR.

application to the CPUC takes one year on average. Once the CPUC receives the PEA and application, it hires a contractor to draft a separate CEQA assessment.

An open rulemaking before the CPUC includes a multi-party settlement agreement which, among other things, would eliminate the PEA requirement and instead allow applicants to submit a draft environmental document for the independent review, editing, and adoption by the CPUC. This proposed change would retain environmental review processes and allow for continued stakeholder engagement while reducing processing time for assessments by 6-12 months.

**3) SDG&E supports the CEC's recommendations to focus on broader and earlier stakeholder and public engagement on transmission planning processes.**

The CEC and state agencies can provide value by educating the public and stakeholders on the importance of the electric grid and the need for additional transmission infrastructure to support our decarbonized energy future. Education and engagement earlier in the process can help alleviate the possibility of concerns being raised at a late juncture, reducing the risk of delays in constructing the transmission facilities that the CAISO determines are necessary to meet decarbonization goals while ensuring continued grid reliability.

In the transmission planning process, the opportunity for broad public engagement generally comes at the end of the process, when project proponents are focused on implementation and actually building the identified transmission projects. This poses a challenge because it occurs after key inputs that determine the need for new transmission have been adopted by the CEC (load forecast), CPUC (planned resource additions), and CAISO (transmission system modeling using inputs from the CEC and CPUC). Often, the result is re-litigation of previous decisions. This can lead to delays in completing needed transmission projects. Public engagement at an earlier stage, when key inputs are being determined, will not eliminate public controversy regarding the siting of transmission projects, but it will help to build broader consensus on the need for these projects and help to minimize attempts to relitigate already-adopted determinations that lead to the CAISO's approval of these projects.

**4) Investment in workforce development, education, and training is needed to establish a skilled and trained workforce for California's decarbonized energy future.**

SDG&E supports the recommendation in the Draft IEPR related to completing assessments and guiding investments towards education, training, and workforce development programs to help develop a skilled and trained workforce to support the energy transition.<sup>3</sup> Conducting an assessment to identify the number of jobs and types of

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<sup>3</sup> See recommendations on p. 43 of the Draft IEPR.

labor needed to achieve economywide decarbonization by 2045 will be a helpful first step for right-sizing and appropriately directing investments. SDG&E encourages the CEC and California Workforce Development Board to engage with labor unions and trade groups in these discussions to ensure that the assessment incorporates the highly technical needs of the energy sector and identifies the workforce skills necessary to support the electric infrastructure expansion that is necessary for decarbonization.

**5) Data transparency is important, but must take into account confidentiality requirements and protect the physical security of critical infrastructure.**

While SDG&E understands the value that publicly available datasets could potentially provide in supporting improved coordination of infrastructure improvements, care must be taken to ensure that the provision of such data does not violate customer confidentiality or the physical security of critical energy infrastructure. Ongoing collaboration with the utilities is important for understanding the security risks associated with public access to grid and customer data. A clear understanding of these risks will support the development and implementation of appropriate data protection measures.

**Chapter 2: Potential Growth of Clean and Renewable Hydrogen**

SDG&E strongly supports the CEC’s deep investigation into the role clean and renewable hydrogen will play in energy system decarbonization. The Draft IEPR identifies many State policy needs and supports the Governor’s Office of Business and Economic Development’s (GO-Biz) framework for California’s Hydrogen Market Development Strategy.<sup>4</sup>

SDG&E also supports the CEC’s efforts to identify and articulate the value of related policies and hydrogen proceedings – including the SB 100 Joint Agency Report (SB 100 Report) and SB 1075 Hydrogen Deployment, Development, and Use Report (SB 1075 Report) -- in defining terms, researching needs, and developing integrated approaches to key issues in the hydrogen market.

**1) The need and timing for selection and application of critical definitions (e.g. “firm zero-carbon resources,” “green hydrogen,” etc.) warrants further discussion within the IEPR process.**

The multi-agency and multi-proceeding engagement on hydrogen creates a high potential for confusion, and even contradiction, in establishing consistent definitions and policy.<sup>5</sup> State agencies should align on and maintain technology-agnostic and production-pathway-neutral definitions of eligible hydrogen resources, focusing on carbon intensity.

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<sup>4</sup> See “Governor Newsom Announces New Strategy to Develop a Hydrogen Economy of the Future,” August 8, 2023, available at: <https://www.gov.ca.gov/2023/08/08/governor-newsom-announces-new-strategy-to-develop-a-hydrogen-economy-of-the-future/>.

<sup>5</sup> Currently, the CEC is either leading or engaged in discussions lead by other state agencies in proceedings implementing SB 100, SB 423, SB 643, and SB 1075.

Definitions on key terms surrounding hydrogen resources should be identified, clarified, and messaged within the Draft IEPR – for example, where certain assumptions around hydrogen definitions impact forecasting efforts, the IEPR should clarify the underlying source of the input. One such example can be found in the term, “zero-carbon resources.” SDG&E provided commentary in response to the SB 100 Joint Agency Report Kickoff Workshop earlier this year to suggest greater specificity on the identified technologies included.<sup>6</sup> The outcomes from agency proceedings have cascading impacts on the roles of hydrogen in supporting grid reliability and resilience, decarbonization of multiple sectors including power generation, transportation, and industrial, emissions reduction and reporting, resource development and market growth.

The urgent need for a uniform approach to establishing hydrogen definitions is further amplified by the U.S. Department of Energy’s award for a California Hydrogen Hub project, being implemented via a consortium led by the Alliance for Renewable and Clean Hydrogen Energy Systems (ARCHES). The up-to-\$1.2 billion award brings significant potential to advance California’s hydrogen economy, providing valuable grid reliability and decarbonization benefits at a lower cost to Californians. As the agencies work toward establishing definitions, consideration should be given to ARCHES project implementation timelines to ensure that sufficient policy clarity is provided before infrastructure investments are made.

**2) SDG&E supports the Draft IEPR’s discussion around the need to include analysis on other feedstocks for clean hydrogen, including biomass and biogas.**

Limiting the scope of the 2023 Draft IEPR to “clean and renewable” hydrogen fails to recognize the more broad application of the technology to support numerous sectors and use cases, as identified in state agency proceedings evaluating reliability, decarbonization and technological readiness. SDG&E supports the Draft IEPR’s discussion around the need to include analysis on other sources of clean hydrogen including biomass and biogas. From a load planning perspective, understanding alternative low carbon pathways for hydrogen production will be a useful exercise.

Parallel to the development of specific definitions, SDG&E encourages the CEC to proceed with scoping and initiating the reliability modeling process. While establishing specific definitions for “zero-carbon resources” will be critical from a state policy perspective, the ability to model the reliability of technologies utilizing certain fuels should not be dependent on such specifics. SDG&E suggests that the Draft IEPR’s overreliance on electrolytic hydrogen creates a false market scenario that does not adequately represent the scope of analysis from other proceedings, including the SB 1075 implementation proceeding. Over reliance on electrolytic hydrogen creates a high-cost scenario that could otherwise underrepresent the value of hydrogen as a decarbonization

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<sup>6</sup> See SDG&E and SoCalGas Joint Comments on SB 100 Joint Agency Report October 31 Workshop at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=253122&DocumentContentId=88327>.

tool across a variety of scenarios were a full suite of feedstocks and production methods considered.

CARB's 2022 Scoping Plan Update calls for approximately 4 GW of hydrogen combustion turbine generating capacity in 2035, and approximately 9 GW in 2045, to support the electricity sector. SDG&E's Path to Net Zero, published in April 2022, forecasts a higher statewide requirement of 20 GW of hydrogen generation capacity in 2045 to maintain a clean grid that meets reliability requirements. The subsequent 6.5 MMT of hydrogen demand is utilized across the California economy: 80% for electric generation, and the remaining 20% for transportation, buildings, and industry uses. The transition to zero-carbon electric generation will require a predictable supply of hydrogen at a sustainable, market-supporting growth rate.

**3) SDG&E respectfully suggests that the Draft IEPR's overreliance on electrolytic hydrogen inaccurately represents the scope of analysis from other related proceedings, and creates a high-cost scenario that could otherwise underrepresent the value of hydrogen as an essential decarbonization tool.**

SDG&E understands that the 2023 Draft IEPR's preliminary analyses considers only hydrogen produced through electrolysis (electrolytic hydrogen), using renewable electricity to split hydrogen from water. While this will be an important production pathway to consider, SDG&E agrees with the CEC's identified need to understand alternative feedstocks such as biomass and biogas in future IEPRs. Further definition around the types of hydrogen that could be used for this purpose should be discussed in the SB 1075 proceeding to ensure alignment of reliable energy system needs with emissions reduction objectives.

Parallel to the development of specific definitions, SDG&E encourages the CEC to proceed with scoping and initiating the reliability modeling process. While establishing specific definitions for "zero-carbon resources" will be critical from a state policy perspective, the ability to model the reliability of technologies utilizing certain fuels should not be dependent on such specifics. While there are implications related to the production pathway associated with the hydrogen utilized – whether that be electrolysis, steam methane reformation, autothermal reformation, pyrolysis, or other methods not yet commercialized – the modeled reliability attributes of the electricity produced from this dispatchable fuel should be consistent.

The Draft IEPR's overreliance on electrolytic hydrogen creates a false market scenario that does not adequately represent the scope of analysis from other proceedings, including SB 1075. Over reliance on electrolytic hydrogen creates a high-cost scenario that could otherwise underrepresent the value of hydrogen as a decarbonization tool across a variety of scenarios were a full suite of feedstocks and production methods considered. An over reliance on some of the highest cost hydrogen as a primary dispatchable resource poses exceptional challenges to building the necessary



infrastructure to support a low cost and net zero future. This is especially true if grid connected electrolysis is excluded and additional, new renewable resources are required to power each electrolyzer. The CEC noted in the Draft IEPR that it intends to further assess in-state renewable power needed to support hydrogen production. SDG&E agrees that understanding this will be critical for ensuring that the demand forecast is well-aligned with energy sector and future power supply needs.

**4) SDG&E supports the Draft IEPR’s recognition of hydrogen pipelines for cost effective decarbonization in electric generation, industrial process, and transportation sector applications.**

SDG&E shares the CEC’s perspective that pipeline infrastructure is the most cost-effective solution to transport large volumes of hydrogen to any location that requires it, such as a power generation facility.<sup>7</sup> Pipelines enable efficient distribution without secondary impacts from over-the-road transportation via truck. Pipelines also offer alternatives to collocating on-site electrolyzers and hydrogen storage at space-constrained facilities, which was identified as a challenge in the CEC’s analysis as presented during the September 8<sup>th</sup> IEPR Workshop on Potential Growth of Hydrogen.<sup>8</sup> In order to understand the full cost of hydrogen for use in the power sector, hydrogen storage and transportation must be considered.

**5) SDG&E encourages the CEC to clarify specific assumptions surrounding the timing of hydrogen resource adoption and implementation schedules leading out to 2045.**

The Draft IEPR appears to presume delayed hydrogen resource adoption until 2045. Table ES-1 on page 10 shows 1,592,000 metric tons per year of hydrogen-based electricity generation replacing fossil gas *in 2045* as opposed to *by 2045*. If that is the case, SDG&E cautions against delaying adoption or depending upon late-timeframe resource buildout; scalability, permitting and regulatory considerations, and commodity market growth will take time and meticulous planning. If the State is depending on last minute hydrogen adoption to achieve its climate, decarbonization, and clean energy goals, this approach introduces significant execution risks. Investments and mass adoption will need to occur earlier if the state aims to achieve the capacity and reliability goals identified in the report by 2045.

**6) SDG&E encourages the CEC to study and characterize the potential additional energy needed to meet future hydrogen demand and to clarify what if any hydrogen production will be a load on the electric system versus production from generating resources not connected to the grid.**

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<sup>7</sup> Draft 2023 Integrated Energy Policy Report (IEPR), pg. 72.

<sup>8</sup> IEPR Commissioner Workshop on the Potential Growth of Hydrogen Recording, CEC, September 8, 2023, available at: <https://www.energy.ca.gov/event/workshop/2023-09/iepr-commissioner-workshop-potential-growth-hydrogen>.

The amount of additional renewable capacity required to produce hydrogen for both California's electric and transportation sector as reported in the draft IEPR is staggering – between 12.4 GW and 48.7 GW by 2045.

In an effort to better understand and characterize the electricity demand needed for hydrogen production and the resources needed to support it, SDG&E recommends the CEC consider:

- (1) Whether all of this estimated additional ~12-49 GW of new renewable power would be required or if some of this demand could be met with resources that are currently curtailed;
- (2) How much hydrogen demand could be met with alternative low carbon hydrogen production pathways, such as feedstocks like biomass and biogas from waste facilities;
- (3) If it is feasible and economic to produce all this hydrogen within the state or if out-of-state resources are required. Since hydrogen is a storable fuel, hydrogen produced out of state could be cost-effectively piped into California.
- (4) How much electrolytic hydrogen production, if any, will be a retail load on the electric system versus production from processes that do not require a connection to the electric grid.

The cost of electricity is one of the most important inputs to the cost of a produced hydrogen molecule. From a grid load perspective, retail power prices in many parts of California make grid-connected hydrogen production prohibitively expensive. Therefore, a dedicated electro-fuels tariff warrants consideration to improve the cost-effectiveness of grid-connected electrolytic hydrogen.

SDG&E recognizes and encourages the CEC's noted consideration for future IEPRs to evaluate in-state electricity demand to support hydrogen production.<sup>9</sup> The CEC flags uncertainty around the future of hydrogen as reasoning for why evaluation of in-state electricity has not been incorporated in forecast efforts to-date; however, state policy established in the 2022 Scoping Plan and SB 1075 clearly indicate the role that hydrogen can play in supporting electricity sector decarbonization.

### **Chapter 3: California Energy Demand Forecast**

The California Energy Demand Forecast is a central part of the state's energy planning processes and perhaps the most significant element of the IEPR. The data from the forecast serves as an instrumental input to utility resource, distribution grid, and transmission planning efforts. Because of this foundational interdependency, it is essential that the forecast reflect the most recently adopted state policies. Aligning the CEC's Demand Forecast with state decarbonization policies will better align the state's ambitions with action.

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<sup>9</sup> See p. 91 of the Draft IEPR.

**1) SDG&E supports the CEC’s recommendation to continue enhancing coordination between policies that accelerate decarbonization and electricity infrastructure planning processes.<sup>10</sup>**

In the 2022 IEPR Update and 2023 Draft IEPR, the CEC proposed changes to the methodologies and assumptions utilized in the forecast. By including recently adopted changes in regulatory programs and policies (e.g., Advanced Clean Fleets, Advanced Clean Cars II, six million heat pumps by 2030), the most recent forecasts will more accurately account for the electricity demands of our future power grid. This will facilitate planning of cost-effective grid infrastructure expansion. Continued monitoring of state policy development, and evaluation of the associated impacts on energy consumption, will be critical for aligning future demand forecasts with decarbonization objectives.

**2) SDG&E agrees that incorporating modeling for future weather variants and projected climate trends will help calibrate the demand forecast with anticipated impacts of extreme weather events.**

In recent years, California has witnessed extreme weather events with increasing frequency. As these types of events occur with greater regularity, utilizing average annual weather data may not appropriately factor in climate risks that may result in changes in customer load, as well as resource availability. The changes contemplated by the 2023 draft IEPR will allow the forecast data to be based on a more localized level, and with greater consideration given to extreme temperatures rather than averages as had been the case in previous forecasts. With these changes, the accuracy of the forecast is more likely to align with electricity demand during peak events. The Draft IEPR also notes interest in continued refinement of climate change data for future IEPR forecasts; SDG&E supports the ongoing exploration of new data sources to improve the accuracy of the forecast and its ability to incorporate climate-driven load impacts.

**Conclusion**

Thank you for your consideration of SDG&E’s comments. We look forward to reviewing, providing feedback, and supporting the final 2023 IEPR and California Energy Demand Forecast once they are released. Please do not hesitate to contact me should you have any questions.

Sincerely,



Sarah M. Taheri  
Regulatory Affairs Manager

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<sup>10</sup> See p. 34-35 of Draft IEPR.