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Exhibit Number:	_____
Commissioner:	Clifford Rechtschaffen
ALJ:	Colin Rizzo
Witness:	Thomas R. Del Monte, JD/MBA

DIRECT TESTIMONY OF THOMAS R. DEL MONTE, JD/MBA
ON BEHALF OF WILD TREE FOUNDATION

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DIRECT TESTIMONY OF THOMAS R. DEL MONTE, JD/MBA

ON BEHALF OF WILD TREE FOUNDATION

Q1: Please state your name and address:

A1: My name is Thomas R. Del Monte. My business address is 1555 Botelho Drive, #172 Walnut Creek, California 94596.

Q2: What is the purpose of this testimony?

A2. This testimony is prepared to address the question of whether applicant utilities SDG&E and SoCalGas ("Applicants") application for a Renewable Natural Gas Tariff is just and reasonable. The purpose of this testimony is to address the merits of certain arguments presented in support of Applicants' renewable natural gas ("RNG") tariff application.

Q3: Please describe your qualifications for providing this testimony.

A3: I have approximately eight years of experience in the thermal biomass conversion to fuel gas industry as the CEO, lead engineer, and primary inventor (Patent # US9005402B2) of a company developing a thermal biomass-to-high-methane fuel gas reactor. I have designed gas cleaning, upgrading, and methanation equipment to convert the fuel gas product from biomass gasification/pyrolysis into RNG quality biomethane. I have been awarded, as the Principle Investigator, two grants totaling approximate $3 million at from the California Energy Commission ("CEC") under solicitations entitled, "Renewable Natural Gas Transportation Fuel Production Systems with Value Added Co-Products/Benefits" and "Advancing

Cleaner, Less Costly, More Reliable Distributed Generation to Enable Customer Solutions and Zero-Net Energy Communities." As the CEO of Interra Energy and Principle Investigator under these CEC grants, I led the construction and successful testing of an industrial-scale demonstration plant of the above referenced technology. I was a member of the Statewide Technical Advisory Group for CalRecycle's successful effort to prepare a CEQA Programmatic EIR for anaerobic digestion projects; my contribution related to identifying potential environmental impacts as well as regulatory, technical, and economic obstacles to implementing potential projects. More recently, I was the lead developer of three simultaneous California distributed biomass power plant developments – two for processing forest biomass located in different locations within the Sierra Nevada mountain range and one processing agricultural residues and green waste at a commercial recycling and processing facility.

I hold an MBA from the UC San Diego, Rady School of Management and have experience valuating RNG markets for both transportation fuel and pipeline injection and associated GHG accounting and credit monetization markets. I earned a JD from the University of San Diego School of Law and served as the editor in chief of the "San Diego Journal of Climate & Energy Law." In sum, I have deep experience in California energy law and policy from the perspective of an RNG technology inventor/engineer, attorney, MBA, and business owner. For more information, I have attached my CV as Appendix A.

Q4: What information have you used to formulate your testimony?

A4: I rely on the years of experience referenced above and have also reviewed the application, Applicants' opening and supplemental testimony, and responses to data requests. I have also reviewed various reports and papers published in the scientific literature, by regulatory agencies, and trade groups regarding the market for biomethane, uses of biomethane, and regulation of biomethane.

Q5: Is there a sufficient supply of RNG to replace natural gas?

A5: This question gets to the heart of one of the main problems with the RNG pipeline-injection use case. Based on the limitations feedstock production, RNG will always be a local product produced at local scales. Applicants claim there is "104 to 208 BCF/year of total RNG supply potential in California."[1] Even granting the *technical* potential is achieved after numerous years and billions of incentive dollars, the best case of California produced RNG potential is offsetting 4.927% to 9.953% of California's 2017's 2,111 BCF/year[2] fossil natural gas usage. The California situation is similar to the national case in that available biogas feedstocks in the United States are only sufficient to produce enough RNG to replace 4-10% of existing distributed fossil natural gas demand.[3] These extreme limitations of the

[1] Direct Testimony of Andrew Cheung (SoCalGas/SDG&E) at p. 1.
[2] U.S. Energy Information Administration, *Natural Gas Consumption by End Use*, https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm.
[3] American Gas Foundation, *The potential for renewable gas: Biogas derived from biomass feedstocks and upgraded to pipeline quality* (2011), available at: https://www.eesi.org/files/agf-renewable-gas-assessment-report-110901.pdf.

impact of RNG for a fossil natural gas offset calls into question the value of the advancing policy in this direction further than that which is legally required.

Importing more RNG from out-of-state resources may be able to up the fossil natural gas offset numbers a bit. However, in the out-of-state import case, the GHG benefits *gained* using the RNG in California are the same potential GHG benefits *lost* by the non-California jurisdiction importing the RNG, plus all the inefficacies added for transportation and the required upgrading.

Further, there are widely divergent estimates as to supply potential of RNG in California but there is agreement as to the fact that the amount of economically feasible RNG potential is much lower than that technically available.[4] The CEC explains in the 2017 Integrated Energy Policy Report ("2017 IEPR") that "Economic potential refers to what is actually commercially viable when factoring in economies of scale of transporting the resource to market, cleaning and processing it, and myriad other associated requirements."[5] The 2017 IEPR relies upon analysis from University of California, Davis that estimates 82 BCF/year of economically feasible RNG potential in California where the RNG can be sold for less than the net cost of fossil natural gas.[6] But, this assumes a natural gas market price of $3/MMBtu, Low-Carbon Fuel Standard credit price of $120 per metric ton of carbon dioxide equivalent (MT-CO2e), and a renewable identification number ("RIN") credit price of $1.78 per D3 RIN.[7] Without the added value of the credits, there is no economically feasible RNG

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[4] CEC, *2017 Integrated Energy Policy Report* (February 2018) at p. 254, available at: https://ww2.energy.ca.gov/2017_energypolicy/ ("2017 IERP").
[5] 2017 IEPR at p. 250.
[6] *Id.* at p. 252
[7] *Ibid.*

because its price is much greater than natural gas. For example, as the CEC explains, "CARB's SLCP Reduction Strategy (March 2017) includes an assessment of different renewable gas end uses for different dairy operations. No modeled project was revenue positive in the absence of LCFS and RIN credits."[8]

Q6: Would the proposed RNG tariff result in a growth of the market for RNG in California?

A6: The Applicants have not demonstrated that their proposed RNG tariff will result in growth of the market for RNG in California and it is unlikely to do so because the Applicants are not proposing to source RNG from California and to do so would not be economical at the voluntary tariff levels Applicants envision.

The Applicants have insisted that it "must" be able to source RNG from out of state and even from out of country.[9] This is not surprising because all of California potential supply is already being sold into the higher value transportation market with no signs of slowing down. With no enforceable commitment to purchasing California-sourced RNG, the RNG tariff will primarily serve to transfer ratepayer money to out-of-state RNG sources.

The production of renewable natural gas for transportation fuel is the primary RNG market driver today. But in its RNG tariff, Applicants would specifically not be providing transportation fuel eligible for the credits. In the 2017 IEPR, the CEC explains the low value of such pipeline injected RNG: "Two independent studies

[8] 2017 IEPT at p. 270.
[9] Supplemental Testimony (SoCalGas/SDG&E) at p. 7; Response to Wild Tree Foundation Data Request #2 to SoCalGas/SDG&E (October 14, 2019).

carried out by the University of California, Davis, and ICF International concluded that existing government policies (with some modifications) could support the substantial growth of renewable gas, particularly as a transportation fuel. Both studies noted that renewable gas production can generate up to four times the revenue for transportation fuel use compared to electricity from the same renewable gas sources because of the monetary value of credits generated from the federal Renewable Fuels Standard and California Low Carbon Fuel Standard for renewable transportation fuels."[10] A market is not going to develop based upon Applicants' offers to purchase RNG for a much lower price especially given the poor reputation and credit ratings of California's investor owned utilities.

The Applicants' claims that they will be able to convince RNG producers to accept lower prices based upon the advantages of contracting with an investor owned utility. "In general, suppliers/producers place a premium on contracts with a credit-worthy counterparty, longer contract terms and minimum delivery requirements. As a result, Gas Acquisition expects that RNG suppliers will be more likely to accept a pricing structure that discounts the incentives available in the transportation sector in return for the advantages of contracting with an investor-owned utility."[11] First, this assumes that current contracts for RNG as transportation fuel do not provide favorable terms for producers. In fact, transportation-specific biogas projects are a viable, financially attractive investment for financiers, investors, and developers. Secondly, California investor owned utilities are not necessarily credit-worthy and

[10] 2017 IEPR at p. 11.
[11] Direct Testimony of Andrew Cheung (SoCalGas/SDG&E) at p. 3.

have a deservedly poor reputation and so there is no reason to believe that contracting with such an entity will be preferable. SDG&E and Sempra are both currently rated Baa1 by Moody's[12], defined as "medium-grade and subject to moderate credit risk and as such may possess certain speculative characteristics."[13] SoCalGas is rate A1, "upper-medium grade and are subject to low credit risk" but has a negative outlook due to its credit metrics, causing the biggest methane leak in United States history at Aliso Canyon, and "heightened regulatory and political uncertainty for all utilities operating in California."[14] PG&E, of course, is rated as junk. There is no reason to believe that there are any "advantages" to contracting with investor owned utilities that will incent producers to accept a lower price for RNG than that is already available in the transportation fuel market. Such a scenario will not result in growth of RNG market in California.

[12] Moody's, *San Diego Gas and Electric Ratings*, https://www.moodys.com/credit-ratings/San-Diego-Gas-Electric-Company-credit-rating-657000; Moody's, *Sempra Energy Ratings*, https://www.moodys.com/credit-ratings/Sempra-Energy-credit-rating-600046021.
[13] Moody's, *Rating Symbols and Definitions*, https://www.moodys.com/Pages/amr002002.aspx.
[14] Moody's, *Moody's Affirms Southern California Gas at A1, Changes Outlook to Negative*, https://www.moodys.com/research/Moodys-affirms-Southern-California-Gas-at-A1-changes-outlook-to--PR_401174.

Q7: Would it be beneficial to grow a market for pipeline injected RNG not be used for transportation?

A7: There is no benefit to growing a market for pipeline injected RNG gas in competition with transportation utilized RNG and there is likely harmed caused by diverting RNG from onsite use for distributed electricity generation or truck and equipment fueling. As the CEC explains, "Analyses indicate that renewable gas end use as a transportation fuel in natural gas vehicles should be prioritized since it provides the most cost-effective GHG emissions reductions with modest capital costs."[15]

It is my opinion that there are two insurmountable barriers to the pipeline injection of RNG use case being economic in anything except fringe cases. First, pipeline injected methane cannot compete with transportation use both economically and logistically. As discussed above, credits available for transportation RNG make it far more valuable than pipeline injected RNG. Logistically, pipeline injected RNG lacks the ready-made market for transportation RNG at generation sites.

Due to a current lack of electric powered options for the California's fossil diesel fleet, it is widely recognized that compressed fossil natural gas or compressed RNG is the most practical transportation fuel alternative. To put this in perspective, there was approximately 4.2 billion gallons of diesel fuel sold in California in 2015.[16] This equates to approximately 566 BCF/year of RNG, more than enough to absorb most, if not all, of California's potential RNG production. The vast majority of

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[15] 2017 IEPR at p. 271.
[16] CEC, *Diesel Fuel Data, Facts, and Statistics*, https://ww2.energy.ca.gov/almanac/transportation_data/diesel.html.

biogas feedstock that is biologically or thermally converted into RNG are moved by trucks and onsite heavy equipment - whether it is from trucks hauling food waste from city centers to landfills or trucks hauling grain and hay to cow feedlots where the manure methane can be captured in anaerobic digestion systems. The daily traffic of truck coming and going to biogas generation sites creates a ready-made market for transportation use at these locations.

Diverting potential RNG production away from a market with no current viable renewable alternative to use RNG in the building sector which has numerous other decarbonization options does not make sense. As such, RNG will never be a scalable decarbonization strategy for natural gas systems in the building sector.

The second natural barrier to pipeline injection of RNG is the location of where biogas and biomethane are produced compared to where natural gas pipelines currently exist. For example, most landfills are located far outside the city boundaries not near an existing natural gas line. However, nearly all have a power line or two already servicing buildings and outhouses on the property. Following animal agriculture and landfills, the third largest contributor to methane emissions in California is leaks from transmission and distribution of natural gas.[17] Leakage of methane at all points along the RNG life cycle can completely erase any claimed GHG emissions reductions.[18] Onsite use of RNG eliminates the emissions caused by leakage in transport and storage, including pipeline leakage.[19] Why would California

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[17] 2017 IEPR at p. 247.
[18] World Resources Institute, *The Production and Use of Renewable Natural Gas as a Climate Strategy in the United States* (April 2018) at pp. 15-17, available at: http://www.wri.org/publication/renewable-natural-gas.
[19] *Id.* at p. 17.

policy and incentives be expended to build new pipelines to landfills when the infrastructure and market already exists to convert and sell upgraded biogas or landfill gas as to fuel vehicles or even using it raw for onsite electric production and thermal uses? The utilities' application has not answered this question.

Q8: Can RNG play a pivotal role in building decarbonization by replacing natural gas?

A8: RNG does not have any significant role to play in building decarbonization efforts in California because it is not abundant enough, costs too much, and lacks benefits such as improvement of indoor air quality and increase in public safety that other measures provide. The CEC has determined that that there is not enough waste methane to displace natural gas in buildings.[20] The CEC *decreased* reliance of waste methane in its most recent update to its Deep Decarbonization in a High Renewables Future explaining, "reduced dependence on biofuels in the High Electrification scenario is intended to reduce environmental risk, as well as cost risk."[21]

Commission and CEC Staff have not recommended use of RNG in any fashion in implementation of SB 1477 as a tool to decarbonize buildings. The joint Commission/CEC *Proposal for Building Decarbonization Pilots – Draft In compliance with SB 1477 (2018) and with CPUC R.19-01-011I*, over the objection of

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[20] CEC, *Deep Decarbonization in a High Renewables Future, Updated Results from the California PATHWAYS Model* (June 2018) at p. 33, available at http://www.energy.ca.gov/2018publications/CEC-500-2018-012/CEC-500-2018-012.pdf

[21] *Id.* at p. 46.

SoCalGas, does not include RNG as a building decarbonization method.[22] The Proposal states, "Building Decarbonization Coalition pointed out a study conducted by Energy Commission on renewable natural gas to learn how much renewable gas can be produced in California. It showed that production of RNG in CA will not meet the demand necessary to meet the 2030 goals and the cost would be high."[23]

Electrification paired with energy efficiency and behind the meter solar PV provides the best method to decarbonize buildings. As the CEC stated in it 2018 Integrated Energy Policy Report Update, "There is a growing consensus that building electrification is the most viable and predictable path to zero-emission buildings."[24]

An electrification pathway requires substantial energy efficiency retrofits for existing building stock, enhanced energy efficiency standards for new construction, and the implementation of technology in home and water heating, all of which will require considerable investment to be accomplished to scale. Updates to the Title 24 Building Code have moved new constructions in the right direction in regards to efficiency and rooftop solar and implementation of SB 1477 will provide opportunities for innovation and market growth of low-carbon heating technologies. An RNG building decarbonization pathway would displace only finite volumes of

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[22] California Public Utilities Commission and California Energy Commission, *Proposal for Building Decarbonization Pilots – Draft In compliance with SB 1477 (2018) and with CPUC R.19-01-011I* (July 16, 2019) at pp. 15-16, available at: https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442462255.

[23] *Ibid.*

[24] CEC, Final 2018 Integrated Energy Policy Report Update Volume II (2018) at p. 28, available at: https://ww2.energy.ca.gov/2018_energypolicy/.

fossil natural gas in existing distribution systems, is very expensive, and lacks the capacity to scale. These issues will only grow over time.

The only source that the Applicant cites for its proposition that "RNG can help reduce GHG emissions from energy use in buildings and provide an alternative to all electric buildings so Californians are not dependent on a single fuel source"[25] is a report by the Energy Futures Initiative ("EFI").[26] First, SDG&E and SoCalGas are both sponsors of this report, making its value limited. But, more importantly, the Applicant greatly overstates the conclusions of the report. EFI's analysis, which I question, concludes that the by 2030, RNG could provide less than 10% of the building sector's gas demand in 2030.[27] And even this estimate of "potential availability" is qualified by concerns regarding the long term viability of RNG due to limited market supply and high cost.[28] EFI adds that, "An additional economic issue is that RNG use is contingent on the existing natural gas infrastructure. As that infrastructure continues to age, costly upgrades, maintenance, and repairs will become necessary. At the same time, declining natural gas throughput because of energy efficiency and electrification have contributed to gas price increases for most customer classes in the last five years. With California's ambitious decarbonization efforts, it is likely that this trend will continue. The combination of these factors creates economic risk for the RNG pathway."[29] Adopting an RNG strategy alongside

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[25] Opening Testimony of Tanya Peacock (SDG&E/SoCalGas) at p. 2.
[26] Supplemental Testimony (SoCalGas/SDG&E) at pp. 3-4.
[27] Energy Futures Initiative, Pathways for Deep Carbonization in California (May 2019) at p. 179, available at: https://energyfuturesinitiative.org/s/EFI_CA_Decarbonization_Full-b3at.pdf.
[28] *Id.* at p. 180
[29] *Ibid.*

an electrification risks driving up costs and ultimately slowing the pace of decarbonization in the building sector. Applicants have not shown that RNG is a viable building decarbonization strategy.

Q9: Will the method identified by the Applicant for measuring GHG emissions from RNG accurately measure GHG emissions?

A9: Applicant has stated that the RNG tariff should be approved because "a voluntary renewable gas tariff will support the State's carbon neutrality goals by providing customers an option to select renewable gas for their thermal energy needs."[30] Applicant states that it "will report to RNG tariff customers on "total CO2e reduction during their participation,"[31] will report quarterly to the Commission on "GHG reductions achieved,"[32] and will use the RNG tariff to reduce SoCalGas' annual Cap-and-Trade GHG emissions compliance obligation.[33] Applicant also claims that "environmental attributes associated with the RNG Tariff program may be disclosed by participating customers for voluntary sustainability reporting programs."[34] The method by which the GHG emissions of RNG is therefore critical in regards to the potential harm that an RNG tariff could cause to consumers if they were misled regarding claimed GHG emission reductions and harm to the climate should SoCalGas use an RNG tariff to reduce its GHG emission compliance

[30] Direct Testimony of Tanya Peacock (SoCalGas/SDG&E) at p. 6.
[31] Direct Testimony of Grant Wooden (SoCalGas/SDG&E) at p. 17.
[32] *Id.* at pp. 16-17.
[33] Supplemental Testimony (SoCalGas/SDG&E) at p. 13.
[34] *Ibid.*

obligations based upon claims that it reduced GHG emission more than it actually did.

The method by which the Applicant states it will account for RNG GHG emissions accounting – the CARB accounting methodology – will result in far less GHG emission reduction than claimed. Applicant's own report from EFL explains the problem: "In CARB's emissions inventory, sources of methane with capture-in-place have lower GHG emissions, and combusting biogas is considered carbon-neutral. This method potentially overstates the savings from biogas by treating the entire process as if it produced no emissions."[35]

Q10: How should GHG emissions from RNG be measured?

A10: The net life-cycle GHG emissions associated with RNG should be determined by adding together all GHG emissions associated with the RNG pathway and subtracting the avoided emissions from the reference case and any use of RNG coproducts that result in further avoided emissions.[36] The three main sources of GHG emission across RNG life cycle must be accounted for: 1.) energy use required to produce, process, and distribute the fuel for use in pipelines; 2.) combustion of RNG; 3.) leaks of methane that can occur at all stages in the life cycle from production through use. CARB's methodology for calculating carbon intensities for RNG under the California Low Carbon Fuel Standard does take into account the GHG emissions

[35] Energy Futures Initiative, Pathways for Deep Carbonization in California (May 2019) at p. 213.
[36] See World Resources Institute, *The Production and Use of Renewable Natural Gas as a Climate Strategy in the United States* (April 2018) at pp. 2-3.

from combustion and does factor in the lifecycle emissions of the fuel (e.g., energy use in biogas production, RNG transportation), and does so on a case-by-case basis for different RNG producers.

GHG emission reductions must be calculated on a project-by-project basis because the level of methane capture, processing required to removed contaminants, and transportation needs vary greatly. Most importantly, without having to demonstrate the "no project" scenario baseline, it is impossible to reasonably make an *additionality* determination which is fundamental in understanding whether each project actually does have a net GHG emission reduction effect compared to the baseline.

Q11: Does this conclude your reply testimony?

A11: Yes.