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**VIA E-MAIL DOCKET@ENERGY.  
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California Energy Commission  
Dockets Office, MS-4  
Re: Docket No. 13-IEP-1C/1L  
1516 Ninth Street  
Sacramento, CA 95814-5512



Re: 2013 Integrated Energy Policy Report: Comments of Pacific Gas and Electric Company on the Lead Commissioner Workshop on Economic, Demographic, and Energy Price Inputs for Electricity, Natural Gas and Transportation Fuel Demand Forecasts

## I. INTRODUCTION

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to provide comments on the Lead Commissioner Workshop on Economic, Demographic, and Energy Price Inputs for Electricity, Natural Gas and Transportation Demand Forecasts (Workshop). PG&E commends the California Energy Commission (CEC) for initiating a dialogue on the forecasting methodology so early in the development of the forecasts and the 2013 Integrated Energy Policy Report (IEPR) process—a practice PG&E hopes will continue throughout the 2013 IEPR.

The CEC's long-term demand forecasts present a two-fold challenge for all stakeholders. On the one hand, energy infrastructure investments and efficiency program planning require a plausible forecast of energy and natural gas demand. However, there is a certain fundamental uncertainty that is intrinsic to the forecasting process. PG&E supports the CEC's initiatives to work more closely with other stakeholders including the California Independent System Operator (CAISO), California Public Utilities Commission (CPUC), Demand Analysis Working Group (DAWG) and the CEC's expert panel to improve alignment and consensus around key inputs to the long-term demand forecasting models, including the treatment of expected demand reductions from Investor Owned Utility (IOU) energy efficiency programs in future portfolio cycles. Improved collaboration, consensus and alignment among stakeholders should result in a more robust process overall for the 2013 IEPR.

Practically speaking, we will never precisely predict customers' energy demand. PG&E is committed to achieving energy efficiency goals and advancing the state's position on clean energy technologies. However, there are numerous uncertainties that should be considered and evaluated to ensure that system reliability and operability are not compromised. Today, we are

planning with even more uncertainty about the future, given uncertain economic conditions, uncertainty about the amount of achievable energy efficiency savings, uncertainty about customer adoption of electric vehicles, uncertainty about new technologies like energy storage, and uncertainties about how to operate the electric grid with higher levels of intermittent renewables. The demand for energy could increase significantly, or continue recent historic trends of about 1 to 2 percent annual growth during this forecast horizon.

This level of uncertainty requires a careful balancing of public policy objectives and coordination among state agencies and collaboration with the utilities responsible for reliably and safely meeting customer demand. Reliability and cost are both affected if sufficient resources are not available to meet customer demand.

At the Workshop, Staff's presentation gave ample evidence that the CEC understands and is responding to this challenge by developing a variety of demand scenarios. The CEC is also continuing to incorporate more econometric forecasting tools into its analysis. As discussed in previous DAWG meetings, there are many advantages to using an econometric framework, including better transparency to improve stakeholder input, understanding and consensus; quicker turn-around time to make better use of Staff and stakeholder resources; ability to include more recent economic and demographic projections; and enhanced capability to produce statistically derived uncertainty analyses to support long-term planning applications.

Additionally, PG&E fully supports building climate change explicitly into the forecasting framework. Many studies commissioned by the CEC and others over the past several years have confirmed that climate change will have a significant impact on energy consumption over the next several decades. PG&E encourages the CEC Staff to hold additional stakeholder discussions on possible methodologies for developing appropriate climate change temperature statistics to capture this impact. PG&E has included climate change explicitly in its demand forecasting models for several years now and can share its experience and expertise with Staff and interested stakeholders.

The Workshop presented the CEC's overall methodology behind the long-term electricity and natural gas forecast as a prelude to more detailed conversations. In turn, PG&E would like to express its general support for this approach, with the understanding that future workshops will offer the opportunity for detailed discussion and comments. In addition, in Section II, PG&E highlights some specific concerns regarding the natural gas forecast.

## **II. LONG-RANGE NATURAL GAS FORECASTS PRODUCE A NARROW PRICE BAND THAT MAY NOT BE A REASONABLE EXPECTATION OF FUTURE PRICES**

A key area of concern for PG&E is the tight range of the CEC's long-term natural gas forecast, which shows the low and high natural gas price cases staying between approximately \$5.50 to \$6.50 per Thousand Cubic Feet (Mcf) in 2035 (2010 dollars) and demand varying from 70 to 75 Billion Cubic Feet per Day (Bcf/D) for the year 2025. Industry forecasts, including the Energy

Information Administration's (EIA) Annual Energy Outlook 2012, show a much larger range of price forecasts, between a \$6.00 to \$8.00 price per Million British Thermal Units (MMBtu), in 2010 dollars. The EIA also provides various demand scenarios.<sup>1</sup> While several scenarios were evaluated by the CEC, one would expect that the range of forecasts would diverge more on both the low and high price range than is currently expected by the CEC, especially for periods beyond 2020.

Therefore, PG&E recommends additional analysis to determine whether the narrower forecast range is a reasonable expectation for the future. Model parameters and scenario constructs may not reflect all potential outcomes. For example, additional exploration of existing proven shale gas reserves and the discovery of new deposits might push prices lower. According to the EIA, between 2007 and 2010, proven shale gas reserves increased from approximately 23 Bcf to 97 Bcf<sup>2</sup> and are likely to be further enlarged. Alternatively, industrial gas demand could be much larger as new petrochemical plants begin to come on-line in 2016. In addition, a nationwide Carbon Dioxide (CO<sub>2</sub>) price mechanism, if enacted in the next decade, could further increase gas demand in electric generation, industries and transportation. Similarly, on the supply side, the cost of capital could increase, if there is a significant reduction in foreign investments in the producing sector, or decrease, in response to faster worldwide growth, for example. Market adjustments and policies are unlikely to stay "business-as-usual" as we come off an \$8.00 to \$4.00 gas-price environment. PG&E expects modeling such scenarios would expand the range for both the low and high price scenarios beyond what is currently forecast by the CEC, thus yielding a more robust view of future price and demand spreads. The EIA's soon-to-be-released 2013 Annual Energy Outlook would be a good reference source for constructing scenarios.

PG&E also recommends that the scenario names be revisited. In particular, naming scenarios "High Price (Low Demand)" and "Low Price (High Demand)" is confusing. Although the "High Price" scenario eventually leads to "Low Demand" in the long run, it starts with "High Demand" drivers such as high coal plant retirements, strong economic growth, and robust LNG exports, as the CEC described. Accordingly, while PG&E has no specific recommendations to offer, names that more clearly capture each scenario's parameters would be helpful.

PG&E also recommends providing pipeline flows and utilization rates in the model output, which would provide an indication of the robustness of pipeline infrastructure relative to growing domestic demand and exports. This information would be useful in discussions of long-term gas infrastructure needs.

### **III. CONCLUSION**

PG&E is committed to continuing to work with CEC Staff to understand elements of the demand forecast and is very appreciative of their willingness to share information and build understanding on the forecasting tools. The improvements captured in this forecasting cycle are

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<sup>1</sup> See page 92: [http://www.eia.gov/forecasts/archive/aeo12/pdf/0383\(2012\).pdf](http://www.eia.gov/forecasts/archive/aeo12/pdf/0383(2012).pdf)

<sup>2</sup> Energy Information Administration, 2012. U.S. Shale Proved Reserves, website: [http://www.eia.gov/dnav/ng/hist/res\\_epg0\\_r5301\\_nus\\_bcfa.htm](http://www.eia.gov/dnav/ng/hist/res_epg0_r5301_nus_bcfa.htm)

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positive ones, and we look forward to continued, incremental improvements in the forecasting process.

Sincerely,

/s/

Matthew Plummer

cc: C. Kavalec (Chris.Kavalec@energy.ca.gov)