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California Energy Commission
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California Energy Commission

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**RE: Docket # 13-IEP-1A- Lead Commissioner's Draft Report –
2013 Integrated Energy Policy Report (IEPR)**

Dear Commissioners:

The 2013 Draft Integrated Energy Policy Report (IEPR) represents a substantial effort on the part of the California Energy Commission (CEC), its staff, and the numerous parties that participated in the various workshops. Southern California Gas Company (SoCalGas) commends the extensive efforts of the Commission and its staff and offers comments on specific chapters in order to stress the importance of the IEPR addressing the topics detailed below:

Chapter 1 Energy Efficiency and Zero Net Energy definition

Energy Efficiency and Natural Gas

For over 30 years, efficiency improvements in natural gas equipment driven by state codes, utility programs and new technology development have played a significant role in reducing per capita natural gas use in California. These reductions have been achieved while penetration rates for natural gas equipment have remained high¹. Similar to the achievements noted in the IEPR for the electric side, the efficiency gains in California have resulted in significantly lower per capita natural gas use than the US average.

Natural Gas in New Construction with Time Dependent Valuation (TDV)

Natural gas has been a preferred appliance choice for home builders for many years due to both the lower cost and overall efficiency of natural gas equipment. The ratio of natural gas to electric rates is approximately a 4-to-1 ratio favoring natural gas in California. Therefore, the Reference (base case) House in Title 24/Part 6 requires residential water heating and space heating where natural gas is available. Builders that do not use natural gas are required to make expensive Trade-offs for items such as heat pump water heaters (roughly double the first cost of natural gas and more expensive to operate), fewer and more expensive windows and other shell measures such as 2x6 wall framing vs. 2x4 walls.

¹ In Southern California, over 90% of single family homes use natural gas for space and water heating.

Natural gas space and water heating equipment have substantially higher efficiency ratings than comparable electric equipment. Therefore, the continued use of natural gas in the home means lower overall energy consumption and greater efficiency in the home.

Zero Net Energy Definition:

In collaboration with the California Public Utilities Commission (CPUC) staff, the CEC has proposed the following definition for Zero Net Energy (ZNE):

*“A Zero Net Energy (ZNE) Code Building is one where the societal value of the amount of energy provided by on-site renewable energy sources is equal to the value of the energy consumed by the building at the level of a single “project” seeking development entitlements and building code permits, measured using the California Energy Commission’s Time Dependent Valuation (TDV) metric. A ZNE Code Building meets Energy Use Intensity (EUIs) by building type and climate zone that reflect best practices for highly efficient buildings.**

SoCalGas appreciates the inclusion, and importance, of the Time Dependent Valuation metric, but remains concerned the ZNE definition still is too limited and may result in missed opportunities for lower cost alternatives to meet the state’s energy efficiency objectives.

Assembly Bill 1257, which was signed by the Governor in early October, requires the CEC to look at the role of natural gas in California’s energy planning and policy. It **specifically requires evaluation of natural gas in the definition of zero net energy**. The intent of the legislature is to maximize the economic and environmental benefits of natural gas. It is premature to adopt a ZNE definition that would preclude opportunities for natural gas distributed generation on an individual building or community/micro-grid level.

Furthermore, SoCalGas believes achieving ZNE across the building stock will require looking beyond individual buildings and considering net-zero at a community scale. The IEPR notes it may not be feasible to achieve ZNE in every building and allows for the possibility of specific exemptions in the building code. However, this preference for on-site renewable generation may miss opportunities for more economic community-based solutions.

Multi-building systems offer opportunities for lower energy use through heat sharing and load diversity. Drawing a larger perimeter around multiple buildings and adjacent open space allows us to consider “nearby” distributed generation thus keeping buildings and urban densities in the ZNE mix. A broader, community-based option will facilitate the development of micro-grids as an economic option to meet ZNE. Community-based ZNE options will also allow local community leaders and organizations to collaborate on achieving ZNE as part of their Sustainable Communities planning.

The proposed ZNE definition focuses exclusively on on-site renewable generation technologies, which would most often be rooftop solar PV. However, SoCalGas believes CEC should also consider other distributed generation options, including fuel cells and combined heat and power (CHP) technologies.

Federal and state policies² support the deployment of CHP technologies to increase efficiency, reduce GHG emissions and provide clean technology jobs. CEC should evaluate how micro-turbines, fuel cells and other CHP technologies would be valued in the calculation of zero net energy. The use of the waste heat for water and space heating and/or space cooling (in conjunction with absorption chillers) can significantly increase the energy efficiency of a building. Furthermore, CHP technologies have substantially greater availability³ than solar PV and will result in a lower cost for grid integration. CHP technologies are particularly promising in multi-use developments, multi-family buildings and micro-grid applications where load diversity provides greater opportunity to utilize the waste heat. CEC should also evaluate how directed biogas delivered through the utility system could be an alternative source of renewable distributed generation.

Establishing a definition with limited options for builders could stifle innovation and ignore more cost effective solutions to best meet California's objectives to achieve cost-effective energy efficiency reductions and reduce peak electric demand. Therefore, SoCalGas supports a more flexible definition of ZNE that will give builders options for the type and scale of distributed generation they can design for homes in 2020.

SoCalGas has appreciated the opportunity to participate in the Joint IOU/CEC/CPUC working group on ZNE. We look forward to continued discussions on the ZNE definition and development of the appropriate TDV metrics to implement the definition.

Chapter 3 Bioenergy

SoCalGas supports the CEC's long term objective of creating a competitive and robust bioenergy market in California. 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 and assist California in meeting its air quality and environmental goals.

Accordingly, SoCalGas has worked to better enable biomethane (excluding from landfills) to interconnect to our system⁴. For example, 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 allows tariff customers to condition/upgrade their biogas without the need to directly procure or provide for the associated capital investment, facility development, or the costs and

² The 2010 CPUC CHP "Settlement Agreement" required California's three largest investor owned electric utilities to procure a minimum of 3,000 MW of CHP capacity until 2015. The CARB 2008 AB32 Climate Change Scoping Plan targeted CHP for an additional 4,000 MW of capacity by 2020. The Governor's Clean Energy Jobs Plan called for 6,500 MW of new capacity by 2030.

³ CHP availability is typically 92% to 98%.

⁴ SoCalGas Rule No. 30 provides the general terms and conditions applicable whenever the Utility transports customer-owned gas over its system. Per Rule No. 30, Section I.3.o, gas from landfills will not be accepted or transported.

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.

SoCalGas looks forward to working with the CEC staff in order to help identify opportunities such as incentives for biomethane production facilities to help overcome impediments to the development and growth of the bioenergy market in California.

Long term Role of Natural gas:

AB1257 was recently signed by Governor Brown. This bill requires CEC to issue a report on natural gas in conjunction with the IEPR. Beginning in November 2015, and every four years thereafter, the CEC shall identify strategies to maximize the benefits obtained from natural gas as an energy source, helping the state realize the environmental and cost benefits afforded by natural gas. As part of this report, the commission, at a minimum, shall identify strategies and options for each of the following:

- Taking the best advantage of natural gas as a low-emission resource, including potential **zero and near-zero** greenhouse gas emissions, and **biogas options**.
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- Making the best use of natural gas as a **transportation fuel**, including for **freight, vessels, mass transit**, and other commercial and passenger vehicle use; and identifying methods to develop natural gas **refueling infrastructure**.
- Determining the role of natural **gas-fired generation** as part of a resource portfolio, **including combined heat and power**.
- Optimizing the role of natural gas **as an end use energy source, including the efficient use of natural gas for heating, water heating, cooling, cooking, engine operations**, and other end uses, and the **optimization of appliances** for these uses.
- Determining the role that natural gas can play in the development of **zero net energy** buildings
- Determining needed long-term policy to **ensure adequate infrastructure and storage** and developing strategies for pursuing additional infrastructure and storage.
- Evaluating the incremental cost and environmental impacts of proposed strategies, including **life-cycle greenhouse gas emissions** from production, transportation, and use of natural gas.

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 mix⁵, 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 natural gas sector (i.e., residential, commercial and small industrial customers) are already 8% below 1990 levels⁶. Furthermore, the oxides of nitrogen (NOx) emissions from natural gas equipment have been reduced by 90% over the past 20 years⁷. 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,

⁵ 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

⁶ The objective of AB32 is to reduce GHG emissions to 1990 levels by 2020. The natural gas sector has already achieved this goal.

⁷ 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.

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 energy⁸.

The IFC study shows that added CHP market penetration would significantly increase energy savings through CHP efficiency. CHP would also add significant new investment and stimulate the state's economy, providing new green jobs to California. The study further discusses how integration of CHP with electric utility operations could decrease congestion and increase system reliability, provide greater resource adequacy, improve stability and power quality, defer electric transmission and distribution and capacity investment.

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.

⁸ Effect of Departing Load Charges on CHP, ICF International, May 2013.

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.

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."⁹

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.

⁹ Remarks by the President in State of the Union Address (January 24, 2012).

SoCalGas looks forward to working with the CEC staff during the next IEPR cycle as they develop AB1257 report on natural gas.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Amara Parly". The signature is fluid and cursive, with a long, sweeping horizontal line extending from the end of the name.