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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Integrate and Refine Procurement Policies Underlying Long-Term Procurement Plans	Rulemaking 08-02-007

PRE-WORKSHOP COMMENTS OF SAN DIEGO GAS & ELECTRIC COMPANY (U 902-E) REGARDING GREENHOUSE GAS (GHG) UNCERTAINTY ISSUES

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OF THE STATE OF CALIFORNIA

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In accordance with the "Administrative Law Judge's Ruling Scheduling July 10, 2008 Workshop on Greenhouse Gas (GHG) Uncertainty and Requesting Comments" (GHG Workshop Ruling), dated June 6, 2008, San Diego Gas & Electric Company (SDG&E) respectfully submits these comments in anticipation of the workshop scheduled for July 10, 2008.

I. INTRODUCTION

SDG&E welcomes the opportunity to provide these pre-workshop comments. Specifically, these comments will address each of the overview questions listed on page 5 of the GHG Workshop Ruling. Additionally, these pre-workshop comments will address each of the bulleted follow-up questions listed on pages 6 through 12.

II. SDG&E's PRE-WORKSHOP COMMENTS REGARDING GHG ISSUES

A. Overview Questions

SDG&E was asked to comment on the following three overview questions, including subparts.

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1. Is it necessary to separately analyze details of potential GHG regulatory regimes (cap-and-trade or carbon tax) as risk factors in the LTPPs, or is it reasonable to assume that, whatever the details, carbon risk will be reflected in the carbon price (GHG allowance or carbon tax)?
    a. If carbon price is all that matters, what range of prices is reasonable to analyze in the LTPPs and by what method should this range be established?
    b. If carbon price is all that matters, what are the potential correlations between carbon price and other planning variables (*e.g.*, load growth and natural gas prices), and should these be considered in developing minimum planning scenarios for LTPPs?

SDG&E's Response: The carbon price is not all that matters. In addition to considering the carbon price, it will be necessary to assess the impact of mandatory regulations imposed by the legislature and/or Air Resources Board (ARB). The Draft ARB Scoping Plan includes mandatory measures affecting the electric sector, including a 33 percent Renewables Portfolio Standard (RPS), increased energy efficiency (EE) and increased deployment of Combined Heat and Power (CHP) that will reduce projected GHG emissions by 45 million metric tons. These mandates will decrease electric sector emissions below 1990 levels.

There are three aspects to the impacts of AB 32 regulations: (1) the impact on load from EE and from electrification in other sectors in response to mandates and/or the carbon price (i.e., the fact that the compliance obligation can be shifted via electrification), (2) mandates with regard to the portfolio composition (SB 1368 and SB 107), as well as new mandates the legislature and/or ARB might adopt; and (3) the choice of generation resources based on projected generation costs, including the cost of carbon.

2. If carbon price is alone insufficient to guide appropriate analyses, what other variables are important and what options exist for assessing them?

SDG&E's Response: See response to #1 above. In addition to considering the carbon prices, it will be necessary to assess the impact of mandatory regulations imposed by the legislature and/or ARB. Adding potential constraints on the portfolio, such as a 33 percent RPS, will necessitate discussion of achieving adequate reliability with a large amount of intermittent resources in the State.

3. Given that state policy with respect to GHG emissions extends beyond the ten-year LTPP planning horizon, what sorts of longer-run analyses are appropriate and do they belong in the Commission's LTPP proceeding or the CEC's IEPR proceeding?

SDG&E's Response: Any longer-run analyses of GHG emissions beyond the Long-Term Procurement Plan (LTPP) planning horizon should remain in the GHG proceeding (CPUC Rulemaking 06-04-009 and CEC Docket #07-OIIP-01) until it is closed. The GHG proceeding and the corresponding ARB proceedings are the right place for examining State policy with respect to GHG emissions and the analyses required to develop GHG emission reductions policies. The focus of the LTPP is to authorize procurement that needs to be put in place in the next three to five years. Those procurement decisions will be influenced by options available today, but will not be impacted by the choice of technologies that are available post-2020.

B. Follow-Up Questions

1. Carbon Price Versus Detailed Analysis of GHG Regulatory Regimes

SDG&E was asked to respond to the following questions related to reliance on carbon price versus detailed analysis of GHG regulatory regimes to assess carbon risk.

- How would consideration of a carbon tax/allowance cost be reflected in the utility modeling that yields portfolio costs?

SDG&E's Response: The utility modeling in the LTPP will directly account for restrictions on the portfolio due to RPS mandates and Emissions Performance Standards (EPS) restrictions. In addition, the composition of the portfolio may be affected by the carbon price, whether a fee or a market price, to the extent that the costs of different types of generation are impacted by the carbon price.[1]

- What input and decision variables are directly affected by assuming GHG regulation, and associated cost?

SDG&E's Response: See response #1 above. One main input affected is the load which would change from the impact of higher energy prices, expanded EE, electrification in other sectors of the California economy, manufacturing migration out-of-state, and the amount of distributed generation, such as non-utility photovoltaics (PV). The other main inputs that would change would be the costs of generation resources, which should include the cost of carbon as an element.

The decision variables that change include constraints on the portfolio composition from legislative and ARB GHG-related mandates, and the choices related to the new set of relative generation costs.

- One view is that, whether the price signal is coming from a market-derived allowance cost or a policy-derived carbon tax, the effect is the same on the resource planning and procurement decision. Is this reasonable?

SDG&E's Response: Yes, both have the same impact on changing consumer choices and utility decisions. However, with a carbon fee, the risk is in the political arena

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[1] A separate and important issue is the effect on utility rates which will also be influenced by the carbon price reflected in market prices. But in addition, rates will be affected by how allowance allocations are made and how the revenues generated are used if there is a carbon market. Policies that allocate allowances to load-serving entities (LSEs) or direct carbon revenues to LSEs to implement GHG reductions will result in lower rates than other potential policies.

in how the fee changes over time, while for the market-determined price, the risk is in the changing market which will reflect the stringency of the goal and the development of technology. In the LTPP framework, where utility planning involves investments with long lives, the risk of future change in the price of carbon is a key uncertainty.[2]

- Another view is that, the carbon content of power purchases depends upon whether the purchase is "from the market" or a result of a bilateral unit-specific contract. Is this alternate view more plausible?

SDG&E's Response: The source of purchases is not an important element from a resource planning view, as generic gas resources are used to represent future purchases that are unknown at present – these could either be unit-specific contracts or purchases from the market.

2. Range of Carbon Prices and Method of Establishing the Range

i. Appropriate Range

SDG&E was asked to respond to the following questions related to the appropriate range of carbon prices to be analyzed.

- What is a reasonable range of GHG prices for utilities to use in analyzing portfolios and estimating portfolio costs?

SDG&E's Response: A reasonable range of GHG prices for utilities to use in analyzing portfolios is between $10 and $50 per metric ton. The low end of the range is based on the current value approved by the Commission for use in EE cost effectiveness

[2] While allowance allocation policies will impact rates, the price of carbon is the main determinant of procurement decisions for a utility like SDG&E. For some utilities, such as public-owned utilities that do not participate in the market, the allowance allocation policy may also influence procurement decisions. Allowance allocations that do not penalize high emissions may lead to slow replacement of high GHG-emission power plants.

analysis and in the LTPP. It is also equal to the trigger value in the Regional Greenhouse Gas Initiative for allowing expanded use of offsets.

The upper end of the range should be based on a value of $50 per ton based the studies cited by ARB in a Staff Paper on Cost Effectiveness.[3] A McKinsey & Company study indicates substantial GHG reductions in the U.S. and the Western U.S. are available for less than $50 per ton and an Intergovernmental Panel on Climate Change (IPCC) study lists a large number of measures up to $50 per ton. Likewise, the recent Energy Information Administration (EIA) analysis of the Lieberman-Warner GHG Reduction bill had most scenarios with the cost per ton of reduction at less than $50 per ton by 2020.[4] Finally, the $50 per ton figure is comparable to the current European Union Emissions Trading System (EU ETS) market price for carbon based on a cap set to reduce emissions to less than 1990 levels.

The recent study by Lawrence Berkeley Laboratory recommends using a wide range of costs.[5] A range of $10 to $50 per ton would be similar to the ranges used by Oregon of $0 to $40 (1990 dollars) and New Mexico of $8 - $40 (2010 dollars).[6]

- What is a reasonable reference case assumption?

SDG&E's Response: SDG&E would suggest using the current $10 per ton scenario as the reference case and investigate if higher prices have an impact on the portfolio. SDG&E would add another scenario at mid-point of the range of $10-$50 per

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[3] Assembly Bill 32 Technical Stakeholder Working Group Meeting, June 3, 2008.
[4] Energy Information Administration, *Energy Market and Economic Impacts of S. 2191, the Lieberman-Warner Climate Security Act of 2007,* April, 2008, Figure ES-2, values for 2012 – 2020 for all scenarios except the "no international offset and limited alternatives" case.
[5] Galen Barbose, Ryan Wiser, Amol Phadke, and Charles Goldman, *Reading the Tea Leaves: How Utilities in the West are Managing Carbon Regulatory Risk in Their Resource Plans*, March, 2008, pages 10, 53.
[6] *Id*., page 12.

ton. Thirty dollars per metric ton is comparable to the Synapse high case value on a levelized basis over 2010-2040.[7]

- Is a fixed carbon price reasonable to assume over the planning period?

SDG&E's Response: Yes. Any carbon price trajectory would involve speculation and can be converted into an equivalent levelized cost of carbon. Using a levelized price of carbon makes the analysis of alternative low-emitting generation more transparent.

- Is there value in having the utilities each use the same "low,   medium, and high" price in minimum planning scenarios, sensitivity analyses, or output reporting of GHG costs?

SDG&E's Response: Yes, there is a benefit to having the same planning scenarios regarding the price of carbon, since AB 32 is a statewide regulation.

ii. Methods for Establishing Range

SDG&E was asked to respond to the following questions related to methods for establishing the range of carbon prices to be analyzed.

- On what method should the range of carbon prices be based (*e.g.*, literature review, nominal group method, Delphi method, other)?

SDG&E's Response: See the foregoing response regarding the appropriate range of carbon prices.

- In the absence of historical data, information about the regime to be implemented, etc., is there value in attempting to impute probabilities to the values that are selected?

SDG&E's Response: There is not enough information to assign probabilities.

[7] Synapse Energy Economics, *Climate Change and Power: Carbon Dioxide Emissions Costs and Electricity Resource Planning,* June 2006, page 41.

3. Correlative Effects of Carbon Price in Planning Scenarios

SDG&E was asked to respond to the following questions related to correlative effects of carbon price and planning scenarios.

- What constitutes an internally consistent set of assumptions regarding the values of related variables when modeling different levels of GHG costs?

SDG&E's Response: If there is enough data to model EE and customer equipment choices, the load forecast should reflect the impact of the carbon price. And to the extent a higher RPS mandate is placed on the State's utilities, the impact on renewables prices should be considered. In the past few years, the 20 percent mandate has been associated with increasing renewables prices relative to conventional generation. SDG&E would expect that trend to continue with further mandates.

- Which of these impacts should be considered in the development of planning scenarios which reflect GHG cost uncertainty?

SDG&E's Response: The impact on the load forecast and the impact on the resource choices should be modeled under the different scenarios.

- Should such consideration take the form of pairing (*e.g.*) "high GHG costs" with "low demand growth" or can acknowledgement of these inter-relationships, without their formal inclusion in modeling efforts, suffice for the 2010 plans?

SDG&E's Response: No. The ARB Draft Scoping Plan contains a significant amount of EE. The potential for "pairing" assumes more EE will be undertaken in response to the price of carbon; but that may not be the case if EE mandates are already highly stringent. Second, it assumes no electrification will take place in response to state GHG policies. At this point, that is a speculative assumption.

4. Longer-Run Analyses of GHG Uncertainty

i. Potential Analyses Extending Beyond the Ten-Year Horizon

SDG&E was asked to respond to the following questions related to potential analyses that extend beyond the ten-year horizon generally used for IOU procurement plans.

- Should utilities provide assessments of selected portfolios that extend beyond 2020? Through 2030? 2040? If so, what should be the goal(s) of such analysis, *i.e.*, what questions should the analysis attempt to answer? Should these assessments focus on GHG or are there other areas that should be informed by longer term assessments?

SDG&E's Response: There is no value in a longer-term analysis as part of the LTPP proceeding; it will be a duplication of any efforts in the GHG proceedings. In addition, unforeseeable technology changes will greatly impact both load forecasts and resource choices beyond 2020. Since the focus of the LTPP is to authorize procurement that needs to be put in place in the next three to five years, SDG&E is unclear how speculating on the 2040 portfolio will be of value.

- Does the longer-term analysis being investigated consist of the utilities extending scenarios used to evaluate proposed ten-year plans and thus use the same or similar modeling tools and techniques? Given the data- and assumption-intensive nature of these methodologies, how would cost assumptions, *e.g.*, be developed? If the answers sought are apt to be dependent on long-term relative prices (*e.g.*, of various preferred resources), which are known to be uncertain, and how would the proposed analysis inform policy decisions in the near term?

SDG&E's Response: SDG&E believes there is no value in a longer-term analysis as part of the LTPP proceeding, given the highly different set of analyses required for forecasting a 2030-2040 portfolio and the large amount of speculation involved. The focus of the LTPP is to authorize procurement needs for the next three to five years. Those procurement decisions will be influenced by options available today, but will not be impacted by the choice of technologies that are available post-2020, since a decision to not build or procure generation resources and wait for the renewable technologies to develop is not an option.

- If longer-term assessments are desired, can selected input assumptions be standardized so as to better allow for aggregation, comparison across utilities? These might include assumptions about pre-2020 resource additions, the growth rate of demand during the post-2020 period, the composition of new renewable resources in each utility's portfolio, heat rates of new fossil resources, etc.

SDG&E's Response: Longer-term assessments are not desirable as part of the LTPP proceeding, since they are speculative, driven by technology changes, and they require a significantly different set of analysis tools than are currently used for the LTPP.

- Are there uncertainties about the future GHG regulatory framework, such as national regulatory framework or the interaction between state and federal regulatory frameworks, which suggest less detailed quantitative analyses? What might such uncertainties include? Can portfolio assessment techniques be used or is some other form of analysis preferable? If so, what is this?

SDG&E's Response: Since it is unlikely that national or international regulatory frameworks would be more stringent than those of California, it is unlikely they will have any impact, other than through the carbon price.

ii. Straw Proposal for Analysis Beyond Ten-Year Horizon

SDG&E was asked to respond to the following questions related to a straw proposal for analysis of IOU procurement plans beyond the ten-year planning horizon.

- Would there be value in longer-term analysis that modified the above scenarios so as to provide insight regarding the potential to reduce GHG emissions though 2030 or 2040? For example, given assumptions regarding long-run load growth, existing hydro, nuclear and other resources, and 33% renewables target, how will portfolio GHG emissions in 2030 compare to 1990 or current levels? What will the carbon content of the residual (generation net of hydro, nuclear, renewable, etc.) have to be in order to yield portfolio emissions that are specified percentages less than 1990 or current levels? Will such reductions be possible given feasible levels of preferred resources or will substantial quantities of offsets are necessary or new generation technologies need to be developed?

SDG&E's Response: SDG&E believes there is no value in a longer-term analysis as part of the LTPP proceeding, especially on a utility-specific basis. Technology changes will greatly impact both load forecasts and resource choices post-2020. At this point in time, it is speculation whether PV will decrease in price as the Commission expects or will continue the price trajectory of the last few years. The load forecasts of all utilities in 2030 or 2040 will be greatly impacted by the development of technology – new EE technologies in lighting (e.g., Light Emitting Diodes [LEDs]), efficiency in appliances and equipment, sustainable development, electric hybrid vehicles, electrification of industrial equipment, and potential widespread use of PV. The utility load forecast will also change with the expected re-emergence of direct access.

On the supply-side, there are tremendous uncertainties regarding which zero-GHG emitting generation technologies (e.g., nuclear, Integrated Gasification Combined Cycle [IGCC] with carbon capture, wind, or solar) could be the technologies of choice to reduce the level of GHG emitted in 2030 or 2040.

- CEERT proposed the above analysis through 2020 as "least-cost scenarios." Over a longer horizon, however, both absolute and relative costs of preferred and other resources become more uncertain. Would there be value in focusing less on possible least-cost portfolios over the longer-term than on the possible combinations of preferred resources and new technologies that yield specified reductions in portfolio emissions?

SDG&E's Response: SDG&E agrees that including the first scenario is appropriate. The 33 percent RPS is part of the Draft ARB Scoping Plan However, the ARB Scoping Plan does not have individual utility targets; instead it contemplates mandates plus either a carbon market or carbon fee as an option. Scenarios based on mandates plus different carbon prices are probably more productive to pursue. However, for each of the carbon price scenarios, the utility's carbon footprint could be calculated and compared to the 1990 level for the utility.

iii. Appropriate Forum for Considering Longer-Run Analysis

Finally, SDG&E was asked to respond to the following questions related to the appropriate forum for considering longer-run analyses of GHG uncertainty.

- If longer-term assessments are desired, should they be performed as part of the 2010 plans? Should they be undertaken prior to the 2010 plans, *e.g.*, as part of Phase II of the current proceeding or in the 2009 IEPR proceeding, that might provide guidance in parallel to the submission of 2010 plans? Or should they be undertaken after the 2010 plans are submitted?

SDG&E's Response: SDG&E believes there is no value in including a longer-term analysis as part of the LTPP proceeding. Therefore, such analysis should not be undertaken in this proceeding. Any relevant and reliable analysis of GHG regulations from the GHG proceeding (CPUC Rulemaking 06-04-009 and CEC Docket #07-OIIP-01), the ARB proceeding, or the Integrated Energy Policy Report (IEPR), such as the magnitude of potential electrification in other sectors, the impact of EE on the load forecasts, and the price of renewables in the next 3 to 5 years can be incorporated into the 2010 plans.

- What is the best approach for any such analysis? Is it extrapolation to the longer term using the same analytic techniques used for 10-year plans? Are alternative assessment techniques better suited to the uncertainties of the longer term? If so, what are these?

SDG&E's Response: SDG&E believes longer-term analysis should not be part of the LTPP proceeding. As this question intimates, extrapolation of the LTPP using the same techniques will not be appropriate for beyond 2020.

III. CONCLUSION

SDG&E appreciates the opportunity to offer these pre-workshop comments and looks forward to fully participating in the July 10 workshop and further elaborating on the GHG uncertainty issues.

Respectfully submitted,

By: /s/ John A. Pacheco
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DATED at San Diego, California, this 30th day of June, 2008.

CERTIFICATE OF SERVICE

I hereby certify that, pursuant to the Commission's Rules of Practice and Procedure, I have this day served a true and correct copy of the foregoing **PRE-WORKSHOP COMMENTS OF SAN DIEGO GAS & ELECTRIC COMPANY (U 902-E) REGARDING GREENHOUSE GAS (GHG) UNCERTAINTY ISSUES** to each party of named in the official service list for R.08-02-007 by electronic mail. Those parties without an email address were served by placing copies in properly addressed and sealed envelopes and depositing such envelopes in the United States Mail with first-class postage prepaid.

Copies were also sent via Federal Express to Commissioner Michael Peevey and Administrative Law Judge Carol A. Brown, who have been assigned to this proceeding.

Executed this 30th day of June 2008, at San Diego, California.

__*/s/ Lisa Fucci-Ortiz*
Lisa Fucci-Ortiz

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