



Eugene "Mitch" Mitchell  
Vice President  
State Governmental Affairs

925 L Street, Suite 650  
Sacramento, CA 95814

(916) 492-4245  
emitchell@semprautilities.com

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California Energy Commission  
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Re: Docket No. 11-IEP-1K  
1516 Ninth Street  
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California Energy Commission <b>DOCKETED</b> <b>13-IEP-1K</b> TN 71778 JUL 31 2013
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**RE: Docket No. 13-IEP-1K Comments of Southern California Gas on the 2013 IEPR  
Workshop on Natural Gas Issues, Trends, and Forecast Scenarios**

SoCalGas appreciates the opportunity to comment on the natural gas supply and demand workshop held by the California Energy Commission (CEC) on July 17, 2013. Although the IEPR's primary focus is on factors impacting electricity supply and demand, it is valuable for the CEC to examine the factors impacting supply and demand of all energy resources. Given the current uncertainties in the economy and the energy and environmental policies, CEC's gas marketplace scenario development is a good approach in assessing the possible range of natural gas prices, demand, and supplies over the IEPR forecast period. SoCalGas believes that natural gas is an important energy resource for California because it provides a low cost, efficient, and reliable source of clean energy. Natural gas use will continue to be a preference for businesses and consumers as future natural gas prices are expected to stay reasonably low with widespread supply availability. Therefore, it is critical that California evaluate the many drivers that can impact supply availability and demand for natural gas in California.

**Role of natural gas today**

Natural gas is an important energy resource for California – providing low cost, efficient, reliable and clean energy. For years, natural gas has played a significant role in homes, businesses, large industries and power generation. Over 90% of homes in Southern California use natural gas for water and space heating. Hundreds of thousands of businesses trust natural gas to keep their operating costs low and to improve their competitiveness. A wide range of industries rely on natural gas for boilers and process heat. Natural gas generation continues to be the largest resource in California's power mix<sup>1</sup>, and, in recent years, we have seen a growing interest in natural gas vehicles.

With the recent technological advances in natural gas production, the outlook for natural gas supply availability and continued low prices is very good. This boom in a low cost, clean, domestic energy source provides an opportunity for greater energy independence for our nation.

Additionally, with recent technological advances in natural gas utilization, new technologies such as micro turbines and fuel cells will help provide diversity and increase opportunities for distributed generation. For these reasons, natural gas will remain a foundational fuel for California, far beyond 2020, especially as the state reaches and attempts to exceed its 33% Renewable Portfolio Standard (RPS) goal.

**Role of natural gas in reducing emissions**

The natural gas sector has worked with California's air and energy agencies for many years to address concerns about emissions and air quality. As a result, California has led the way in developing cleaner, more efficient natural gas equipment. Due to energy efficiency programs and standards, the greenhouse gas (GHG) emissions from the

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<sup>1</sup> In 2011, 45.3% of in-state generation and 35.6% of California's total power mix was fueled by natural gas. source: CEC Total System Power [http://energyalmanac.ca.gov/electricity/total\\_system\\_power.html](http://energyalmanac.ca.gov/electricity/total_system_power.html)

natural gas sector (i.e., residential, commercial and small industrial customers) are already 8% below 1990 levels.<sup>2</sup> Furthermore, the oxides of nitrogen (NOx) emissions from natural gas equipment have been reduced by 90% over the past 20 years.<sup>3</sup> Meeting these important targets has been a good first step. However, California continues to face significant challenges to reduce both GHG and NOx emissions and natural gas will continue to play a role in reducing emissions across all sectors of our economy – residential, commercial, industrial, power generation and transportation.

SoCalGas continues to work with manufacturers to identify opportunities for improving natural gas equipment efficiency and reducing emissions. We have also been working with the air agencies to explore opportunities for natural gas vehicles to reduce NOx and GHG emissions.

Natural gas, when combined with these new equipment technologies and with biogas, provides the opportunity to achieve zero- and near-zero emissions for a broad range of energy applications.

### **Role of Natural Gas in Power Generation**

California has long recognized the importance of fuel diversity in the power generation sector. Natural gas has been an important contributor to this fuel diversity. In the future, natural gas will continue to be needed as electric demand grows in California – not just for baseload electric generation, but for peaking, and leveling of intermittent renewable resources. Natural gas generation in a variety of forms will be essential to integrate renewables into the grid and manage the stability of the grid, especially locally.

Closure of the San Onofre Nuclear Generating Station (SONGS) and lack of nuclear appetite in California will necessitate a variety of new generation resources. With the permanent shutdown of SONGS, the state has experienced a loss of over 2000 MW of GHG-free electric generation with an average capacity factor of 90%. Ensuring that California maintains reliability of its energy supply will require a mix of natural gas generation as well as distributed generation resources as part of the energy portfolio.

We see a mix of distributed generation resources, including renewables and natural gas, helping us manage our load centers, and our electricity demand. And, since we don't see the breakthroughs needed in large scale battery storage at this time, natural gas will continue to play an important role in electric generation. With new carbon capture and carbon use technologies already moving into commercial deployment, natural gas generation will continue to play a significant role in California's power mix.

The State's air, energy and utility regulatory agencies have all articulated support for the growth of distributed generation. SoCalGas supports growth in distributed generation as an integral natural gas pathway for the utilization of natural gas technologies which are critical to the state's clean energy future.

A recent study conducted by ICF International found that:

Combined heat and power (CHP) has been identified as an efficient, clean, and beneficial means of meeting electricity demand in California by the governor's office, the legislature, the Public Utilities Commission, the Air Resources Board, and the Energy Commission. CHP is defined as energy efficiency by the Department of Energy, the Environmental Protection Agency, the California Air Resources Board, and the California Energy Commission. As such, CHP is part of the preferred loading order for new power supplies in the state that also includes energy efficiency, demand response, and renewable energy<sup>4</sup>.

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<sup>2</sup> The objective of AB32 is to reduce GHG emissions to 1990 levels by 2020. The natural gas sector has already achieved this goal.

<sup>3</sup> NOx emissions are a precursor to ozone formation. Under the federal Clean Air Act, the South Coast Air Quality Management District is a severe non-attainment zone for ozone and must take actions to reduce emissions.

<sup>4</sup> Effect of Departing Load Charges on CHP, ICF International, May 2013.

The study shows that added CHP market penetration would:

- Significantly increase energy savings through CHP efficiency;
- Add significant new investment, stimulating the state's economy;
- Create significant customer savings in energy costs providing funds to be economically re-deployed towards new investment, higher business income or growth and more jobs and economic development;
- Lead to additional CO2 emission reductions; and
- Improve electric utility operations impacts, including:
  - ✓ Decreased congestion and increased system reliability
  - ✓ Greater resource adequacy
  - ✓ Improved stability and power quality
  - ✓ Transmission and Distribution(T&D) and capacity investment deferrals
  - ✓ Reduced electricity supply costs resulting from decreased demand

As we continue to see greater efficiencies in electric generation from natural gas technologies, both central plant and distributed generation resources, we may see a flat or declining demand for natural gas in the power sector. However, for the reasons noted earlier, we see natural gas as playing a critical role in maintaining an efficient, flexible power grid in California.

### **Role of Natural Gas in Transportation Sector**

Natural gas is gaining momentum in the transportation sector, especially in fleet and heavy duty applications. The move to natural gas vehicles (NGV) has been driven primarily by the low fuel price. However, there are significant emissions reductions that can be achieved through the conversion to natural gas, as well.

Over the past decade, California has pursued a variety of alternative fuel vehicle initiatives. One of the most effective has been the conversion of heavy duty public transit buses from diesel to cleaner alternatives. In Southern California, the majority of large transit bus fleets have converted most or all of their fleets to natural gas. They have seen significant particulate matter, NOx and GHG reductions, as well as considerable fuel price savings in recent years.

With the success of transit bus fleets and the continued low natural gas prices, we are seeing greater interest in other heavy duty and medium duty applications. Heavy-duty diesel trucks are a large contributor to GHG emissions. But, they are an even more significant contributor to NOx emissions in Southern California. Therefore, air quality regulators are keenly focused on the heavy-duty vehicle sector to achieve large NOx and GHG reductions.

Much of California's focus for long-term energy policy in the transportation sector has been on fuel cell and battery electric vehicles. These technologies have been identified as critical to meet California's 2050 goal to reduce GHG emissions to 80% below 1990 levels. While the state is making good progress, particularly with light- and medium-duty vehicles, we continue to have significant technological challenges for heavy-duty vehicles.

Last year, CARB developed a Vision document that laid out a comprehensive approach to achieving all of the state's air quality goals. However, a successful path to the state's 2050 GHG goals based on fuel cell and electric vehicles would miss the more immediate targets of the two extreme ozone non-attainment areas. The South Coast and San Joaquin air basins need to reduce NOx emissions by 70% or more in the next 10-15 years to meet the ozone standards established by the US EPA. We cannot just wait for technologies to develop in the future. We must move to cleaner technologies in the near term to meet these targets.

SoCalGas has been meeting with the air quality agencies to identify opportunities, particularly in the heavy-duty transportation sector, to expand the use of natural gas. The focus of our discussions has been on the technology pathways for heavy-duty natural gas vehicles that will meet near-term ozone standards and progress towards reduced

GHG emissions in the long-term. In addition to technological improvements in NGV, a critical part of these pathways will be the development of more renewable natural gas, or biomethane, for use by the transportation sector.

The use of heavy-duty engines powered by natural gas offers a unique and viable strategy to meet California's aggressive reduction goals for NOx and GHG emissions. It also supports a variety of other state and national goals, such as reducing the public's exposure to toxic diesel exhaust and reducing the nation's dependence on foreign energy sources.

### **Role of natural gas in the future**

Nationally, there has been considerable focus on the role of natural gas to reduce emissions and provide greater energy independence. As President Barack Obama noted, "We have a supply of natural gas that can last America nearly one hundred years...we don't have to choose between our environment and our economy."<sup>5</sup>

California has been a leader in establishing policies to encourage cleaner technologies. The drive to reduce both NOx and GHG emissions, and improve overall energy efficiency, is already re-shaping our technology and use. We see this, as natural gas moves into the transportation market – and not just for trucks and buses, but for rail and for port operations, some of the biggest sources of our air emissions.

We see continued use of natural gas in low emission and highly efficient residential, commercial and industrial end uses, we also see new end use technologies that help customers meet energy needs in different ways, like combined heat and power, micro turbines and fuel cells, all providing energy needs more efficiently than today, and all relying upon natural gas over the long term. We see flexible and appropriately scaled highly efficient gas technology balancing the intermittency of renewables, helping to integrate them into the grid, and grow our renewable portfolio over the long term.

Natural gas use will continue to be a preference for businesses and consumers as future natural gas prices are expected to stay reasonably low with widespread supply availability. Therefore, it is critical that California evaluate the many drivers that can impact supply availability and demand for natural gas in California.

In the following pages, SoCalGas will address some of the issues raised by CEC during the July 17th workshop.

### **Biogas**

As part of its commitment to AB32, and to reducing the carbon footprint of gas utilization, SoCalGas strongly supports completing the processes that will enable biomethane to be safely delivered to customers through the SoCalGas system. Biogas can complement the move to many of the near-zero and zero transportation and stationary end uses described above. And it can be a complement to the state's effort to reach its RPS goals.

SoCalGas supports the long-term objective of creating a robust bioenergy market in California. Importantly, these objectives must be accomplished in a way that supports the safe and reliable operation of California's pipeline systems, and protects the health and safety of end users and utility employees. In order to achieve this there must be ongoing efforts to gather data and assess benefits and risks.

With the recent signing of AB1900, AB2196, and SB1122, the bioenergy industry has gained some long needed momentum and it appears legislation will be in place to move the biogas industry forward from a policy perspective. SoCalGas recognizes that renewable natural gas can play an important role in California's gas supply portfolio, primarily when used for electric generation and transportation. For example, when renewable natural gas injected into the pipeline network is consumed by a RPS certified generation facility, the power produced is considered RPS-

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<sup>5</sup> Remarks by the President in State of the Union Address (January 24, 2012).

eligible and can be counted towards a utility's RPS goal.<sup>6</sup> A secondary benefit of renewable natural gas, unlike many other renewable technologies (such as wind and solar), is it is dispatchable and does not require construction of new electric transmission lines. Additionally, when renewable natural gas is used as a transportation fuel in natural gas vehicles, the emissions are extremely low because the carbon intensity of renewable natural gas is approximately 14% of gasoline (based on dairy digester biogas).<sup>7</sup> The use of renewable natural gas will not only help provide a more diverse gas supply portfolio, but assist California in meeting its AB32 goals.

Accordingly, SoCalGas developed the Biomethane Guidance Document to provide a process for non-landfill biomethane to interconnect to our system.<sup>8</sup> The industry gained additional confidence in biogas conditioning/upgrading technology when two projects in SoCalGas/SDG&E's service territory showed that biogas can be upgraded to meet pipeline quality specifications.

Furthermore, SoCalGas filed an application on April 25, 2012 with the California Public Utilities Commission (CPUC) proposing to offer a Biogas Conditioning/Upgrading Services Tariff (A.12-04-024). The proposed tariff provides an option not otherwise available to biogas producers, allowing tariff customers to utilize bioenergy without the need to directly procure or provide for the associated capital investment, facility development, or the costs and responsibilities for operation and maintenance of these facilities. Further supportive of state law and policy objectives identified in AB1900, AB2196, and SB1122, the proposed tariff provides biogas producers with a solution allowing them to upgrade their biogas to the level(s) specified by the tariff service customer and use it for beneficial purposes such as pipeline injection, onsite generation or compressed natural gas vehicle refueling.

In February of this year, pursuant to AB1900, the CPUC issued an Order Implementing Rulemaking (OIR) to adopt standards and requirements, open access rules, and related enforcement provisions governing the interconnection of biomethane, including biomethane produced at non-hazardous waste landfills, to utility pipelines (R.13-02-008). SoCalGas is proactively working with the CPUC in the OIR to achieve the safe introduction of biomethane into our pipeline system. Relatedly, SoCalGas has been working with the CEC who, pursuant to AB 1900, has been tasked with addressing biomethane producer impediments to interconnecting to utility pipelines (Docket No. 13-IEP-M).

### **Combined Heat & Power**

Combined heat and power (CHP) continues to be supported in both state law and Commission policy as an environmentally beneficial technology. The policy foundations supporting expanded adoption of CHP are contained in the AB32 Scoping Plan and subsequent rulemaking on Combined Heat and Power initiated by the Commission (OIR 08-06-024) on the Commission's Own Motion Pursuant to Assembly Bill 1613. Increasing the deployment of efficient CHP will require a multi-pronged approach that includes addressing significant barriers and instituting incentives or mandates where appropriate.<sup>9</sup> The Scoping Plan set a target for new CHP installations totaling 4,000 MW statewide by 2020.

In general, SoCalGas' gas distribution system is adequately sized for increased adoption of CHP. Currently, the annual adoption rate for new CHP capacity in California is fairly low. It is possible that system upgrades may be necessary in certain pressure districts for new CHP customers mostly as normal course of business. If the adoption rate of CHP increases in order to meet state policy goals then SoCalGas can expect some minor system upgrades.

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<sup>6</sup> CEC RPS GUIDE: <http://www.energy.ca.gov/2013publications/CEC-300-2013-005/CEC-300-2013-005-ED7-CMF.pdf>

<sup>7</sup> Carbon Intensity Lookup Table for Gasoline and Fuels that Substitute for Gasoline:  
[http://www.arb.ca.gov/fuels/lcfs/lu\\_tables\\_11282012.pdf](http://www.arb.ca.gov/fuels/lcfs/lu_tables_11282012.pdf)

<sup>8</sup> Until the passage of AB1900, the California utilities were statutorily prevented from accepting landfill biomethane.

<sup>9</sup> California Air Resources Board, "Climate Change Scoping Plan" December 2008  
([http://www.arb.ca.gov/cc/scopingplan/document/adopted\\_scoping\\_plan.pdf](http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf)) p.44

**San Onofre Nuclear Generating Station (SONGS) Retirement**

SONGS has been an important generating resource in southern California. The loss of SONGS has a significant impact on the operation of electric resources. However, the effect has been reduced due to the additions of new/combined cycle power plants, new peaking power plants, more renewable resources, electric transmission line upgrades, and the Sunrise Powerlink. The gas demand forecast showed that the loss of SONGS has more impact on the peak-day demand than on the annual throughput. Most of the SONGS replacement energy came from energy import and off system generation. About 20% of energy is replaced by local generation. However, it is important to note that the 20% local generation occurs during few critical peak hours. Therefore, it is important to have sufficient

local generating plants to meet the electric demand during those limited hours. It is equally important to have the gas infrastructure to meet the gas demand of these flexible generating plants.

**The Role of Natural Gas Storage on Gas and Electric System Integration**

Natural gas storage on the SoCalGas system is located inside load centers and it is able to supply large gas and electric loads which are far from system supply points. They allow SoCalGas to meet large instantaneous demand when large power plants and peakers come on quickly. Since deregulation, customers control two thirds of supply into the system and demand is forecasted. The system must be balanced daily and natural gas storage is the only control that gas system controllers have to balance the system.

A gas system is operated by managing the rate of pack (i.e., gas volumes rising in the pipeline system) or rate of draft (i.e., gas volume declining in the pipeline system). In addition, storage withdrawal or injection is used on an hourly basis to control the rate of pack (storage injection) or rate of draft (storage withdrawal) within the pipeline system. Natural Gas Storage withdrawal also provides redundancy of supply in cases of low supplies. For example, sometimes during cold spells in supply basins, wells freeze off, decreasing supplies. Other times supplies are sold off to upstream customers for higher prices and supplies do not reach our delivery points. Finally storage inventory provides customers with the ability to hedge supply prices when natural gas prices are high (typically in winter) allowing them to purchase supplies when prices are low (typically in spring and fall).

Continued effective management of natural gas storage will be critical to support new gas demand related to the replacement of displaced SONGS electric power, as well as the incremental addition of distributed power and peaking requirements to address increased renewable additions to the grid.

**SoCalGas' Southern System**

SoCalGas owns and operate an integrated gas transmission system consisting of pipeline and storage facilities. With their network of transmission pipelines and four interconnected storage fields, SoCalGas delivers natural gas to over five million residential and business customers. The transmission system extends from the Colorado River on the eastern end of SoCalGas' approximately 20,000 square mile service territory, to the Pacific Coast on the western end; from Tulare County in the north, to the U.S./Mexico border in the south (excluding parts of San Diego County). The SoCalGas transmission system is split between a northern and southern system.

Unlike other parts of SoCalGas' system, the Southern Transmission System requires minimum flow volumes at the Blythe and/or Otay Mesa receipt points to maintain service to its customers in the Imperial Valley and San Diego load centers and other communities in San Bernardino and Riverside Counties. In order to maintain service to customers on the Southern Transmission System, supplies must be delivered from El Paso or North Baja at the Blythe receipt point, and/or from TGN at the Otay Mesa receipt point.

In order to more fully integrate the SoCalGas Northern and Southern Transmission Zones and mitigate the need for flowing gas supply requirements on the Southern System, SoCalGas is considering options to construct a pipeline

between its two systems. With this additional pipeline, SoCalGas would be able to operate without any supply delivered at Ehrenberg or Otay Mesa. The fully-loaded cost of a north-south system interconnect is significant, however, and is currently estimated to take approximately five years to complete. SoCalGas is not making such a proposal at the present time, but is considering doing so in the future. Pursuant to a settlement agreement with parties in SoCalGas' Triennial Cost Allocation Proceeding, the utility will file a separate application with the CPUC to further address its Southern System needs to continue to meet the reliability needs of our customers.

### **Natural Gas Market Assessment forecast**

Given the current uncertainties in the economy, energy and environmental policies, natural resource availability, and the continually evolving restructuring of the gas and electric markets, gas marketplace scenario development is a good approach in assessing the possible range of natural gas prices, demand and supplies over the IEPR forecast period. Scenarios using various supply and demand conditions are appropriate planning tools to assure that California promotes the appropriate mix of electric and gas infrastructure investments. In general, SoCalGas believes that the Natural Gas Market Assessment forecast scenarios, reflecting alternative gas prices, supply and demand, are well thought out and comprehensive in their scope.

It is important to develop a scenario that reflects what is to be the Base or Expected Case. During the workshop, one of the CEC analysts stated that the CEC Reference Case is not the Expected Case. The California utilities develop an Expected Case as part of the Biennial California Gas Report (CGR). The development of an Expected Case by the CEC will facilitate comparison with the California Gas Report Expected Case.

We believe that the CEC model uses price elasticities for natural gas that are too high for California because fuel switching in most of California air basins is not allowed due to air quality emission policies. SCG's studies show that elasticities in our service territory that are much lower than the -0.530 to -1.236 range shown in the CEC model. SCG studies show long-term price elasticities in the range of -0.275 (residential sector) to -0.487 (nonresidential). In the short-term, gas demand is very price inelastic, in the -0.099 (residential) to -0.107 range (nonresidential). SoCalGas requires that the CEC review its price elasticity estimates.

Yours sincerely,

A handwritten signature in black ink that reads "Mitch Mitchell". The signature is written in a cursive, flowing style.