

Application: A.25-10-XXX
Witness: Nathaniel Taylor
Chapter: 1

**PREPARED DIRECT TESTIMONY OF NATHANIEL TAYLOR
ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY
(POLICY)**

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

October 15, 2025

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**PREPARED DIRECT TESTIMONY OF
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CHAPTER 1
(POLICY)**

I. PURPOSE

Southern California Gas Company (“SoCalGas”) seeks approval of an application proposing a Senate Bill (“SB”) 1440 gasification¹ pilot project (“SB 1440 Pilot Project”) that utilizes woody biomass to produce and inject biomethane into the SoCalGas pipeline system (“Application”). Pursuant to the California Public Utilities Commission’s (“Commission” or “CPUC”) Decision (“D.”) 22-02-025 (“SB 1440 Decision”), Ordering Paragraph (“OP”) 43 and D.24-12-032, OP 2, SoCalGas submits the Application seeking approval of the SB 1440 Pilot Project. Data from the SB 1440 Pilot Project can provide key technical, operational, and safety information to support the development of gasification processes, the methanation process, and/or pipeline infrastructure.

The purpose of this chapter’s testimony is to provide the policy justification and context for how the SB 1440 Pilot Project can be an essential component of California’s carbon neutral energy economy. The chapter also highlights the growing need for alternative methods of managing woody biomass waste, prompted by recent regulatory changes from the San Joaquin Valley Air Pollution Control District. These policies aim to nearly eliminate open agricultural burning in order to mitigate short-lived climate pollutants (SLCPs) and local air quality contaminants.² This testimony will elaborate on how the SB 1440 Pilot Project will support state energy policy objectives and reduce statewide greenhouse gas (“GHG”) emissions.

¹ Gasification is thermal conversion of organic materials at elevated temperature and reducing conditions to produce primarily permanent gases, with char, water, and condensables as minor products. See National Renewable Energy Laboratory (NREL), *An Introduction to Biomass Thermal Conversion* (August 2004), available at: <https://www.nrel.gov/docs/gen/fy04/36831e.pdf>.

² As of January 1, 2025, San Joaquin Valley Air Pollution and District has reached the end of a multi-year tiered phase-out of nearly all agricultural open burning in the San Joaquin Valley. While the completion of these phase-outs marks a monumental reduction in open agricultural burning in the San Joaquin Valley, there are limited exceptions and other materials for which agricultural burning will continue to be permitted. See San Joaquin Valley Air Pollution and District, *Agriculture Burning - Current Open Burning Requirements*, available at: <https://www.valleyair.org/agriculture/agricultural-burning>.

II. LEVERAGING SOCALGAS'S EXISTING GAS SYSTEMS TO INJECT BIOMETHANE DERIVED FROM WOODY BIOMASS COULD HELP ACCELERATE THE DEVELOPMENT OF A DECARBONIZED FUELS NETWORK

A. Introduction

SoCalGas supports California's climate and energy goals, including SB 32,³ achieving carbon neutrality by 2045 (E.O. B-55-18),⁴ and fulfilling the 100% Clean Energy Act of 2018 by 2045 (SB 100).⁵ In alignment with the state of California's plan for economy-wide decarbonization,⁶ SoCalGas recognizes that both decarbonized molecules and electrons, as well as a diverse energy technology portfolio to produce both of them at scale, will likely be required to reach carbon neutrality while providing safe, reliable, and resilient energy.

The sources and quantities of waste biomass in California (available for biomass conversion) are expected to increase in the future. The total quantity of agricultural residue biomass available in 2025 is estimated to be approximately 10.4 million bone dry tons ("BDT") per year, and in 2045 it is estimated to be 12.7 million BDT per year.⁷ The annual quantity of agricultural and municipal solid waste biomass available for biomass conversion is estimated to grow due to a variety of reasons: SB 1383 mandated landfill diversion goals,⁸ anticipated

³ SB 32 (Pavley, 2016), available at: https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB32.

⁴ State of California – Executive Department, *Executive Order B-55-18 To Achieve Carbon Neutrality* (September 2018), available at: <https://www.ca.gov/archive/gov39/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf>.

⁵ SB 100 (De León, 2018), available at: https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB100.

⁶ CARB, *2022 Scoping Plan for Achieving Carbon Neutrality* (December 2022), available at: <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>.

⁷ Lawrence Livermore Laboratories, *"Getting to Neutral: Options for Negative Carbon Emission in California"* at 31 (Revision 1, Aug. 2020), available at: https://gs.llnl.gov/sites/gs/files/2021-08/getting_to_neutral.pdf.

⁸ CalRecycle, *Short-lived Climate Pollutants (SLCP): Organic Waste Reductions* (November 2020), available at: <https://www2.calrecycle.ca.gov/Docs/Web/118371>.

1 population growth,⁹ and agricultural practice changes due to climate change.¹⁰ Forest biomass,
2 including shrub and chaparral plants, is estimated to increase due to requirements to address
3 wildfire mitigation, habitat improvement activities, and increasing forest biomass utilization.¹¹
4 Development of projects to convert woody biomass to biomethane in SoCalGas's service
5 territory, in addition to providing a decarbonized fuels production pathway, can complement
6 woody biomass management efforts.

7 Biomass generated from forest, agricultural, and wood waste management can be used to
8 generate biofuels, including bio-synthetic natural gas ("Bio-SNG").¹² This fuel can be injected
9 into SoCalGas's pipelines to further decarbonize the gas supply and satisfy demand across a
10 broad range of end uses, such as power generation and transportation fuel in vehicles, primarily
11 for heavy duty. In addition, the gasification and pyrolysis processes can generate byproducts
12 such as biochar and ash that can be used as a soil amendment.¹³

⁹ Public Policy Institute of California ("PPIC"), *Population – California's Future* (January 2020), available at: <https://www.ppic.org/wp-content/uploads/californias-future-population-january-2020.pdf>.

¹⁰ San Joaquin Valley Air Pollution Control District, Letter from California Air Resources Board ("CARB") in concurrence with the San Joaquin Valley Air Pollution Control District's 2020 Staff Report and Recommendations on Agricultural Burning through August 31, 2021 (June 18, 2021) (hereinafter "CARB Agricultural Burning Concurrence Letter"), available at: https://ww2.valleyair.org/media/5lan5hsx/jun-2021-sjv-ag-burn-concurrence-letter_final.pdf.

¹¹ CPUC, *Agreement for Shared Stewardship of California's Forest and Rangelands between the State of California and the USDA, Forest Service Pacific Southwest Region* (August 12, 2020), available at: <https://www.gov.ca.gov/wp-content/uploads/2020/08/8.12.20-CA-Shared-Stewardship-MOU.pdf>.

¹² D.22-02-025 at 2, n.1 ("Bio-SNG derives from non-combustion thermal conversion, such as pyrolysis and gasification, of exclusively organic material. The feedstocks generally consist of woody biomass, such as forest waste, agricultural waste, and urban wood waste. Bio-SNG is defined in the R.13-02-008 Phase 4A Staff Proposal as follows: 'A mixture composed primarily of methane, carbon dioxide, and water produced by chemical conversion (catalytic methanation) of purified and conditioned renewable syngas. Also contains low concentrations of carbon monoxide, hydrogen, and other minor constituents.'") For purposes of this Testimony, Bio-SNG, biomethane and renewable natural gas (RNG) are considered the same.

¹³ Source: Nastaran Basiri Jahromi, *et al.*, *What Is Biochar and How Different Biochars Can Improve Your Crops*, University of Tennessee Extension – Institute of Agriculture (2019), available at: <https://abatable.com/wp-content/uploads/2022/10/W829-What-Is-Biochar-and-How-Different-Biochars-Can-Improve-Your-Crops-.pdf>.

1 **B. Converting Woody Biomass into Decarbonized Fuels Can Help California**
2 **Achieve Its Climate and Air Quality Goals by 2045**

3 Using woody biomass for gasification can play a pivotal role in helping California meet
4 its climate goals by turning wood waste into a decarbonized energy resource. Gasification is a
5 thermochemical process that converts biomass—such as agricultural and forestry waste—into
6 low-carbon fuels like Bio-SNG. This not only displaces traditional fuel used in transportation,
7 homes and businesses, it can also reduce methane and carbon dioxide emissions that would
8 otherwise result from other feedstock management methods (*e.g.*, open burning, biomass
9 generation plants, natural decomposition of forest residues). Additionally, gasification can
10 produce biochar and/or ash, a carbon byproduct that can be used to improve soil health and
11 sequester carbon long-term.

12 A recent paper from the Giannini Foundation of Agricultural Economics at the University
13 of California¹⁴ advocates for the use of thermal conversion technologies—such as gasification—
14 to transform biomass waste into high-value products like biofuels, biogas, and biochar. The
15 paper emphasizes that biomass represents a largely untapped renewable resource, and its
16 strategic utilization could deliver multiple benefits: reducing organic waste volumes, lowering
17 wildfire risk, decreasing reliance on imported fossil fuels, cutting greenhouse gas emissions, and
18 generating new employment opportunities in rural and low-income communities.¹⁵ The SB 1440
19 Pilot Project offers a practical model to demonstrate how gasification-to-biomethane technology
20 can support these potential benefits and supports the recommendation from the Gianni
21 Foundation that further investment in public research and collaboration with private sector
22 innovators can improve cost competitiveness and accelerate deployment.¹⁶

23 The San Joaquin Valley Air Pollution Control District (SJVAPCD) has implemented a
24 near-complete phase-out of open agricultural burning, culminating in a major regulatory shift
25 effective January 1, 2025.¹⁷ This initiative stems from Senate Bill 705, passed in 2003, which

¹⁴ Giannini Foundation of Agricultural Economics – University of California, *Reusing Biomass to Address California’s Environmental and Economic Challenges* (May-June 2025), available at: https://s.giannini.ucop.edu/uploads/pub/2025/06/26/v28n5_1.pdf.

¹⁵ *Id.* at 1.

¹⁶ *Id.* at 4.

¹⁷ San Joaquin Valley Air Pollution and District, *Agriculture Burning -Current Open Burning Requirements*, available at: <https://www.valleyair.org/agriculture/agricultural-burning>.

1 originally aimed to eliminate open burning of agricultural waste by 2010.¹⁸ However, the
2 SJVAPCD postponed the ban multiple times with concurrence with the California Air Resources
3 Board (CARB). In 2020, SJVAPCD released a comprehensive report outlining a phased
4 approach to ban burning, focusing on crop categories where alternatives were more feasible.
5 CARB supported this plan and extended its concurrence through 2025.¹⁹ To aid the transition,
6 the California Legislature allocated \$180 million in 2021 to fund alternative disposal methods
7 such as chipping, composting, and bioenergy conversion.²⁰ As of 2025, only very limited
8 exceptions to open burning remain, primarily for diseased materials or specific crops where no
9 viable alternatives exist.²¹ Gasification facilities can provide an effective and sustainable
10 pathway for managing diseased agricultural woody biomass in California. These facilities utilize
11 high-temperature, low-oxygen processes to convert contaminated or low-value biomass into
12 decarbonized energy products such as biomethane, renewable hydrogen, and biochar.

13 In alignment with SJVAPCD's 2020 Staff Report and Recommendations on Agricultural
14 Burning through August 31, 2021, CARB encouraged the SJVAPCD to explore the conversion
15 of agricultural residue into liquid and gaseous fuel as an alternative to agricultural burning.²²
16 This approach supports the State's climate change mitigation effort by reducing greenhouse gas
17 emissions. Specifically, converting agricultural residue into biomethane aligns with the
18 objectives of the Low Carbon Fuel Standard (LCFS) and supports the decarbonization of the
19 transportation sector.²³

¹⁸ SB 705 (Florez, 2003), available at:
https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=200320040SB705.

¹⁹ San Joaquin Valley Air Pollution and District, *Final 2024 Staff Report and Recommendations on Agricultural Burning* (November 14, 2024), available at:
<https://ww2.valleyair.org/media/hjgh03mb/2024-final-ag-burn-report.pdf>.

²⁰ CARB, *Staff Report Agricultural Burning Alternatives Analysis Report* (October 8, 2021) at 2, available at: https://ww2.arb.ca.gov/sites/default/files/2021-10/Agricultural_Burning_Alternatives_Analysis_Report.pdf.

²¹ CARB, *San Joaquin Valley Agricultural Burning – Phase Down*, available at:
<https://ww2.arb.ca.gov/our-work/programs/agricultural-burning/san-joakingsquin-valley-agricultural-burning>.

²² CARB Agricultural Burning Concurrence Letter at 2-3.

²³ *Id.* at 3.

1 **C. Real World Demonstration Scale Testing Will Support the Development of**
2 **Woody Biomass Facilities**

3 Woody biomass utilization has played a role in California’s energy portfolio in the past,
4 although not without significant challenges. The majority of California’s biomass conversion
5 facilities were built in the 1980s, are direct combustion, and in need of upgrades. Facilities are
6 shutting down or idling due to expiring power contracts. Expiring contracts are often not
7 renewed as bioenergy generation prices struggle to compete with less expensive sources of
8 power.²⁴ Biomass utilization for bioenergy and biofuel development has faced technical and
9 economic challenges, *e.g.*, it is expensive to haul heavy, moisture-rich, low-energy-density wood
10 over long distances.²⁵

11 To SoCalGas’s knowledge, there are no operating projects in the United States that
12 convert woody biomass to biomethane using gasification besides demonstration or small-scale
13 projects. Combining gasification, syngas conditioning, methanation, and pipeline injection
14 technologies is evolving, requiring long-term operation and studies for large-scale deployment to
15 address the growing supply of woody biomass and the need to utilize it in an environmental-
16 friendly fashion.

17 Through the recent signing and passage of Assembly Bill (“AB”) 3163, the definition of
18 biomethane was expanded to include methane produced from the non-combustion thermal
19 conversion of woody biomass.²⁶ This legislation enables the injection of biomethane from non-
20 combustion thermal conversion into a common carrier pipeline, such as the SoCalGas
21 transmission and distribution system, for sale to the open market, specifically due to the low-
22 carbon intensity, including the transportation markets.

23 Biomethane-related pilot projects, as the one proposed in the Application, have
24 successfully been demonstrated in the dairy cluster pilots established by D.17-12-004 (“SB 1383
25 Pilot Projects”). The Selection Committee (CARB, California Department of Food and

²⁴ CARB, *California Forest Carbon Plan Managing Our Forest Landscapes in a Changing Climate* (CalFire, CNRA, and CalEPA) (May 2018) at Section 10.3.2 (Statutory Requirements for Forest Biomass), available at: <https://ww2.arb.ca.gov/sites/default/files/2019-01/California-Forest-Carbon-Plan-Final-Draft-for-Public-Release-May-2018.pdf>.

²⁵ *Id.* at Section 10.3.1

²⁶ AB 3163 (Salas, 2020), available at: https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB3163.

1 Agriculture (“CDFA”), and Commission) selected four projects located in SoCalGas’s service
2 territory and two projects in Pacific Gas and Electric Company’s (“PG&E”) service territory. All
3 four of SoCalGas’s dairy pilot projects were completed in 2021 and 2022 and have been
4 successfully injecting biomethane into the pipeline system. These projects support California’s
5 regulatory mandate under Senate Bill 1383 to reduce methane emissions by 40% by 2030, and
6 serve as key demonstrations of the feasibility and scalability of dairy-based biomethane within
7 the state’s utility infrastructure.

8 Similar to mitigating methane emissions from the state’s dairy industry, the SB 1440
9 Pilot Project will demonstrate and provide significant data regarding emissions from agriculture
10 wood waste while injecting biomethane into the SoCalGas pipeline network. Woody biomass to
11 energy projects can be strategically located to maximize the amount of waste processed from the
12 different available waste streams. Project data will inform both state and local stakeholders on
13 future funding opportunities to encourage innovation in the energy production and carbon
14 capture markets.

15 **III. SOLICITATION PROCESS AND STATE AGENCY COORDINATION**

16 **A. Solicitation Process Consistent with SB 1383 Dairy Pilot Solicitation**

17 Given the Commission-approved framework and process worked very well for the
18 SB 1383 Pilot Projects, SoCalGas is utilizing a similar framework and process for the assessment
19 and selection of at least one SB 1440 Pilot Project. SoCalGas used the SB 1383 Solicitation as a
20 general guide for preparing the SB 1440 Solicitation, including making modifications based on
21 the different feedstocks used to produce Bio-SNG.

22 **B. State Agency Coordination of Pilot Projects**

23 OP 43 of D.22-02-025 mandated SoCalGas to coordinate placement of woody biomass
24 projects with the pilot projects authorized for the Department of Conservation (“DOC”) through
25 SB 155. On April 1, and September 18, 2025, SoCalGas discussed with the DOC if SB 155 and
26 the SB 1440 Pilot Projects could be strategically placed to qualify under both pilot projects.

27 During a meeting on September 5, 2025, SoCalGas also met with the Commission’s
28 Energy Division to discuss the Application requirements and anticipated SB 1440 Pilot Project
29 potential feedstock and location.

1 **IV. CONCLUSION**

2 SoCalGas is filing this Application pursuant to D.22-02-025 and D.24-12-032 proposing
3 at least one pilot project to support the conversion of wood waste into a decarbonized energy
4 resource and support SLCP reduction. Gasification and pyrolysis of woody biomass to
5 biomethane is an important and developing technology in California's clean energy portfolio. If
6 properly deployed, it could help accelerate the use of decarbonized fuels in many sectors, lead to
7 several co-benefits such as wildfire mitigation, create local economic opportunity, and provide
8 emission reductions, while allowing for a resilient and cost-effective energy transition for all
9 Californians California will need a variety of gasification and pyrolysis projects to accommodate
10 the growth of feedstock availability in the near- and long-term timeframes.

11 If approved, the SB 1440 Pilot Project described in this Application could enable and
12 catalyze numerous other biofuels efforts in the state, including a variety of programs, policies,
13 and proceedings supported by the State Legislature, the Governor's Office, and leading state
14 agencies. SoCalGas is committed to collaborative knowledge sharing and coordination
15 throughout the SB 1440 Pilot Project.

16 In approving the Application, the Commission could enhance California's leadership on
17 woody biomass handling and methane emissions reductions in North America, support the
18 activities and efforts of the state's leading energy, environmental, and economic development
19 agencies and the Legislature, and position the state to benefit from private investment for market
20 development of diverse biofuels.

21 This concludes my prepared direct testimony.

1 **V. QUALIFICATIONS**

2 My name is Nathaniel E. Taylor. My business address is 555 West 5th Street, Los
3 Angeles, California, 90013-1011. I am employed by Southern California Gas Company
4 (“SoCalGas”) as Director of Integrated Infrastructure Planning. I have 18 years of experience in
5 the utility industry and have been employed at SoCalGas since 2014 and was previously
6 employed at SDG&E starting in 2007. While at SDG&E, I held positions in the functional areas
7 of Gas Distribution Engineering and Customer Programs. At SoCalGas I have held positions in
8 the functional areas of Business, Market, and New Product Development, and Strategic Planning.
9 I earned a Bachelor of Science degree in Mechanical Engineering from the University of
10 California, San Diego. I have previously testified before the California Public Utilities
11 Commission.