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SoCalGas Comments on Climate Adaptation and Resiliency Workshop

Additional submitted attachment is included below.



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California Energy Commission
Docket Office
1516 Ninth Street
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Subject: 2017 Integrated Energy Policy Report Joint Workshop on Climate Adaptation and Resiliency for the Energy Sector, Docket No. 17-IEPR-09

Dear Commissioners:

The Southern California Gas Company (SoCalGas) thanks the California Energy Commission (CEC) and California Public Utilities Commission (CPUC) for hosting the Joint Workshop on Climate Adaptation and Resiliency for the Energy Sector on August 29, 2017, as part of the 2017 Integrated Energy Policy Report (IEPR) proceeding.

Considering climate change in planning and decisions may help to avoid high mitigation costs in the future. Ensuring energy infrastructure resiliency and protecting the state's most vulnerable populations requires that SoCalGas be included in the state's planning and development processes, as well as increased coordination of adaptation information and diversity in the state's energy portfolio. An outline of this letter is as follows:

1. SoCalGas must be included in climate resiliency planning and development processes.
 - a. We support the proposal to develop a repository for climate adaptation and resiliency best practices as well as a national clearinghouse for information on how natural disasters impact energy infrastructure.
 - b. We support the proposal of, and want to be involved in, a statewide climate resiliency partnership, using U.S. Department of Energy's (DOE) *Partnership for Energy Sector Climate Resilience* as the baseline framework.
2. Diversity in the state's energy portfolio is a prudent risk management strategy to support resilient energy infrastructure and to mitigate the risk of overdependence on a single source of energy.
 - a. Natural gas is a clean solution to manage the risks of climate change.
 - b. Distributed generation resources, like combined heat and power (CHP) systems, natural gas microturbines, and fuel cells, can help manage electricity use and enhance the resiliency of the state's energy infrastructure.
3. Conclusion

1. SoCalGas and other natural gas infrastructure stakeholders must be included in climate resiliency planning and development processes.

SoCalGas is concerned with the lack of focus on Southern California’s natural gas infrastructure in state planning efforts, and the benefits this infrastructure provides to the overall climate resilience of California.

In order for climate plans and partnerships to be effective, every region (Northern and Southern) of California must be engaged and considered—and the natural gas system should not be overlooked. The CEC and other agencies must include SoCalGas in all aspects of the planning for, and development of, climate adaptation and resiliency measures.

Climate change adaptation is a risk identified in SoCalGas’ Risk Assessment and Mitigation Phase (RAMP) filing submitted to the CPUC in November 2016.¹ In the filing, we identified safety-related threats to gas infrastructure posed by climate change and specified mitigations to address the risks through formal planning and adaptive actions. Ultimately, SoCalGas intends to leverage these activities to better understand and inform our risk assessments and decision-making. We will continue to use this framework for controls already in place, and will develop and implement proposed mitigation strategies.

One of the mitigation strategies proposed in SoCalGas’ RAMP filing is the development of a gas infrastructure resiliency and vulnerability report. Once the report is complete, it can be used to support local governments within our service territory to develop climate adaptation strategies for their communities, as per Senate Bill (SB) 379. As cities and counties update the safety elements of their General Plans to include climate adaptation assessments, we encourage the CEC and other state agencies to work directly with the utilities to develop tools, guidance, and communication materials to assist local governments. We welcome the opportunity to work with the State as analytical tools and policy guidance regarding critical energy infrastructure are developed.

- a. We support the proposal to develop a repository for climate adaptation and resiliency best practices as well as a national clearinghouse for information on how natural disasters impact energy infrastructure.

SoCalGas believes it would be helpful for California agencies and stakeholders to have a place where climate adaptation information is vetted and housed. The Governor’s Office of Planning & Research (OPR) may be the best entity to develop and manage this project, as per SB 246. A particular focus on research and best practices from other parts of the world would be especially useful. This type of repository will make sharing research and lessons learned easier within California and with those that follow our lead on energy issues. One example of such a repository is the Georgetown Climate Center’s Adaptation Clearinghouse,² which provides resources to help policymakers understand, plan, and

¹ Investigation (I.) 16-10-015/I.16-10-016 (cons.), November 30, 2016, “Risk Assessment and Mitigation Phase Report of San Diego Gas & Electric Company and Southern California Gas Company.”

² <http://www.adaptationclearinghouse.org/sectors/energy/>

prepare for impacts of climate change to the energy sector. SoCalGas would very much like to be involved in these efforts and looks forward to collaborating with the CEC and OPR.

We also support the proposal that DOE should develop a clearinghouse of information on how natural disasters impact energy infrastructure around the country. Numerous natural disasters have threatened energy security, and lessons learned and best practices should be recorded and available for states to use when planning and implementing climate adaptation strategies. As far as we know, there is no one place where this information is available. DOE should work closely with the Federal Emergency Management Agency,³ states, and utilities to gather this information.

- b. We support the proposal of, and want to be involved in, a statewide climate resiliency partnership, using DOE's *Partnership for Energy Sector Climate Resilience* as framework.

Just as the *Partnership for Energy Sector Climate Resilience* works to enhance U.S. energy security by improving the resilience of energy infrastructure to extreme weather and climate change impacts, California's partnership should be focused on energy infrastructure—including natural gas—in our state. To avoid duplicating efforts, there should be careful coordination with the national partnership. California should use any resources⁴ developed by DOE and its partners thus far to facilitate risk-based decision making and pursue cost-effective strategies for more climate-resilient energy infrastructure in California.

We believe the CEC is the appropriate agency to facilitate and coordinate this new partnership, while providing technical assistance for assessing vulnerabilities. Partnership goals and objectives should be clear and specific. Participants should identify top California-specific energy sector climate vulnerabilities and develop and implement resiliency strategies to address those vulnerabilities. Through this effort, SoCalGas can help local jurisdictions comply with the requirements of SB 379. Partners should submit research, lessons learned, and best practices on climate adaptation to the statewide repository, once developed.

2. *Diversity in the state's energy portfolio is a prudent risk management strategy to support resilient energy infrastructure and to mitigate the risk of overdependence on a single source of energy.*

³ <https://www.fema.gov/climate-change>

⁴ A Review of Climate Change Vulnerability Assessments: Current Practices and Lessons Learned from DOE's "Partnership for Energy Sector Climate Resilience" <https://energy.gov/epsa/downloads/review-climate-change-vulnerability-assessments-current-practices-and-lessons-learned>

Energy diversification is necessary as a climate adaptation strategy. While the energy sector is sensitive to the effects of climate change, expanding the energy portfolio can actually increase system reliability.⁵

Since the vast majority of natural gas pipelines are underground, the infrastructure tends to be more resilient to extreme weather events. Further, the natural gas system has a separate distribution pathway, allowing it to operate without electricity and continue to serve customers, even when other energy sources fail.⁶ For example, when Hurricanes Irene (2011) and Sandy (2012) impacted the Northeastern U.S., extensive damage was caused to electric transmission and distribution infrastructure, disrupting power to millions of customers for several days.⁷ There was no major impact on natural gas infrastructure or supplies, allowing residents with natural gas service to cook, heat their homes, and use back-up generators, even in the midst of widespread blackouts in several states. Further, in the aftermath of Sandy, natural gas-powered fuel cells and combined heat and power (CHP) systems kept many facilities operating by generating on-site power.⁸ This provides a real-world example of the importance of energy supply diversification. Distributed generation resources, including CHP systems, natural gas microturbines, and fuel cells can enhance the resiliency of the state's energy infrastructure.

The more recent extreme weather impacts from Hurricane Harvey may also provide lessons learned with regards to safeguarding our energy infrastructure. While thousands of utility customers were left without power from the storm, many businesses in the region with natural gas backup generators were able to continue operating. These generators were fed from underground natural gas pipelines that had not been destroyed by winds or floods.⁹ As stated by President Richard Mroz of the New Jersey Board of Public Utilities, "Superstorm Sandy and the incredible devastation that continues in the Gulf Coast by Hurricane Harvey should serve as solemn reminders that ... we still need to address local energy resiliency systems like advanced microgrids to complete the resiliency circle to help us prepare for the next emergency."¹⁰

- a. Natural gas is a clean solution to manage the risks of climate change.

⁵ United Nations Framework Convention on Climate Change, *Risk Management Approaches to Address Adverse effects of Climate Change*, available at http://unfccc.int/cooperation_support/response_measures/items/5003.php.

⁶ Massachusetts Institute of Technology Lincoln Laboratory, *Interdependence of the Electricity Generation System and the Natural Gas System and Implications for Energy Security* (2013) at 14. ("Power is not assured in all possible scenarios that disrupt the electric grid...but natural gas has demonstrated energy security benefits during all historical electricity outages.")

⁷ U.S. Department of Energy – Office of Electricity Delivery and Energy Reliability, *Comparing the Impacts of Northeast Hurricanes on Energy Infrastructure* (April 2013) at iv-v. https://energy.gov/sites/prod/files/2013/04/f0/Northeast%20Storm%20Comparison_FINAL_041513b.pdf

⁸ Anna Chittum, *How CHP Stepped Up When the Power Went Out During Hurricane Sandy*, December 6, 2012, <http://aceee.org/blog/2012/12/how-chp-stepped-when-power-went-out-d>

⁹ <https://www.greentechmedia.com/articles/read/harveys-devastation-shows-the-need-for-distributed-energy-microgrids-during>

¹⁰ Ibid.

SoCalGas is constantly improving our operational maintenance and inspection practices to increase the resiliency of our pipelines. We invest in and design resilient energy delivery and supply infrastructure that is not over-reliant on any one solution, but includes a portfolio of options for climate change adaptation and resiliency.

Furthermore, natural gas vehicles have the potential to help the state meet both near-term and long-term environmental and petroleum reduction goals, particularly in the heavy-duty vehicle sector. The state can achieve greenhouse gas (GHG) and oxides of nitrogen (NOx) reductions through medium- and heavy-duty, on- and off-road vehicles powered by near-zero emission natural gas engines.¹¹ Converting heavy-duty vehicle fleets from diesel to natural gas can provide a way to meet California's air and emissions goals with a minimum of economic risk.

- b. Distributed generation resources, like CHP systems, natural gas microturbines, and fuels cells, can help manage electricity use and enhance the resiliency of the state's energy infrastructure.

Distributed generation resources offer a clean, flexible, and efficient form of energy supply, which should be leveraged to support an increasingly dynamic energy grid. Natural gas technologies, like CHP and fuel cells, are perfectly situated to support those developments. The efficiency of using waste heat to provide secondary services to facilities not only reduces the overall costs of energy provision, but can also provide energy with a very low overall emissions profile, depending on the fuel used. A CHP unit using renewable gas at the time of day when renewable electricity sources are not producing is significantly cleaner than that which would come from the grid today. Finally, the development of smaller and more powerful CHP technologies is increasingly allowing our customers more options to control their energy costs and reliability. Neither regulation nor legislation should inhibit these options.

Microgrids are also being evaluated as a way to provide stability not only to the local customers, but also to the grid as a whole. In 2014, the CPUC issued a report concluding, "Microgrids are being investigated across the country as a solution to support greater reliability, resiliency, and security of supply, but microgrids can be much more."¹² The report cites several examples of microgrids featuring fuel cells and cogeneration technologies, which utilize natural gas. The report notes that "building a microgrid around a CHP system that is providing power to a campus, for example, can result in resilient

¹¹ "Pathways to Near-Zero-Emission Natural Gas Heavy-Duty Vehicles." Gladstein, Neandross & Associates (GNA), dated May 19, 2014, at 1. Available at http://www.gladstein.org/pdfs/On-Road_Pathways.pdf.

¹² The report goes on to say, "We need to take care not to pigeon-hole microgrids as only a set of technologies capable of keeping the lights on specific locations. Rather, microgrids can provide far more benefits, not only to the customers of the microgrid, but to the gride as a whole. Encouraging and realizing these benefits should be investigated and considered as beneficial to the state." See p. 25 of the April 2014, CPUC Report 'Microgrids: A Regulatory Perspective' http://www.energy.ca.gov/chp/documents/2014-07-14_workshop/PPDMicrogridPaper414.pdf

facilities that can ride out even extremely disruptive events.”¹³ This is exactly what happened in Texas during Hurricane Harvey. Flooding closed 16 hospitals, but the large hospitals that invested (after Tropical Storm Allison in 2001) to keep the power on and floodwaters out remained open. For example, the Texas Medical Center in downtown Houston invested \$50 million in a network of floodgates and is supplied by a CHP and district energy system.¹⁴

3. Conclusion

Looking forward, natural gas infrastructure will play an integral role in planning efforts to help protect the resiliency of the energy grid—ensuring energy provision to residents vulnerable to climate change impacts—and can also be a foundation for new energy pathways, delivering energy with near-zero emissions sooner and more cost-effectively than electrification. These include the use of renewable gas not only for direct use in electric generation, but also for helping to grow the state’s renewable generation portfolio over the long term. SoCalGas is a proactive advocate in developing and implementing such technologies and infrastructure, and believes natural gas will remain a critical part of California’s energy portfolio. With this, SoCalGas encourages the CEC to work closely and collaborate with all utility partners.

We appreciate the opportunity to provide comments on the Joint IEPR Workshop. We shall continue to work diligently to provide the safest, cleanest, most reliable, and affordable service to our customers.

Please do not hesitate to reach out for more information.

Sincerely,

/s/ Tim Carmichael

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¹³ See p. 8 of CPUC Report ‘Microgrids: A Regulatory Perspective’ (citing to Lessons from Sandy: How One Community in Storm’s Path Kept Lights On, Christian Science Monitor (November 12, 2013) (<http://www.csmonitor.com/USA/2012/1115/Lessons-from-Sandy-how-one-community-instorm-s-path-kept-lights-on>). See also, “Microgrid: Keeping the Lights On,” Triton, University of California, San Diego (Winter 2014) (detailing the microgrid experiences of UC San Diego))

¹⁴ <https://www.greentechmedia.com/articles/read/harveys-devastation-shows-the-need-for-distributed-energy-microgrids-during>