

## DOCKETED

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**Southern California Gas Company Comments on 15-IEPR-10, June 24 Workshop**

1st of 3 files for CEC Consideration.

*Additional submitted attachment is included below.*



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**RE: Comments of Southern California Gas Company on the IEPR Commissioner Workshop on Preliminary Transportation Energy Demand Forecasts, Docket No. 15-IEPR-10**

Dear Commissioners:

The Southern California Gas Company (SoCalGas) appreciates the opportunity to comment on the Integrated Energy Policy Report (IEPR) Commissioner Workshop on Preliminary Transportation Energy Demand Forecasts, held on June 24, 2015. We offer the following feedback regarding 1) corrections to CEC data and preliminary projections 2) additional scenarios we request CEC conduct to inform the Revised Transportation Energy Demand Forecasts, as well as 3) a response to your question on recent proposals for heavy-duty vehicle Corporate Average Fuel Economy (CAFE) standards.

**1. Corrections to CEC Data and Projections**

CEC acknowledged that the revised transportation energy demand forecast will be updated with 2015 Energy Information Administration (EIA) data; however, we would like to make the following clarifications on staff's preliminary projections.

**A. NG Consumption in Vehicle Application from 6 Sources**

CEC's Figure 1 (below) provided by CEC staff, outlines the basis for staff's NG fuel consumption projection, with estimated fuel sales from 1998-2014. The range of estimates for 2014 was about 120-166 million GGE. *SoCalGas believes the value for utility data from the Utilities Gas Report estimates is low.* Based on the report data, the volume of fuel delivered to compressed natural gas (CNG) stations for SoCalGas, San Diego Gas and Electric (SDG&E), and Pacific Gas and Electric (PG&E) totaled 136 MM GGEs. The graph shows utility deliveries of about 120 MM GGEs to CNG stations, which is almost 12% lower than the reported values in the California Gas Report.

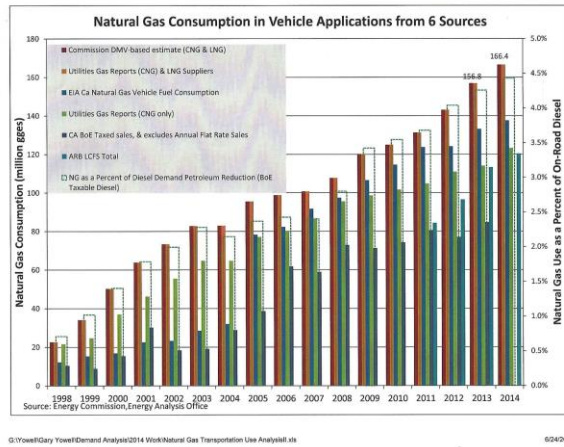


Figure 1. CEC analysis of NG consumption from vehicles in California

## B. Crude Oil and Transportation Fuel Price Cases

CEC presented preliminary cost cases for transportation petroleum, gasoline and E85, diesel and jet fuel, NG and electricity, and hydrogen fueling stations, but did not provide information on NG vehicle (NGV) fueling stations. *SoCalGas requests the CEC include and consider the following information for the revised forecast as well as conduct cost scenarios for NGV fueling stations.*

There are 1,500+ CNG refueling stations across the U.S., representing a 94% growth in the number of CNG stations since 2009.<sup>1</sup> Growth is also reflected in Southern California: currently there are 330+ stations with a throughput of approximately 136 million GGEs in 2014. SoCalGas and San Diego Gas and Electric (SDG&E) fuel throughput forecast from our current Triennial Cost Allocation Proceeding (TCAP) forecast is as follows:

- **Compressed:**  
SoCalGas: 2014 throughput increases from 232 Mdtherms to 324 Mdtherms in 2020.  
SDG&E: 2014 throughput increases from 65 Mdtherms to 91 Mdtherms in 2020.
- **Uncompressed:**  
SoCalGas: 2014 throughput increases from 9,681 Mdtherms to 13,555 Mdtherms in 2020.  
SDG&E: 2014 throughput increases from 472 Mdtherms to 662 Mdtherms in 2020.
- **Aggregated Transportation:**  
SoCalGas: 2014 throughput increases from 2,626 Mdtherms to 3,677 Mdtherms in 2020.  
SDG&E: 2014 throughput increases from 937 Mdtherms to 1,315 Mdtherms in 2020.

Based on staff's presentation, the CEC seems to be incorporating EIA projections into additional analysis, instead of using EIA projections directly. For example, in slide 4 (Figure 2, below), E85 information does not seem to be consistent with EIA 2015 Annual Energy Outlook projections. According to EIA projections, E85 is more expensive than gasoline, on an energy equivalent basis. The chart provides the comparison in "\$/gallon" but neglects the fact that E85 only has about ¾ of the energy per gallon as gasoline. *Hence, the conclusion that E85 is significantly cheaper than gasoline is misleading.* This is supported by market trends: even though there are millions of flex fuel vehicles, people are not buying E85 because the cost per GGE is equivalent or higher than gasoline. *We believe staff has underestimated the cost of E85.*

<sup>1</sup> 2015 American Gas Association

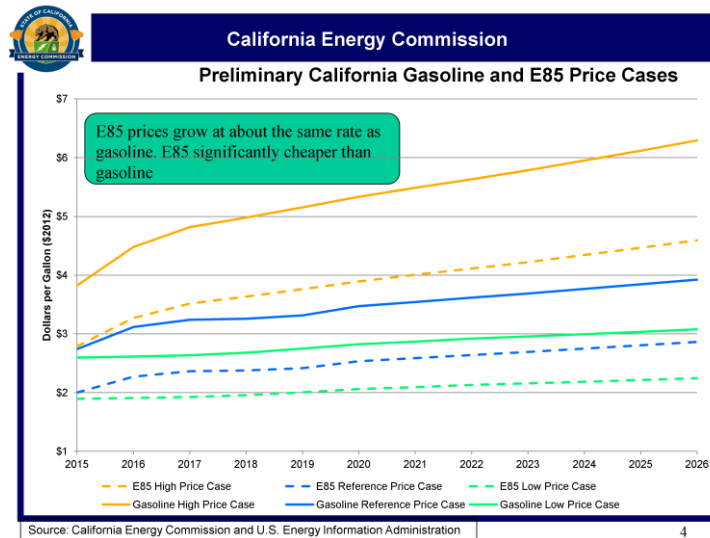


Figure 2. Preliminary California Gasoline and E85 Price Cases, slide 4

Also, in slide 6 (Figure 3, below), the NG price projections provided show NG remaining fairly steady over time. The shape of this curve is consistent with EIA data, but EIA's reference case prices NG for transportation at about \$2/GGE, whereas CEC prices CNG at \$2.5-\$3/GGE. Electricity prices also seem to be projected at a relatively high cost compared to EIA projections. *We believe staff has overestimated the cost of NG and electricity.*

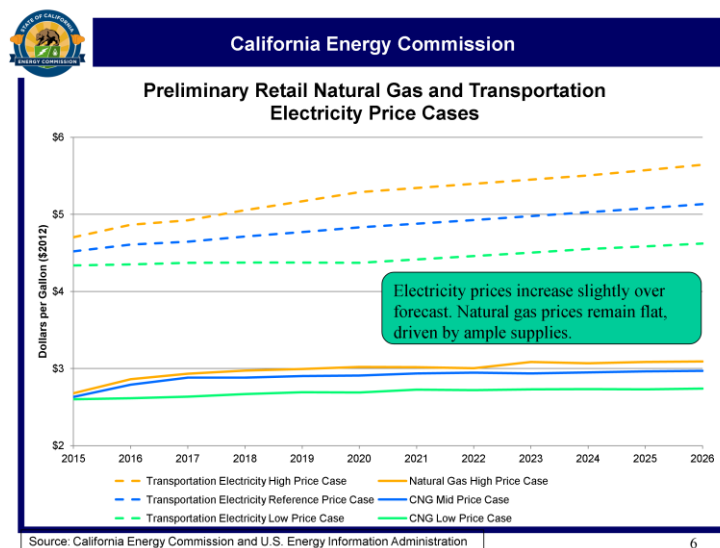


Figure 3. Preliminary Retail NG and Transportation Electricity Price Cases, slide 6

### C. Preliminary Medium and Heavy Duty Vehicle Forecast

In slide 14 (Figure 6, below), the projections do not align with EIA's AEO 2015 data. CEC's projections inaccurately show that the California-specific analysis has higher NG/diesel price ratios compared to the national analysis. For example, AEO 2015 national projections for diesel and NG in transportation represents NG as 86% of the cost of diesel in 2015 and declines to 64% by 2026. In contrast, CEC presents AEO 2015 data as roughly 92% in 2015, declining to 73% by 2026. Further, AEO 2015 predicts lower NG/diesel price ratios for the Pacific region than the national analysis.

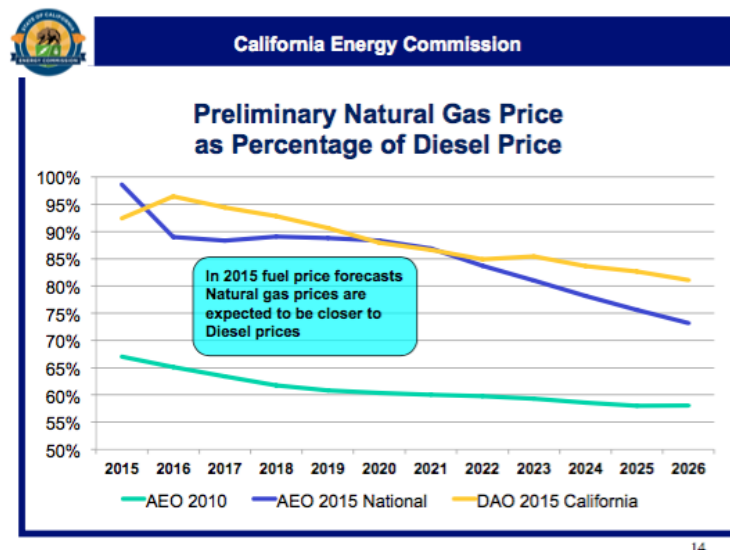


Figure 6: Preliminary NG Price as Percentage of Diesel Price, slide 14

We would also like to point CEC Commissioner and Staff to South Coast Air Quality Management District's (SCAQMD) Preliminary Draft of the 2016 Air Quality Management Plan (AQMP) White Paper on Goods Movement (Appendix A) which included a number of technology-related and vehicle deployment recommendations. *It recommends that in order to accelerate the deployment of zero- or near-zero emissions technologies, U.S. EPA and California Air Resources Board establish a new NOx emissions standard for on-road heavy-duty engines that is 90% cleaner than current on-road heavy-duty engine exhaust emissions standard as soon as possible.* To support this effort, the SCAQMD recommends the development of new certification test procedures for on-road heavy duty-trucks that take into account hybridization that provide for zero emission miles operation and initiate research and demonstration projects to develop new engines meeting the lower standards.

Furthermore, we recommend CEC staff review a study by ENVIRON International Corporation for SoCalGas (Appendix B) titled "Near-Zero Emission Natural Gas Truck Opportunities in the South Coast Air Basin" suggests that using in-state heavy-duty trucks with near-zero NOx emission NG trucks (also referred to as advanced NG trucks) in conjunction with a two-tier financial incentives program may have the potential to significantly reduce GHG emissions as compared to the current baseline of conventional diesel and gasoline in-state trucks. ENVIRON used the National Petroleum Council Future of Transportation Fuels model ("FTF Model") to identify how to accelerate the adoption of natural gas engine technologies capable of achieving NOx emission rates at a 0.02 g NOx/bhphr certification level.

The study examined two case scenarios—a "SoCalGasRef" scenario, a reference case that predicts the likely, natural adoption of NG as a fuel in this sector, and "SoCalGasHigh", a maximum case, which predicts the most aggressive adoption rate of NG technologies. The first tier of incentives<sup>2</sup> applied to both cases were designed to boost the adoption rate of conventional NG technologies and the second tier incentives<sup>3</sup> were designed to change the purchase of conventional NG technology truck to a NZE NG truck. For the SoCalGasHigh scenario, the findings of the study showed the potential for the use of NZE NG trucks to reduce GHG emissions to as low as a quarter of the baseline scenario, assuming that two-thirds of the NG used for truck fuel were generated from 100% renewable sources.

NG remains a fuel of choice in the heavy-duty sector and we believe our customers and our environment will benefit from vehicles that run on cleaner-burning NG.

<sup>2</sup> Tier 1 Incentives: \$25,000 for Class 8 Truck Tractors and Class 8 Drayage Trucks; \$15,000 for Class 4-8 Straight and Solid Waste Collection Trucks (\$7,500 in the high penetration rate case)

<sup>3</sup> Tier 2 Incentives: \$10,000 for Class 8 Tractors; \$8,000 for Class 4-8 Straight Trucks

## D. California Transportation Fuel Trends in Historical Demand

Staff presented a preliminary overview of California fuel (gasoline, diesel, renewables) infrastructure; regional fuel markets; long-term gasoline and diesel consumption; near-term gasoline, diesel, and renewable demand; as well as gasoline efficiency. *However, staff did not provide information on the historical or near- and long- term NG fuel demand. We request staff include this information and analysis in the revised forecast.*

*We also request CEC provide clarity on how the historical demand analysis is used to predict future demand. We do not believe historic trends are representative of future needs as multiple factors are contributing to a sea change in transportation fuels, which will be off the historical trend.*

### 2. Develop Forecast Scenarios for Renewable NG Fuel Demand for Medium- and Heavy-duty NGV Sectors

Renewable NG is a low-cost option for zero-carbon transportation fuel and the sector will potentially consume the majority of renewable NG produced.<sup>4</sup> *To capture and plan for this, we request staff conduct forecasting scenarios for renewable NG fuel demand for the medium- and heavy-duty NGV sector.*

In order to meet increasing GHG reductions targets, California has the opportunity to use renewable NG, or biogas, as a transportation fuel. Biogas, is a mixture of methane and carbon dioxide produced when organic material decomposes. This renewable energy resource can be used as a transport fuel, for on-site heat and electricity, or conditioned for injection into the NG delivery infrastructure. Biogas is considered a renewable resource because as much carbon dioxide is absorbed from the atmosphere in the growth of the primary bio-resource as is released when the material is ultimately converted to energy. When carbon dioxide and other minor constituents are removed, the product is a purified pipeline quality NG that is almost 100 percent methane. This biomethane is interchangeable with any other NG, but is a zero-carbon resource. Coupling this zero-carbon profile with the ultra-low “conventional” emissions of NG makes renewable NG a nearly perfect fuel. It is storable, boasts a high energy density that is almost emission-free and is easily transported over existing infrastructure to serve any NG application.

Renewable NG can be sourced from organic waste from landfills, wastewater treatment facilities, dairies and farms, making NG even cleaner. Instead of landfilling or burning waste, California could use it to replace 75% of diesel used by vehicles.<sup>5</sup> In fact, biogas produced from green waste has a negative carbon intensity value, allowing businesses to generate Low Carbon Fuel Standard (LCFS) carbon credits and sell them as an additional source of revenue.

Studies say organic waste alone could supply 15% to 20% of our current NG demand if converted to methane. And with purpose-grown crops, studies say we can produce an additional 20% of our gas from this renewable source. That means up to 40% of our NG supply could come from renewable resources.

The following is a summary of SoCalGas’ effort to realize and advance the opportunity for renewable NG.

- Since 2006, SoCalGas has actively implemented a research, development and demonstration program and also fostered commercial programs to increase the use of renewable NG. Early work focused on studying feedstocks and setting guidelines for purifying biogas to pipeline quality.
- Looking ahead, SoCalGas is working to develop algae as an energy crop and exploring the use of solar thermochemical processes to create renewable NG. During 2011 and 2012, SoCalGas conducted a full-scale commercial demonstration of biogas cleanup technology at a wastewater treatment facility in Escondido, Calif.

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<sup>5</sup> Bioenergy Association of California. “Decarbonizing the Gas Sector: Why California Needs a Renewable Gas Standard,” November 2014. <<http://americanbiogascouncil.org/pdf/BAC%20Report%20on%20Renewable%20Gas%20Standard.pdf>>

- SoCalGas is also active in aiding regulatory and policy efforts to advance biogas. We recently worked with other stakeholders in a California Public Utilities Commission proceeding to develop statewide standards and protocols for the cleanup of biogas so it can be injected into a common carrier pipeline. To help stimulate the development of a robust renewable NG, we have an optional utility tariff that can provide gas cleanup services to biogas producers.
- Today, renewable NG can be produced from larger biogas sources such as wastewater facilities and landfills at prices competitive with other renewable resources. Advances in gas cleanup and conversion technology such as digesters and gasifiers will expand the amount of feedstock that can be economically converted.
- Ultimately, technology and market advances will help determine the future of renewable NG, but its success also depends on a level playing field in energy policy. For the United States to fully realize the economic and environmental potential of renewable gas, it is imperative that public policymakers recognize the benefits of renewable NG.

### 3. Have there been recent proposals for heavy-duty vehicle and aircraft Corporate Average Fuel Economy (CAFE) standards?

During the workshop, you asked if there had been any recent proposals for heavy-duty vehicle CAFE standards. In response, yes, the EPA and National Highway Traffic Safety Administration (NHTSA) released [Phase 2: Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles \(Proposed Rule\)](#) in June this year.<sup>6</sup> Key points from Phase 2 are summarized below:

- Phase 2 builds on Phase 1<sup>7</sup> by creating performance-based standards based on robust technical data and extensive stakeholder outreach.
- Aims to benefit businesses and consumers by saving the industry billions of dollars' worth of fuel, reducing costs for transporting goods, while reducing GHG emissions by 1 billion metric tons and conserving 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program.
- Under proposed standards, the fuel consumption of tractor trailers alone could drop as much as 24%.
- Begin in the model year 2021-2027, and like Phase 1, apply to a wide range of on-road vehicles, from the largest pickup trucks and vans to semi-trucks and for the first time, also trailers.
- EPA, NHTSA, and CARB have all worked closely in developing these standards with the final goal of a single national program that allows manufacturers to continue to build a single fleet of vehicles and engines.
- Phase 2 would save operators money by reducing payback periods: the buyer of a new long-haul truck in 2027 would recoup the extra cost of the technology in less than 2 years through fuel savings, and would save vehicle owners about \$170 billion in fuel costs over the lifetime of the vehicles sold in the regulatory timeframe.
- The agencies estimate that the proposed standards would result in approximately \$230 billion in net benefits over the lifetime of the vehicles sold in the regulatory timeframe, while costing the industry less than one-tenth that amount (~\$25 billion over the same period).

SoCalGas appreciates the opportunity to provide comments on the IEPR Commissioner Workshop on Preliminary Transportation Energy Demand Forecasts. Please do not hesitate to reach out for more information.

Respectfully submitted,

*Tamara Raspberry /s/*

<sup>6</sup> Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2. EPA. June 19, 2015: <<http://www.epa.gov/otaq/climate/documents/hd-ghg-fr-notice.pdf>>

<sup>7</sup> Phase 1: Model year 2014-2018 heavy-duty vehicle GHG and fuel efficiency standards. These standards have been a success, cutting carbon emissions and reducing petroleum use through the use of off-the-shelf technologies. Responding to President Obama's Climate Action Plan, the proposed Phase 2 goes beyond Phase 1, setting performance-based standards that will continue into the next decade. The proposed standards would be met through wider deployment of existing and advanced technologies.