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Earthjustice and Sierra Club Comments on June 6th Workshop on Natural Gas Distribution Infrastructure and Decarbonization Target

Additional submitted attachment is included below.



June 21, 2019

Submitted via electronic commenting system

Docket No. 19-MISC-03
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Earthjustice and Sierra Club Comments on June 6th Workshop on Natural Gas Distribution Infrastructure and Decarbonization Targets

Earthjustice and Sierra Club appreciate the opportunity to comment on the California Energy Commission (“CEC”) workshop to receive technical input on the draft results of a study by Energy and Environmental Economics, Inc. (“E3”) and the University of California at Irvine (“UCI”) examining the future of the natural gas system in the context of decarbonization of California’s energy system. We applaud the study’s authors for conducting this groundbreaking work. The draft results build upon the increasing body of research identifying the essential role of building electrification in California’s decarbonization strategy and find that a high building electrification scenario has lower risks, lower society-wide costs, and better air quality and health outcomes than more expensive and uncertain pathways which rely on renewable natural gas (“RNG”).¹ The draft results also go further than prior analyses by beginning to investigate how we transition away from gas combustion in homes in a manner that is equitable and at lowest cost.

While the study results underscore the multiple benefits of a high building electrification scenario, several assumptions function to improperly push out timelines for the phase-out of gas appliances and appear to posit widespread building and vehicle electrification as an either/or rather than a both/and necessity. For example, the study uses an antiquated 2050 greenhouse gas

¹ See, e.g., CEC, *2018 IEPR Update, Vol. II* at 28 (Jan. 2019) (“growing consensus that building electrification is the most viable and predictable path to zero-emission buildings ... due to the availability of off-the-shelf, highly efficient electric technologies (such as heat pumps) and the continued reduction of emission intensities in the electricity sector.”); E3, *Residential Building Electrification in California* (Apr. 2019) (“We confirm that the electrification of buildings represents an important opportunity to reduce greenhouse gas emissions from buildings both in the near term and long term, and can lead to consumer capital cost savings, bill savings, and lifecycle savings in many circumstances.”), https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf.

(“GHG”) reduction target that no longer reflects the best available climate science, significantly overestimates both the feasible level of pipeline injection of hydrogen and the availability of sustainable biomethane. E3 should revisit these assumptions, accelerate its building electrification timeline and include a scenario that assumes both high building electrification and medium- and heavy-duty vehicle electrification.

With the importance and benefits of widespread building electrification now well established, we strongly encourage the Commission to turn its focus to development of policies to equitably achieve a swift transition off the gas system. One common refrain from the workshop was not to “dig the hole any deeper” through further expansion of the gas distribution system. The Commission is well positioned to address this concern through its authority over building codes and ability to require all-electric construction in new development. Outreach and education to local governments on both the health, climate, and economic benefits of building electrification and the costs of delayed action is also critical, particularly in light of the aggressive efforts of Southern California Gas Company (“SoCalGas”) to lobby local governments to adopt “balanced energy” resolutions and oppose state policies favoring building electrification. We thank the Commission, E3, and UCI for this important study and look forward to working to achieve an equitable transition from the gas system.

Technical Feedback on Draft Result Assumptions

1. The Study’s 2050 GHG Reduction Target is Insufficient to Limit Warming to 1.5°C And is No Longer Consistent with the Best Available Climate Science on the Reductions Needed to Avoid Catastrophic Climate Disruption.

The study models high building electrification (“HBE”) and no building electrification (“NBE”) scenarios based on a target of reducing economy-wide GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. The 2050 target was first established by the European Union in 1996 and later adopted in California through an Executive Order in 2005 and was based off scientific consensus at that time on the level of GHG reductions needed to provide a greater than 50 percent chance of limiting warming to 2°C above pre-industrial levels.² Since then, the severity of climate impacts at lower levels of warming and the need for accelerated reductions have become all too apparent.³ It is now widely recognized that

² See Samuel Randalls, *History of the 2°C Climate Target*, WIREs Climate Change Vol. 1, Issue 4, at 598 (2010); Matt Vespa, *Why 350? Climate Policy Must Aim to Stabilize Greenhouse Gases at the Level Necessary to Minimize the Risk of Catastrophic Outcomes*, 36 Ecology Law Currents 185 (2009), https://elq.typepad.com/currents/2009/04/currents36-06-vespa.html#_edn14; Malte Meinshausen, *What Does a 2°C Target Mean for Greenhouse Gas Concentrations? A Brief Analysis Based on Multi-Gas Emission Pathways and Several Climate Sensitivity Uncertainty Estimates*, *Avoiding Dangerous Climate Change*, at 268-69 (2006); Exec. Order # S-03-05 (June 1, 2005).

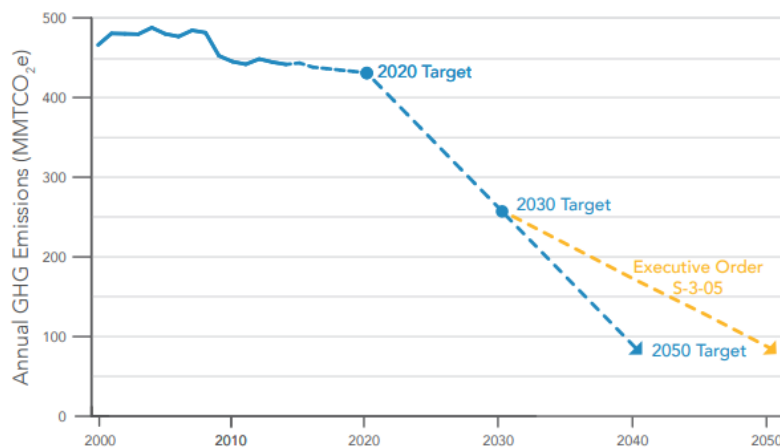
³ See, e.g., The Guardian, *Scientists Shocked by Arctic Permafrost Thawing 70 Years Sooner Than Predicted* (June 18, 2019), https://www.theguardian.com/environment/2019/jun/18/arctic-permafrost-canada-science-climate-crisis?CMP=share_btn_link.

limiting warming to 1.5°C is needed to avoid catastrophic climate impacts.⁴ Indeed, a memorandum of understanding (“MOU”) among subnational governments on climate leadership, of which California is a signatory, now includes an addendum that provides:

The Parties to this MOU aim to strengthen the global response to the threat of climate change by holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change.⁵

As the Air Resources Board (“ARB”) noted in California’s 2017 Climate Change Scoping Plan, the 2030 greenhouse gas reduction target provides a pathway to achieve accelerated reductions, and with it, a greater chance to avoid catastrophic climate impacts.⁶ In failing to accelerate the 2050 target, the study assumes a slower pace of post-2030 GHG reductions and precludes any meaningful likelihood on limiting warming to 1.5°C.

FIGURE 5: PLOTTING CALIFORNIA’S PATH FORWARD



Accordingly, in relying on the 2005 Executive Order target as its 2050 GHG reduction objective, the study fails to communicate and reflect the scientific reality that reductions in GHG pollution must occur far faster to avoid climate catastrophe. Leaving a 50 MMtCO₂ carbon budget available in 2050 creates a goal post that both the HBE and NBE scenarios can meet, making them appear equally sufficient from a climate perspective. The fact that the NBE scenario meets the 80% reduction target by achieving greater transportation and industrial mitigation indicates far more progress is possible under a HBE scenario that includes greater overall electrification levels across sectors.

⁴ IPCC, 2018: *Summary for Policymakers*, Special Report: Global Warming of 1.5°C, at 7-11 (2018).

⁵ See Global Climate Leadership, MOU, <https://www.theclimategroup.org/sites/default/files/under2-mou-with-addendum-english-us-letter.pdf>.

⁶ ARB, California’s 2017 Climate Change Scoping Plan at 18 (Nov. 2017), https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

A scenario that models accelerated achievement of the 2050 target would better reflect the reality of the climate imperative. Under the HBE scenario, 100% of heat pump sales would not be achieved until as late as 2040, leaving well over 2 million gas furnaces in the residential heating stock in 2050.⁷ This pace would like eliminate any meaningful chance of achieving a 1.5°C compliant California energy system. To achieve a 40% carbon reduction in the building sector by 2030 and a hope of carbon-neutral buildings by 2045, at least 50% of heating equipment sales should be high-efficiency electric heat pumps by 2025, and 100% by 2030.⁸ While modeling a more aggressive 2050 decarbonization trajectory at this juncture may be difficult, at a minimum, the study should include a discussion of how achieving faster and deeper decarbonization targets both through accelerated building electrification *and* additional electrification in industrial and transportation sectors would potentially affect the study’s outcomes.

2. The Study’s Assumption of 20 Percent Hydrogen Injection Into the Gas Pipeline System Is Unrealistic and Would Require Significant and Costly Upgrades.

The study overestimates the potential and underestimates the costs for pipeline injection of renewable hydrogen into the gas system. As a small, mobile, active molecule, hydrogen embrittles and corrodes gas pipelines and appliances, has a leakage rate approximately three times that of natural gas, is difficult to detect due to its lack of odor, and is extremely flammable – thereby posing significant safety hazards should leakage occur in confined spaces.⁹ Due to these physical attributes, the potential to inject hydrogen into the gas pipeline system absent major and costly modifications is inherently limited. Yet the study assumes a scenario where hydrogen achieves a pipeline blend of 20 percent by volume (7 percent by energy content).¹⁰ This value is far higher than the highest allowable limit anywhere in the world—12 percent by volume in the Netherlands.¹¹ While some studies have suggested that service lines should *not exceed* 20 percent hydrogen by volume, this does not equate to 20 percent being a safe, dependable blend, particularly absent major system and appliance upgrades. A UC Davis study for the California Air Resources Board notes that the “current consensus seems to be that most parts of the natural gas system can tolerate mixtures up to 10 percent by volume hydrogen,” but even this level would require a comprehensive maintenance inventory of the entire natural gas

⁷ E3, *Draft Results: The Future of Natural Gas Distribution in California*, at 48 (June 6, 2019)

⁸ Building Decarbonization Coalition, *A Roadmap to Decarbonize California’s Buildings*, at 6 (Feb. 12, 2019) <http://www.buildingdecarb.org/resources/a-roadmap-to-decarbonize-californias-buildings>.

⁹ See, e.g., Pacific Gas & Electric Company, *Pipeline Hydrogen Whitepaper*, at 14-15 (Sept. 18, 2018), https://www.pge.com/pge_global/common/pdfs/for-our-business-partners/interconnection-renewables/interconnections-renewables/Whitepaper_PipelineHydrogenAnalysis.pdf; Livio de Santoli *et al.*, *An overview on safety issues related to hydrogen and methane blend applications in domestic and industrial use*, ENERGY PROCEDIA, Vol. 126, at 298 (Sept. 2017), <https://www.sciencedirect.com/science/article/pii/S187661021733730X>.

¹⁰ E3, *Draft Results: The Future of Natural Gas Distribution in California*, at 10.

¹¹ Iain Staffel *et al.*, *The Role of Hydrogen and Fuel Cells in the Global Energy System*, ENERGY ENVIRON. SCI., Vol. 12, at 479 (Jan. 2019) <https://pubs.rsc.org/en/content/articlepdf/2019/ee/c8ee01157e>.

transport system, where regulators “would need to independently verify estimates to ensure compatibility of existing components and materials to hydrogen blends and to verify repairs to ensure that transmission and distribution lines would be safe for hydrogen exposure.”¹² The current draft study assumes, without apparent basis, double this allowable blend, and does not appear to include either the costs of undertaking a maintenance inventory across the gas system or the costs of upgrades to both gas pipelines and gas end uses that would likely be required to handle this high level of pipeline hydrogen. Indeed, assuming hydrogen injection at a level that would require substantial additional investment in the gas system is in direct contravention with the draft results’ conclusion that a strategy is needed to *reduce* system costs.

Moreover, use of renewable hydrogen for pipeline injection may be its least efficient use. In one study, the National Renewable Energy Laboratory concluded that injecting hydrogen into natural gas pipelines was the least compelling case of four potential applications of renewable hydrogen in California. Because the sale price for hydrogen needs to be “an order of magnitude” lower than for transportation or refineries, the business case for gas pipeline injection is “very poor.”¹³ In terms of pathways to achieving full decarbonization of the energy system, existing studies have identified specific sectors, including chemical, industrial, and air and maritime transport, where renewable hydrogen would play a role.¹⁴ Importantly, the HBE scenario does not appear to require hydrogen pipeline injection, thereby freeing this resource for use for difficult to electrify applications. In future studies, it will be critical to understand the cost and mitigation benefits of deploying renewable hydrogen in sectors where it does not compete with electrification, so that it can complement a path to necessary levels of decarbonization.

3. The Study Likely Overstates Biomethane Supplies That Are Sustainable and Carbon Negative.

The study assumes biomethane potential based on the Department of Energy 2016 Billion Ton Update and additional biogas harmonized with the 2016 UC Davis study by Jaffe *et al.*¹⁵ In evaluating biomethane supply from existing sources such as manure lagoons, it is critical to exclude biomethane that could otherwise be avoided through more sustainable waste management practices. Effective use of anaerobic digesters relies on the enormous manure

¹² Amy M. Jaffe *et al.*, *The Potential to Build Current Natural Gas Infrastructure to Accommodate the Future Conversion to Near-Zero Transportation Technology*, STEPS Program, Institute of Transportation Studies, UC Davis, at 69 (Mar. 2017), <https://steps.ucdavis.edu/wp-content/uploads/2017/05/2017-UCD-ITS-RR-17-04-1.pdf>.

¹³ Josh Eichman and Francisco Flores-Espino, *California Power-to-Gas and Power-to-Hydrogen Near-Term Business Case Evaluation*, National Renewable Energy Laboratory, at 64 (Dec. 2016), <https://www.nrel.gov/docs/fy17osti/67384.pdf>.

¹⁴ Agora Energiewende, Agora Verkehrswende, and Frontier Economics, *The Future Cost of Electricity-Based Synthetic Fuels*, at 3 (Sept. 19 2018), https://www.agora-energiewende.de/fileadmin2/Projekte/2017/SynKost_2050/Agora_SynKost_Study_EN_WEB.pdf.

¹⁵ E3, *Draft Results: The Future of Natural Gas Distribution in California*, at 9.

lagoons that only large factory farms produce.¹⁶ Out of a range of possible manure management systems, anaerobic lagoons have the highest per-cow global warming potential—about 20 times higher than solid manure storage.¹⁷ We thus urge against considering manure lagoons as a sustainable biomethane feedstock; the methane and co-pollutants that these manure lagoons produce have severe localized air quality and groundwater impacts that can and should be avoided through meaningful regulation and transition strategies for the State’s industrial agriculture. Similarly, the study should clarify what the potential for waste biogas from municipal waste is, given important statewide efforts to reduce organic waste, improve edible food rescue programs, and manage waste for compost.¹⁸ To the extent that the biogas potential considers municipal waste which could otherwise be avoided or converted into a valuable soil amendment with greater co-benefits, these supplies should be excluded in the final round of the study. Counting only biomethane feedstocks that are truly unavoidable and sustainable would further constrain supply and increase costs in the RNG pathway.

With regard to methane produced from gasification of biomass residues, it is unclear whether the study conducted a full lifecycle analysis in determining purported greenhouse gas benefits. These products do *not* normally decompose in an anaerobic environment and create fugitive methane, thus using them to manufacture methane creates methane where none would otherwise have existed. Because methane is a pollutant with a high global warming potential, creating new sources of methane can increase overall emissions “due to methane leaks and venting that occurs throughout the RNG supply chain.”¹⁹ To the extent that gasification of biomass is included in assessing biomethane potential, the final study should provide clear details about the lifecycle emissions reductions (or lack thereof) associated with the collection of forest and agricultural residue, and the leakage associated with its conversion into additional methane.

4. The No Building Electrification Scenario Should Assume Some Level of Economic Electrification to Reflect Actions Already Being Taken by Local Governments.

The NBE scenario assumes no economic electrification will occur, and as a result, increased utility bills for mixed-fuel homes do not appear to increase significantly relative to the HBE scenario. This outcome is unrealistic. Electrification in California is *already* beginning in earnest. Local governments are promulgating rules, programs, and incentives to encourage or

¹⁶ Markus Lauer *et al.*, *Making Money from Waste: The Economic Viability of Producing Biogas and Biomethane in the Idaho Dairy Industry*, Applied Energy, Vol. 222 (July 15, 2018), <https://www.sciencedirect.com/science/article/pii/S0306261918305695>.

¹⁷ Justine J. Owen and Whendee L. Silver, *Greenhouse Gas Emissions from Dairy Manure Management: A Review of Field-Based Studies*, UC Berkeley, at 10 (2014), <https://escholarship.org/uc/item/5gg2r58c>.

¹⁸ Californians Against Waste, *SB 1383 (Lara) – Super Pollutants*, <https://www.cawrecycles.org/sb-1383-lara-super-pollutants> (accessed June 19, 2019).

¹⁹ Rebecca Gasper and Tim Searchinger, *The Production and Use of Waste-Derived Renewable Natural Gas as a Climate Strategy in the United States*, World Resources Institute, at 16 (April 2018), <https://www.wri.org/publication/renewable-natural-gas>.

require electrification not only in new, but also in existing construction. Sacramento Municipal Utility District offers up to \$13,500 for electrification upgrades and appliances.²⁰ Marin County is currently creating an Appliance Electrification Rebate Program for residential electrification using funding from the Bay Area Air Quality Management District climate protection grant program and from the county's Climate Action Plan fund.²¹ The City of San Jose is also leveraging Bay Area Air Quality Management District award money to fund financial incentives for residents to swap natural gas water heaters with heat pump water heaters.²² These programs shift customers off the gas system and increase gas rates for remaining mixed-fuel homes. As similar policies diffuse across more cities, and high-efficiency electric heating equipment becomes cheaper, more accessible, and more familiar, economic building electrification will increase. The NBE scenario relies on assumptions that are already being proven inaccurate. As a result, the draft results show gas rate increases which are only a fraction of what they are likely to be in fact. The final study should endeavor to model a realistic rate of economic electrification.

Next Steps for the California Energy Commission

The study results point to clear next steps. California should take immediate action to decarbonize its building sector, and it must simultaneously develop a path to safely transition from reliance on the gas distribution system in a way that protects low-income ratepayers and responsible transitions gas workers. As the study finds, electrifying our buildings is not only essential to meeting climate obligations, but will also lower energy costs and offer overdue relief to communities burdened by poor air quality.²³ Earthjustice and Sierra Club recommend the following:

1) Enact Code Changes to Require, or at a Minimum Strongly Favor, All-Electric New Construction.

While the Commission made progress toward all-electric new construction in the 2019 Building Code by creating a pathway for all-electric low-rise residential buildings, additional work is needed. For example, the Building Code still favors mixed fuel new construction and retrofits for mid/high-rise residential and non-residential construction. As made clear in the draft results, continued mixed-fuel construction will only serve to drive costs higher and make decarbonization more challenging. In addition, the CEC should adjust the 2019 Alternative Compliance Manual ("ACM") to create a pathway for all-electric new designs to comply with

²⁰ See Sacramento Municipal Utility District, *Home Performance Program*, <https://www.smud.org/en/Rebates-and-Savings-Tips/Improve-Home-Efficiency>.

²¹ Marin County, *Electrify Marin – Natural Gas Appliance Replacement Rebate Program*, <https://www.marincounty.org/depts/cd/divisions/sustainability/energy-programs/electrify>.

²² Leslie Stewart, *Pumping Heat: Grants Awarded to Increase Home Energy Efficiency*, Bay Area Monitor (Nov. 2018), <https://bayareamonitor.org/article/pumping-heat-grants-awarded-to-increase-home-energy-efficiency/>.

²³ E3, *Draft Results: The Future of Natural Gas Distribution in California*, at 6 (June 6, 2019)

the 2019 code. Dozens of cities and counties are looking to require or favor all-electric construction via a reach code. Successful adoption and implementation of reach codes relies on the CEC updating the ACM. Finally, in the 2022 code cycle, the CEC should require – or at a minimum strongly favor – all-electric new construction. The current metric for code compliance, Time-Dependent Valuation (“TDV”) does not send the right signal, and the GHG impacts get muted. The Commission should use a GHG metric and more realistic cost assumptions in TDV that include the cost of gas infrastructure

Electrification of new affordable housing must be prioritized. Connecting new housing to gas infrastructure will leave new residents unwittingly tied to rate shocks, given that gas system costs will be “substantially higher even in a ‘Reference’ scenario.”²⁴ Such an outcome will be particularly devastating for low-income households who already pay a disproportionately large share of their income to energy costs.²⁵ This impact can be best avoided by ensuring new affordable housing does not rely on the gas system.

2) Develop an Equitable Transition Strategy

The draft results make clear that absent a proactive policy approach, wealthier customers that are able to electrify and disconnect from the gas system will leave low income customer groups shouldering the costs of an oversized gas system.²⁶ We appreciate that the Energy Commission appears to be contemplating further study to explore strategic approaches to pipeline decommissioning as part of its FY 2019-20 natural gas research initiatives and encourage a specific focus on decommissioning in a manner that maximizes benefits and reduces overall risk to low-income households.²⁷ E3 offered examples of gas transition scenarios that include targeted retirements, accelerated depreciation, and earmarking additional state investment to shield low-income customers. Future scenarios should be examined that make use of additional tools. For example, disallowance of recovery beyond a “bright line” after which utilities had sufficient information to know that further investment was imprudent should also be considered as a way to mitigate costs.

3) Coordinate Outreach to Local Governments to Counter SoCalGas’ Efforts to Obstruct Statewide Action to Facilitate Building Electrification

The climate imperative of transitioning from gas to electric buildings is clear, the health benefits are clear, and the cost of inaction is clear. Yet as stated by panelist Michael Wara at the June 6th Workshop:

²⁴ E3, *Draft Results: The Future of Natural Gas Distribution in California*, at 22 (June 6, 2019).

²⁵ Khalil Shahyd, *Study Highlights Energy Burden for Households and How Energy Efficiency Can Help*, (April 20, 2016) <https://www.nrdc.org/experts/khalil-shahyd/study-highlights-energy-burden-households-and-how-energy-efficiency-can-help>.

²⁶ E3, *Draft Results: The Future of Natural Gas Distribution in California*, at 29 (June 6, 2019).

²⁷ CEC, FY 2019-20 Proposed Natural Gas Research Initiatives (Jan. 2019), Slide 24.

https://ww2.energy.ca.gov/research/notices/2019-01-24_workshop/FY2019-20_NG_Workshop_PPT.pdf.

If you look around the world ... the most common feature of those transitions are that the losers in the transition are holding up the process. And in many areas, they're holding up the process because they have regulated assets that will be stranded.

True to this observation, SoCalGas, an entity with a shareholder interest in maintaining reliance on gas combustion, is crisscrossing Southern California in an effort to build local opposition to electrification. SoCalGas has given dozens of presentations to local governments arguing against building electrification using highly misleading analyses and is urging City Councils to adopt pre-drafted “balanced energy” resolutions to oppose state policies that favor electrification in the name of local control.²⁸

We encourage the Energy Commission to coordinate outreach to local governments to combat gas industry efforts to confuse and stall action. Through this study, E3 and UCI have provided a clear picture of the critical importance and benefits of building electrification. The Commission should ensure these results are communicated as broadly as possible so local communities that may not participate in Energy Commission proceedings have access to and understand both the public health, climate and economic benefits of building electrification and the consequences of continued reliance and further expansion of the gas system.

We applaud the Commission for initiating this important work, and thank the study authors for pioneering research that illuminates critical information as California takes on the urgent challenge of building decarbonization. We look forward to working with the CEC and other parties to begin the work in earnest.

Sincerely,

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²⁸ Attach. A, Partial List of SoCalGas Presentations Urging “Balanced” Energy Solutions; Attach. B, SoCalGas Slide Deck of Balanced Energy Presentation; Attach. C, SoCalGas Email to Local Governments with Attached Draft Balanced Energy Resolution; Attach. D, Examples of Adopted Resolutions.

Attachment A – Partial List of SoCalGas Presentations Urging “Balanced” Energy Solutions

Partial List of SoCalGas Presentations Urging "Balanced" Energy Solutions

Date	Location/Event	Tweet	Public Affairs Manager
10/16/2018	City of La Verne	https://twitter.com/rcruz_SoCalGas/status/1052221427858821120	Robert Cruz
11/27/18	City of Claremont	https://twitter.com/rcruz_SoCalGas/status/1067624417625223168	Robert Cruz
12/3/18	City of Azusa	https://twitter.com/rcruz_SoCalGas/status/1069800347768504320	Robert Cruz
12/3/18	City of Calimesa	https://twitter.com/rlane_socalgas/status/1069779993918468096	Randon Lane
12/4/18	City of San Jacinto	https://twitter.com/rlane_socalgas/status/1070158478235197441	Randon Lane
12/4/18	City of Beaumont	https://twitter.com/rlane_socalgas/status/1070144691054698496	Randon Lane
12/5/18	City of West Covina	https://twitter.com/rcruz_SoCalGas/status/1093305781745680385	Robert Cruz
12/5/18	City of Covina	https://twitter.com/rcruz_SoCalGas/status/1070326798234210304	Robert Cruz
12/5/18	City of Rancho Cucamonga	https://twitter.com/kscott_SoCalGas/status/1070521313280675841	Robert Visconti
12/10	City of Wildomar	https://twitter.com/rlane_socalgas/status/1072324428183298048	Randon Lane
12/11/18	City of Lake Elsinore	https://twitter.com/rlane_socalgas/status/1072728711261126656	Randon Lane
12/11/18	City of Hemet	https://twitter.com/rlane_socalgas/status/1072714633104916480	Randon Lane
12/11/18	City of Temecula	https://twitter.com/rlane_socalgas/status/1072692273710800896	Randon Lane
12/11/18	City of Perris	https://twitter.com/rlane_socalgas/status/1072682830088540162	Randon Lane
12/11/18	City of Banning	https://twitter.com/rlane_socalgas/status/1072741603540750336	Randon Lane
12/11/18	City of Grand Terrace	https://twitter.com/kscott_SoCalGas/status/1072683533154406400	Kristine Scott
12/12/18	City of La Puente	https://twitter.com/rcruz_SoCalGas/status/1073033248672890880	Robert Cruz
12/12/18	City of Yucaipa	https://twitter.com/rlane_socalgas/status/1073059280582893568	Randon Lane
12/12/18	City of Canyon Lake	https://twitter.com/rlane_socalgas/status/1073058798426673153	Randon Lane
12/13/18	City of Industry	https://twitter.com/rcruz_SoCalGas/status/1073281669841342464	Robert Cruz
12/17/18	City of Pomona	https://twitter.com/rcruz_SoCalGas/status/1074895226848784385	Robert Cruz
12/19/18	City of Baldwin	https://twitter.com/rcruz_SoCalGas/status/1075616720738340865	Robert Cruz
12/19/18	City of Menifee	https://twitter.com/rlane_socalgas/status/1075594681046597632	Randon Lane
1/2/19	City of San Bernardino	https://twitter.com/kscott_SoCalGas/status/1080636841844400128	Kristine Scott
1/8/19	City of Fontana	https://twitter.com/kscott_SoCalGas/status/1082839073297813506	Kristine Scott
1/8/19	City of Highland	https://twitter.com/kscott_SoCalGas/status/1082822811540811777	Kristine Scott
1/9/19	City of Duarte	https://twitter.com/rcruz_SoCalGas/status/1083039046874456071	Robert Cruz
1/9/19	City of Adelanto	https://twitter.com/kscott_SoCalGas/status/1083198888700309504	Kristine Scott
1/22/19	City of Glendora	https://twitter.com/rcruz_SoCalGas/status/1087942816775458818	Robert Cruz
1/23/19	City of Walnut	https://twitter.com/rcruz_SoCalGas/status/1088304503143555072	Robert Cruz
1/29/19	San Bernardino County	https://twitter.com/kscott_SoCalGas/status/1090320663850606592	Kristine Scott
2/5/19	City of Colton	https://twitter.com/kscott_SoCalGas/status/1092977213085896704	Kristine Scott
2/12	San Dimas	https://twitter.com/rcruz_SoCalGas/status/1095525061069496321	Robert Cruz
2/25/19	Upland City	https://twitter.com/kscott_SoCalGas/status/1100233873122684928	Kristine Scott
2/26	City of Duarte	https://twitter.com/rcruz_SoCalGas/status/1100828531787853824	Robert Cruz

2/26/19	City of Loma Linda	https://twitter.com/kscott_SoCalGas/status/1100589879296049152	Kristine Scott
3/5/19	City of Ontario	https://twitter.com/kscott_SoCalGas/status/1103127502082400256	Kristine Scott
10/24/18	SGV Regional Chamber Luncheon	https://twitter.com/rcruz_SoCalGas/status/1044276151533789184	Robert Cruz
10/25/18	San Joaquin Valley Regional Association of California Counties	https://twitter.com/RobD_SoCalGas/status/1055616612483588097	Rob Duchow
10/26/18	2018 Business Forecast Conference	https://twitter.com/socalgas/status/1056008780767420421	Bret Lane
11/1/18	Southern California Association of Governments	https://twitter.com/rlane_socalgas/status/1058045036531568641	Ken Chawkins
11/14/18	SGV's City Manager's Association for County Managers	https://twitter.com/rcruz_SoCalGas/status/1062868340710895617	Robert Cruz
11/15	LA_COmoition	https://twitter.com/rlane_socalgas/status/1063179931998412801	Randon Lane
12/14/18	Inland Empire Economic Partnership	https://twitter.com/kscott_SoCalGas/status/1073715984643420161	Kristine Scott
12/18/18	Palmadale Mayor Steve Hofbauer	https://twitter.com/RobD_SoCalGas/status/1075114250215936000	Rob Duchow
1/19/19	Asm. Cecilia Aguiar-Curry and Yountville Mayor John Dunbar	https://twitter.com/rlane_socalgas/status/1086693479613231104	Randon Lane
1/31/19	League of California Cities	https://twitter.com/rlane_socalgas/status/1091219201061150720	Emily France
2/8/19	Beumont Chamber of Commerce	https://twitter.com/rlane_socalgas/status/1093916197358202881	Randon Lane
2/8/19	CA League of Cities: Desert Mountain Division	https://twitter.com/RobD_SoCalGas/status/1093975311971045376	Rob Duchow
2/13/19	State Legislature	https://twitter.com/rlane_socalgas/status/1095844013716824064	Randon Lane
2/15/19	HOPE Latinas	https://twitter.com/SoCalFavi/status/1096498686144606208	Faviola Ochoa
3/5/19	Economic Development Coalition: Valley of Innovation	https://twitter.com/rlane_socalgas/status/1102980417336954880	Randon Lane
3/15/19	California Restaurant Association Foundation	https://twitter.com/jgov_socalgas/status/1106697169380139008	George Minter
2/12/19	Irvine	https://twitter.com/Lanae_OShields/status/1095515912164106240	Lanae O'Shields
1/22/19	Los Alamitos	https://twitter.com/Lanae_OShields/status/1087921128323121154	Lanae O'Shields
6/5/2018	Fountain Valley	https://twitter.com/Lanae_OShields/status/1004220722523148289	Lanae O'Shields
1/24/19	California Contract Cities Association	https://twitter.com/MarisolSocalGas/status/1088542338501173248	Ken Chawkins
12/12/18	City of San Fernando	https://twitter.com/MarisolSocalGas/status/1073011788491321344	Marisol Espinoza
3/29/19	School Nutrition Association	https://twitter.com/jgov_socalgas/status/1111681112785346560	Alan Caldwell

Attachment B – SoCalGas Slide Deck of Balanced Energy Presentation



Balanced Energy Solutions that Can Work for Everyone

Economic Development Coalition Southwest Riverside California
March 5, 2019

Ken Chawkins, Business Policy Manager
Southern California Gas Company

WHO WE ARE...

SoCalGas & SDG&E Territory



In service for over **135 years**

- » **Largest natural gas distribution** utility in the US
- » Serve **12 counties** (over 500 communities) and more than **21 million** people
- » Over **5.8** million gas meters

SDG&E

- » Provides **electricity** and **natural gas** to **3.4 million** people from Orange County to the Mexican border.

California leads the nation in setting climate goals and policy

Governing Law – SB100

By 2030, obtain

60%

of electricity from renewable sources

Governing Law – SB1383

By 2030, reduce methane emissions

40%

below 2013 levels

Executive Order B-55-18


By 2045, economy-wide, become

Carbon Neutral

Diversification of Assets

**Electrification as
a one-track
solution sounds
simple**



A young girl with long brown hair, wearing a light blue t-shirt and teal pants, is running across a grassy field. She is holding a white model airplane with yellow and blue accents in her right hand, raised high. The background shows a line of green trees under a bright sky. The image is overlaid with large, stylized blue and teal geometric shapes, including a large upward-pointing arrow.

Increasing renewable energy
in all forms will increase
costs and complexity

but it is a worthwhile investment

We all agree on that.

**Now what
we need is a
practical plan.**

To be adopted, we must create clean energy solutions
that people want to use

Affordability
Reliability
Choice

The real cost of living

is already too high for too many people



California has the **highest** effective poverty rate in the nation



Nearly **40%** of CA households are rent burdened and pay **>30%** of their income on housing



1/3 of CA households can't pay for their basic needs



Low-income families pay **20%** of their income or more on energy costs

Sources: The United Way, *Real Cost of Living Report* (2018); Adam Chandler, "Where the Poor Spend More Than 10 Percent of Income on Energy," (2016)

Electrification

will further burden people

Costing the typical

California family:

\$7,200

to retrofit
your home

\$388/yr

more in
energy bills

Source: Navigant Consulting, "The Cost of Residential Appliance
Electrification: Phase 1 Report – Existing Single-Family Homes", 8
April 2018.

And businesses need an affordable option

The result of stopping new natural gas service connections for business over 3 months (January-March 2018) in Los Angeles County:



~5,200

fewer jobs
created



~\$880M

in lost
economic
output



~\$120M

in lost tax
revenues
(federal, state
and local)

Consumers want choice

<10%

of voters would choose
an all-electric home

80%

of voters prefer home
with both, esp for cooking

80%

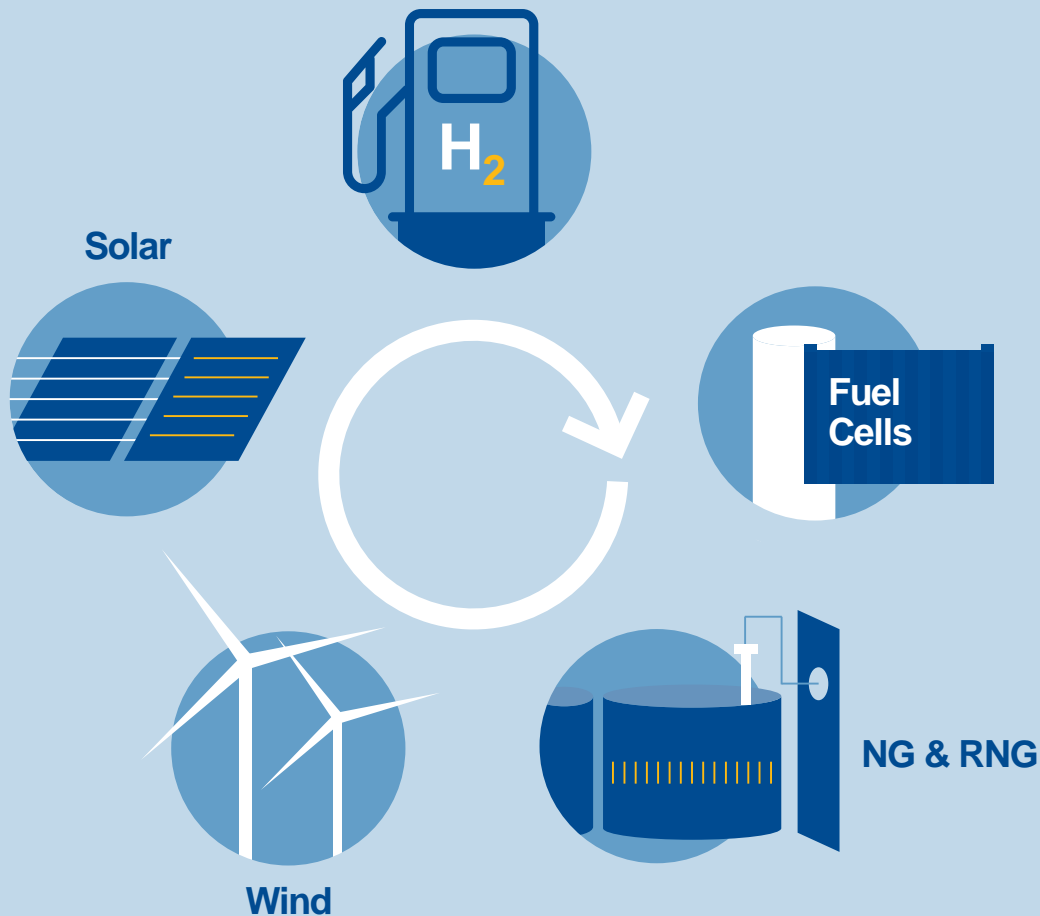
of voters oppose prohibiting
the use of gas appliances

2/3

of voters oppose
eliminating natural gas

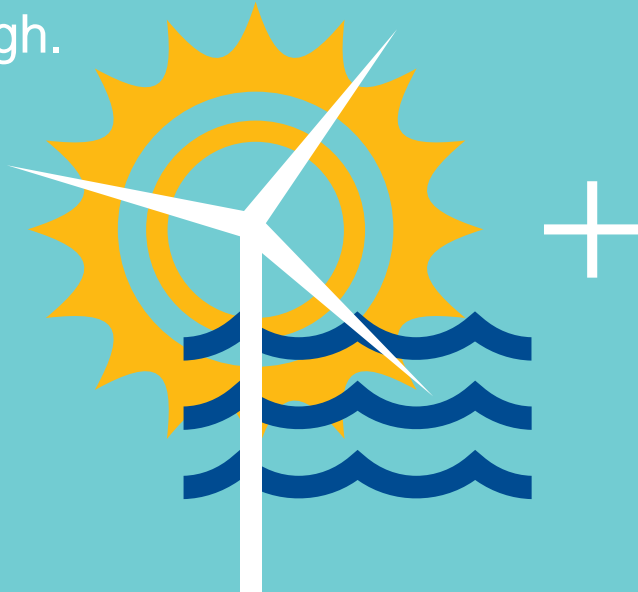
With a balanced approach

we can achieve our goals and preserve choice, while minimizing disruption and cost

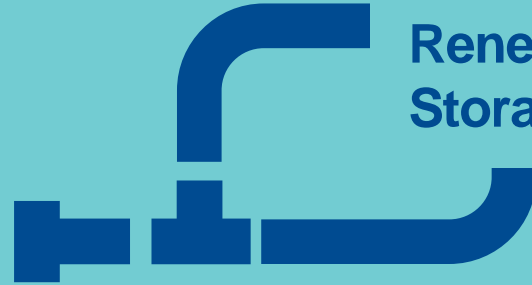


We need scalable, affordable solutions to solve these issues

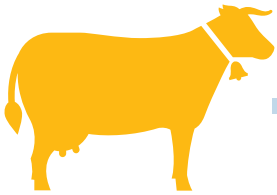
Solar, wind and
hydro alone are
not enough.



We need to use
ALL the tools in our
toolbox – including
**Renewable
Natural Gas and
Renewable Energy
Storage.**



The basics of Renewable Natural Gas



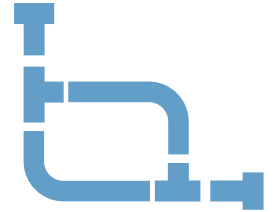
Capture waste from dairies, farms and landfills



Convert into biogas using anaerobic digestion

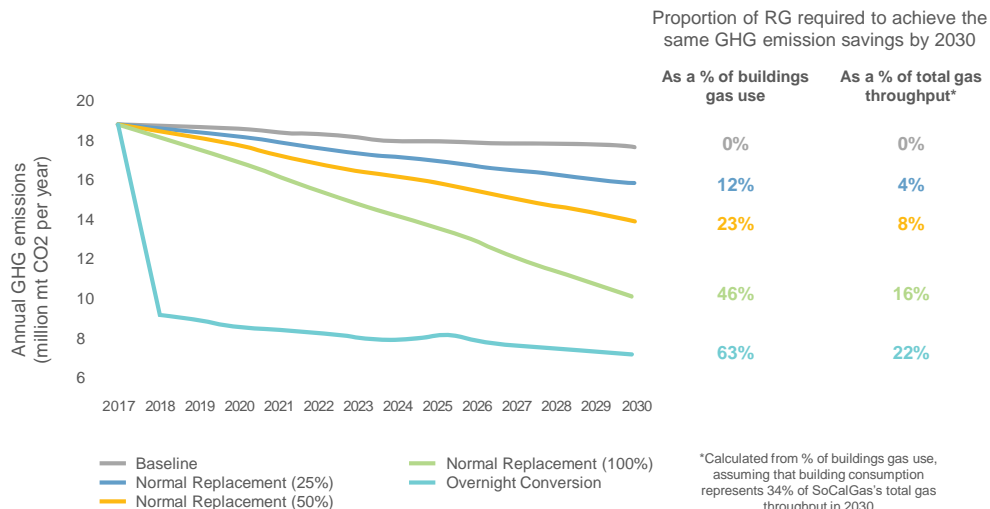


Process the biogas to make it pipeline-ready (biomethane)



Inject the biomethane into the pipeline for future use

Renewable Natural Gas beats building electrification



➤ Meet CA's 2030 GHG goals in the building sector by switching to

5% RNG

➤ Achieve the same GHG reductions as overhauling 100% of CA's buildings to all electricity with

16% RNG

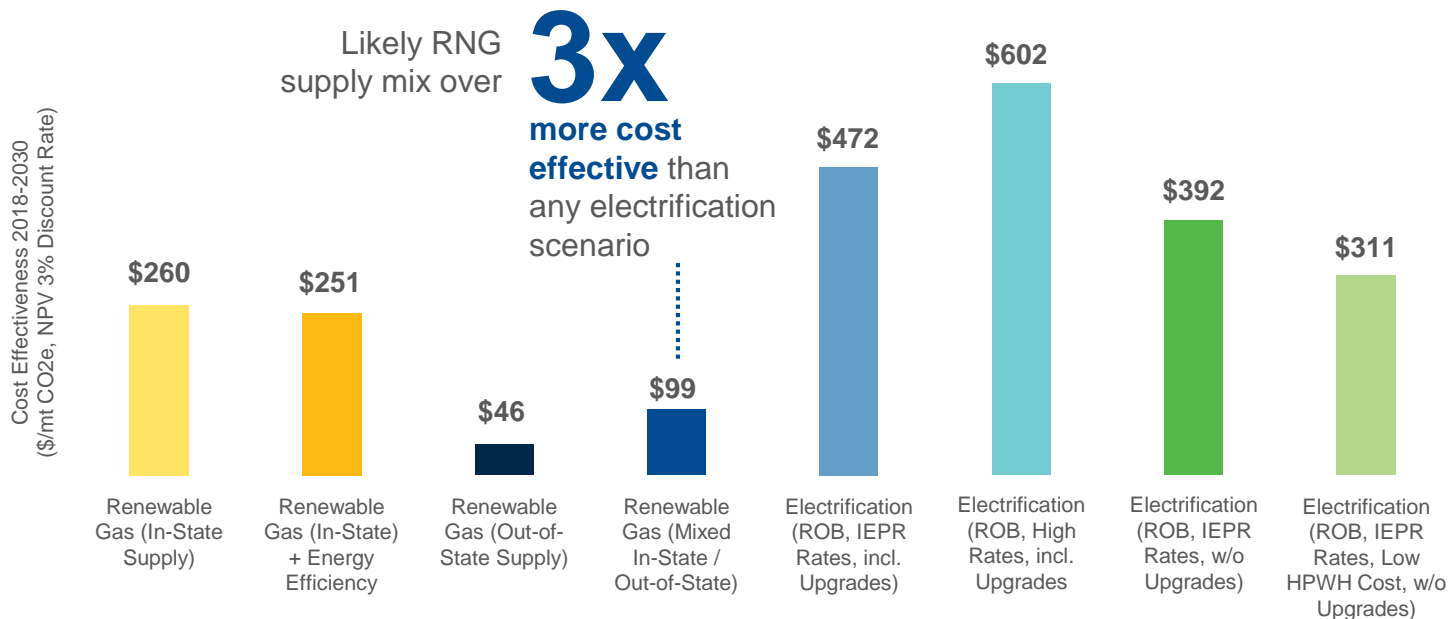
➤ Reduce short-lived climate pollutants and achieve

40%

capture of methane from CA waste streams (SB1383)

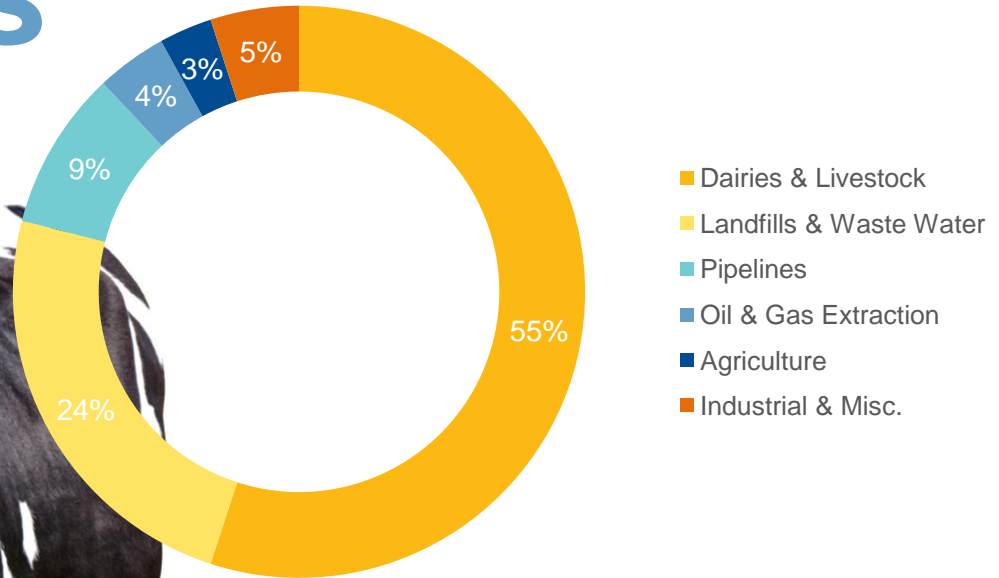
Source: Navigant Consulting, "Gas Strategies for a Low-Carbon California Future," 2018 ¹⁴

Renewable Natural Gas is also more cost effective



Source: Navigant Consulting, "Gas Strategies for a Low-Carbon California Future," 2018

And RNG gives us a clear path to address CA's biggest methane emitters



Source: CARB 2015 Greenhouse Gases Emissions Inventory, 2013 Methane Emissions

The RNG supply is available (2030): in-state estimates



94 BCF

UC Davis/ARB Study:
based on current
federal and LCFS
incentives

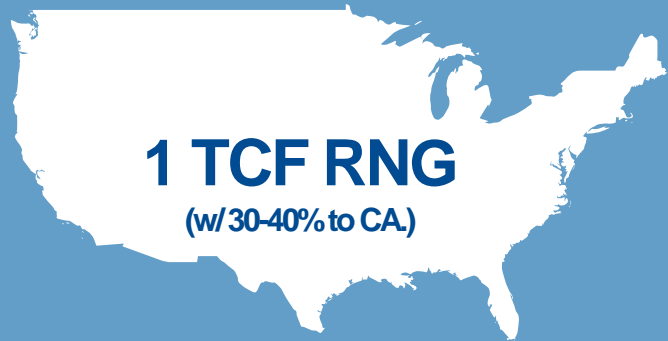
100-200 BCF

ICF Assessment:
CA with current
regulation / incentives;
100 BCF conservative
estimate

300 BCF

UC Davis/CEC Study

The RNG supply is available (2030): out-of -state resources

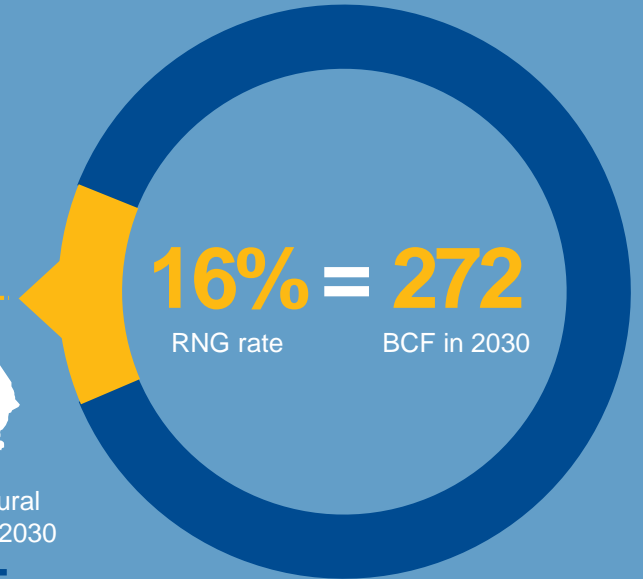


Available in the US today
(and growing to ~ 13 TCF
in 2030)



Projected CA natural
gas throughput by 2030

1.7 TCF



We need to decarbonize natural gas (2050) not just electrify end-uses



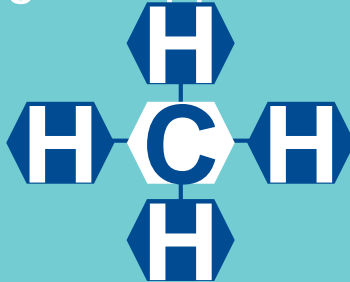
Develop the market
for renewable
natural gas

**Natural
Gas**
CH₄

(Methane)



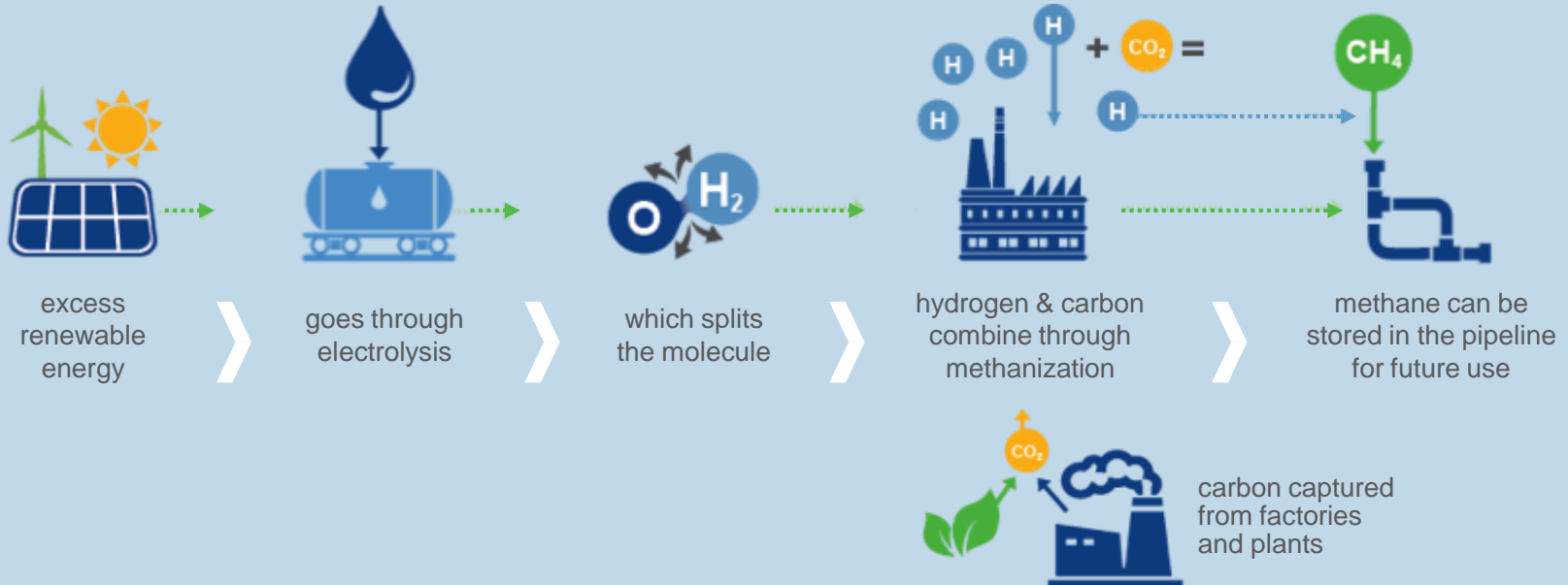
Decarbonize the
pipeline with
renewable natural
gas supplies



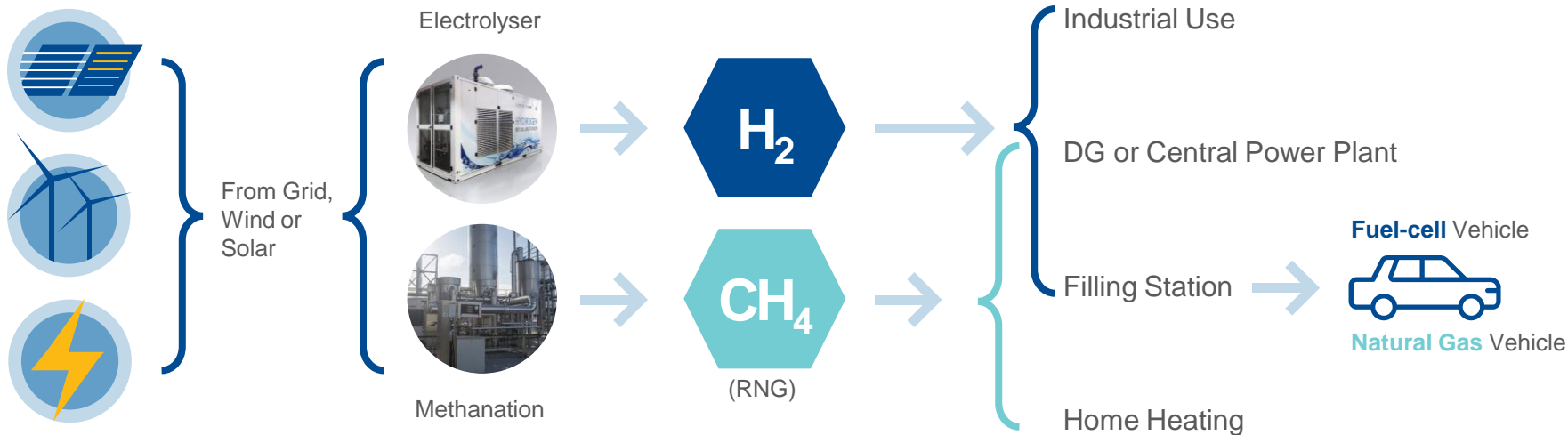
Harness Power-to-
Gas technology to
integrate electric and
natural gas grids for
long-term energy
supply and storage

Power-to-gas

converts excess renewable electricity
into renewable gas



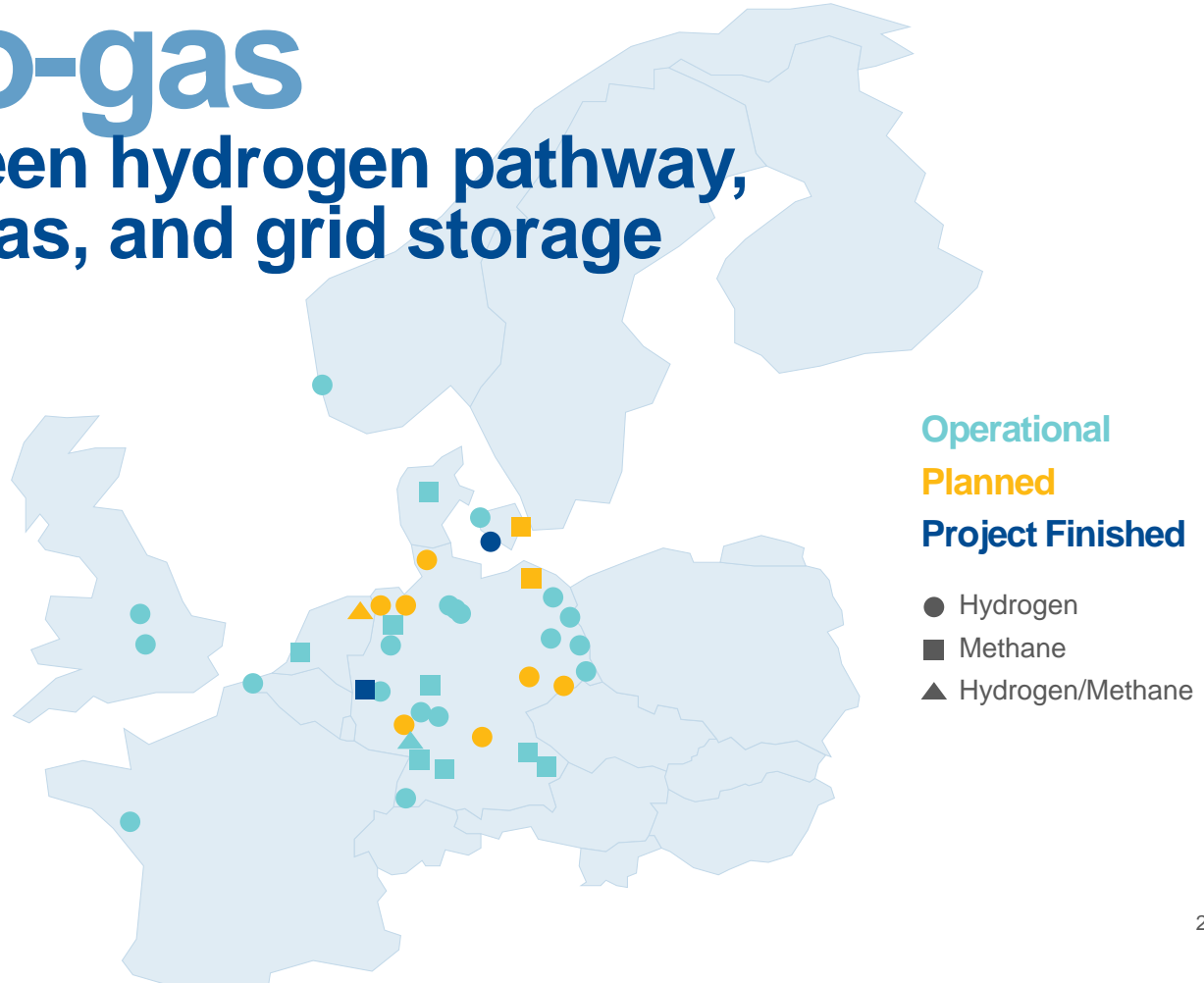
P2G creates flexibility



Power-to-gas

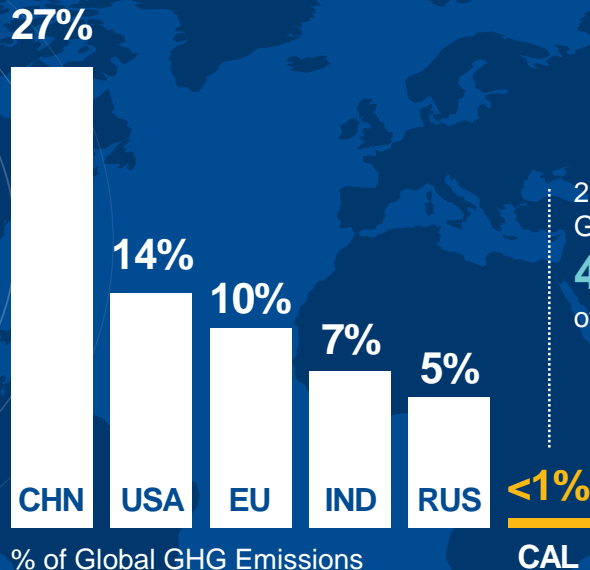
provides green hydrogen pathway,
renewable gas, and grid storage

- 70 Projects Now Launched In Europe
- 40 Projects Launched in Germany, with more in development
- 30 MW of installed capacity



Thinking globally:

Balanced Energy Solutions can have a Greater Impact



2030: Reduce
GHG emissions by
40%
of 1990 levels

How we
innovate
matters.

The point



You shouldn't have to choose between doing what's right for the environment and what your family can afford.

And with balanced energy solutions, you don't have to.

Here's what you can do



Pay attention
to the issue
and learn more



Help spread the
word with your
friends, family
and neighbors



Get involved
and let your
voice be heard

Learn more

- Californians For Balanced Energy Solutions
 - <https://c4bes.org/>
 - Non-Profit to inform energy users
 - Established to support balanced approach
 - Membership is free



Thank You

Ken Chawkins
kchawkins@semprautilities.com

Attachment C – SoCalGas Email to Local Governments with Attached Draft Balanced Energy Resolution

From: Lane, Randon K <RLane2@semprautilities.com>
Sent: Wednesday, March 27, 2019 8:21 PM
To: Lane, Randon K
Subject: Model Resolution
Attachments: Model Resolution.docx

Good evening,

When I spoke to each of your councils last year about the need for Balanced Energy I was asked how you could be of help. I am asking for your support by passing this **Model Resolution Supporting Balanced Energy Solutions and Maintaining Local Control of Energy Solutions.**

I have already spoken with many of your council members and I will be following up with each of you to see if there are any questions I might be able to answer.

I understand the significance of Local Control and every cities push to maintain there own control over these types of issues.

I look forward to your support.

Thank you,

Randon Lane
Public Affairs Manager
SoCalGas
25620 Jefferson Avenue
Murrieta, California 92562

Cell: 951-830-3485

Email: rlane2@semprautilities.com



Model Resolution Supporting Balanced Energy Solutions and Maintaining Local Control of Energy Solutions

Whereas California's energy policies are critical to reducing greenhouse gas emissions and reducing the impact of climate change on our citizens; and

Whereas the state legislature and state agencies are increasingly proposing new legislation and regulations eliminating choice of energy by mandating technologies to power buildings and public and private fleets, including transit and long-haul trucking, as a strategy to achieve the state's climate goals; and

Whereas clean, affordable and reliable energy is crucial to the material health, safety and well-being of [CITY NAME] residents, particularly the most vulnerable, who live on fixed incomes, including the elderly and working families who are struggling financially; and

Whereas the need for clean, affordable and reliable energy to attract and retain local businesses, create jobs and spur economic development is vital to our city's success in a highly competitive and increasingly regional and global marketplace; and

Whereas [CITY NAME], its residents and businesses value local control and the right to choose the policies and investments that most affordably and efficiently enable them to comply with state requirements; and

Whereas building and vehicle technology mandates eliminate local control and customer choice, suppress innovation, reduce reliability and unnecessarily increase costs for [CITY NAME] residents and businesses; and

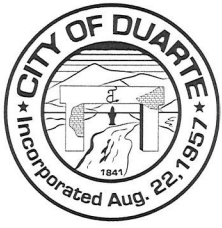
Whereas the City understands that relying on a single energy delivery system unnecessarily increases vulnerabilities to natural and man-made disasters, and that a diversity of energy delivery systems and resources contribute to greater reliability and community resilience; and

Whereas [CITY NAME] understands the need to mitigate the impacts of climate change and is committed to doing its part to help the state achieve its climate goals, but requires the flexibility to do so in a manner that best serves the needs of its residents and businesses. NOW, THEREFORE,

BE IT RESOLVED, by the Council of the City of [CITY NAME], as follows:

That the City supports balanced energy solutions that provide it with the decision-making authority and resources needed to achieve the state's climate goals and supports proposed state legislation and regulation that retains local control by allowing all technologies and energy resources that can power buildings and fuel vehicles, and also meet or exceed emissions reductions regulations.

Attachment D – Examples of Balanced Energy Resolutions Adopted by Local Governments



City of Duarte

1600 Huntington Drive | Duarte, CA 91010 | Bus. 626.357.7931 | Fax 626.358.0018 | www.accessduarte.com

May 14, 2019

Honorable Chair Denis Bertone
Energy, Environment, and Natural Resources Committee
San Gabriel Valley Council of Governments
1000 S. Fremont Avenue, Unit 42, Building A-10N, Suite 10-210
Alhambra, California 91803

RE: Balanced Energy Solutions

Dear Chair Bertone:

I understand there will be a presentation by CPUC President Michael Picker at your Special Meeting of the EENR Committee and Public Works TAC on Wednesday, May 15, 2019. I would like to share with you, the Committee, and TAC, that the City of Duarte is committed to doing our part to help the State achieve its climate goals. However, flexibility and community choice are vital to ensuring that residents and businesses can make the best decision regarding individual needs. Our hope is that the EENR Committee and Public Works TAC share some of the same concerns, and will relay those to CPUC President Picker.

On February 26, 2019, the Duarte City Council adopted Resolution No. 19-02 supporting efforts to maintain local control for energy solutions. A copy is enclosed for your reference. In summary, we believe that a single source energy solution eliminates customer choice, limits local control, creates vulnerabilities to the marketplace, and unnecessarily prohibits the use of other energy sources which also can be used to achieve climate goals.

The Duarte City Council supports balanced energy solutions that provide the decision-making authority and resources needed to achieve the State's climate goals, and supports proposed State legislation and policy that retains local control by allowing technologies that can power buildings and fuel vehicles, and meet or exceed emissions reductions regulations.

Please feel free to contact me or my staff at 626-357-7931 if we can answer any questions. Thank you for your consideration.

Sincerely,

Darrell J. George
City Manager

Enclosure – Duarte City Council Resolution No. 19-02

RESOLUTION NO. 19-02

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DUARTE, CALIFORNIA, SUPPORTING BALANCED ENERGY SOLUTIONS AND THE MAINTAINING OF LOCAL CONTROL OF ENERGY SOLUTIONS

WHEREAS, California’s energy policies are critical to reducing greenhouse gas emissions and reducing the impact of climate change on our citizens; and

WHEREAS, the State legislature and State agencies are increasingly proposing new legislation and regulations eliminating choice of energy by mandating technologies to power buildings and public and private fleets, including transit and long-haul trucking, as a strategy to achieve the State’s climate goals; and

WHEREAS, clean, affordable, and reliable energy is crucial to the material health, safety, and well-being of Duarte residents, particularly the most vulnerable who live on fixed incomes, including the elderly and working families who are struggling financially; and

WHEREAS, the need for clean, affordable, and reliable energy to attract and retain local businesses, create jobs, and spur economic development is vital to our City’s success in a highly competitive and increasingly regional and global marketplace; and

WHEREAS, the City of Duarte, its residents, and its businesses value local control and the right to choose the policies and investments that most affordably and efficiently enable them to comply with State requirements; and

WHEREAS, building and vehicle technology mandates eliminate local control and customer choice, suppress innovation, reduce reliability, and unnecessarily increase costs for Duarte residents and businesses; and

WHEREAS, the City of Duarte understands that relying on a single energy delivery system unnecessarily increases vulnerabilities to natural and man-made disasters, and that a diversity of energy delivery systems and resources contribute to greater reliability and community resilience; and

WHEREAS, the City of Duarte understands the need to mitigate the impacts of climate change, and is committed to doing its part to help the State achieve its climate goals, but requires the flexibility to do so in a manner that best serves the needs of its residents and businesses;

NOW, THEREFORE, the City Council of the City of Duarte, California, does hereby support balanced energy solutions that provide the decision-making authority and resources needed to achieve the State’s climate goals, and supports proposed State legislation and policy that retains local control by allowing technologies that can power buildings and fuel vehicles, and meet or exceed emissions reductions regulations.

PASSED, APPROVED, and ADOPTED this 26th day of February, 2019.

/s/ Tzeitel Paras-Caracci
Mayor Tzeitel Paras-Caracci

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.
CITY OF DUARTE)

I, Marla Akana, City Clerk of the City of Duarte, County of Los Angeles, State of California, hereby attest to the above signature and certify that Resolution No. 19-02 was adopted by the City Council of said City of Duarte at a regular meeting of said Council held on the 26th day of February, 2019, by the following vote:

- AYES: Councilmembers: Fasana, Kang, Nunez, Reilly, Urias, Paras-Caracci
- NOES: Councilmembers: None
- ABSENT: Councilmembers: Finlay
- ABSTAIN: Councilmembers: None

/s/ Marla Akana
City Clerk Marla Akana
City of Duarte, California



May 14, 2019

Honorable Chair Denis Bertone
Energy, Environment and Natural Resources Committee
San Gabriel Valley Council of Governments
1000 S. Fremont Avenue, Suite 10-210
Alhambra, CA 91803

Delivered via EMAIL

RE: BALANCED ENERGY SOLUTIONS

Dear Chair Bertone:

I understand there will be a presentation by CPUC President Michael Picker at your Special Meeting of the EENR Committee and Public Works TAC on Wednesday May, 15, 2019. I would like to share with you, the Committee and TAC, that Diamond Bar is committed to doing our part to help the state achieve its climate goals. However, flexibility and community choice are vital to ensuring that residents and businesses can make the best decision regarding individual needs. Our hope is that the EENR Committee and Public Works TAC share some of the same concerns and will relay those to CPUC President Picker.

On April 16, 2019, the Diamond Bar City Council adopted Resolution No. 2019-10 supporting efforts to maintain local control for energy solutions. A copy is attached for your reference. In summary, we believe that a single source energy solution eliminates customer choice, limits local control, creates vulnerabilities to the marketplace, and unnecessarily prohibits the use of other energy sources which also can be used to achieve climate goals.

Mandating all electrical appliances in new buildings is also a significant change that will be reflected in Title 24 and implemented through the State Building Codes by Community Development, Planning and Building Departments in most of our cities. It is requested that the EENR Committee also seek input from Planning TAC in addition to the Public Works TAC, as it will be the Planning and Building Staff that will be on the front lines being forced to implement these new regulations.

Carol Herrera
Mayor

Steve Tye
Mayor Pro Tem

Andrew Chou
Council Member

Ruth M. Low
Council Member

Nancy A. Lyons
Council Member

Please feel free to contact me or my Staff at 909.839.7010 if we can answer any questions.
Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read 'DFox', written over the word 'Sincerely,'.

Daniel Fox
City Manager

Attachment: City Council Resolution No. 2019-10, Balanced Energy Solutions

cc: City Council
David Liu, Public Works Director
Marisa Creter, Executive Director/CEO, SGVCOG
Rene Guerrero, Chair, PW TAC, SGVCOG
Craig Hensley, Chair, Planning TAC
Robert Cruz, Public Affairs Manager, So Cal Gas

RESOLUTION NO. 2019- 10

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY
OF DIAMOND BAR SUPPORTING EFFORTS TO
MAINTAIN LOCAL CONTROL OF ENERGY SOLUTIONS**

WHEREAS California's energy policies are critical to reducing greenhouse gas emissions and reducing the impact of climate change; and

WHEREAS the state legislature and state agencies are increasingly proposing new legislation and regulations eliminating choice of energy by mandating single source technologies to power buildings and public fleets, including transit, as a strategy to help achieve the state's climate goals; and

WHEREAS the City of Diamond Bar, its residents and businesses, value local control and the right to choose the policies and investments that most affordably and efficiently enable them to comply with state requirements; and

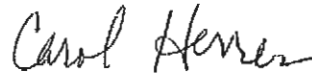
WHEREAS single source building and vehicle technology mandates eliminate local control and customer choice, suppress innovation, reduce reliability and unnecessarily increase costs for Diamond Bar residents and businesses; and

WHEREAS relying on a single energy delivery system unnecessarily increases vulnerabilities to natural and man-made disasters, and that a diversity of energy delivery systems and resources contribute to greater reliability and community resilience; and

WHEREAS the City of Diamond Bar is committed to doing its part to help the state achieve its climate goals, but requires the flexibility to do so in a manner that best serves the needs of its residents and businesses.

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Diamond Bar does hereby support balanced energy solutions that provide local control authority, and opposes proposed state legislation and policy that eliminate such local control or mandates single energy technologies, to achieve the state's climate goals.

PASSED, APPROVED, AND ADOPTED this 16th day of April, 2019.

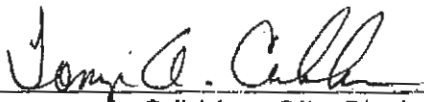


Carol Herrera, Mayor

ATTEST:

I, Tommye A. Cribbins, City Clerk of the City of Diamond Bar, California, do hereby certify that the foregoing Resolution was duly and regularly passed, approved and adopted by the City Council of the City of Diamond Bar, California, at its Regular meeting held on the 16th day of April 2019, by the following Roll Call vote:

AYES: COUNCILMEMBERS: Chou, Low, Lyons, MPT/Tye,
M/Herrera
NOES: COUNCILMEMBERS: None
ABSENT: COUNCILMEMBERS: None
ABSTAIN: COUNCILMEMBERS: None



Tommye A. Cribbins, City Clerk
City of Diamond Bar