

SIERRA CLUB- UCS DATA REQUEST
SIERRA CLUB-SCG-001
SOCALGAS 2019 GRC – A.17-10-008
SOCALGAS RESPONSE
DATE RECEIVED: DECEMBER 20, 2017
DATE RESPONDED: JANUARY 11, 2018

1. Exhibit SCG-01 (Lane Direct Testimony) at p. 2:10-13 states: “We have also seen our gas system becoming increasingly critical to sustain electric reliability as large-capacity, quick-start electric generators are added within the SoCalGas territory to support the State achieving its 50% Renewables Portfolio Standard (RPS) by 2030 under Senate Bill (SB) 350.”
 - a. Please identify each “quick-start electric generator” referred to in this statement.
 - b. Please identify the net qualifying capacity in megawatts (“MW”) and location of each generator identified in subsection (a) above.
 - c. Please provide all documentation supporting the statement that the generators identified in subsection (a) above were added “to support the State achieving its 50% Renewables Portfolio Standard”
 - d. Please identify the witness(es) responsible for the answer to each and every subsection of this question.

SoCalGas Response 1:

1.a & 1b.

SoCalGas objects to these questions on the grounds that they call for speculation regarding facts that may be outside SoCalGas’ knowledge as a gas utility and/or outside the scope of this proceeding. The additions of quick-start electric generators fueled by natural gas is a general statement of fact. Given the purpose for which this policy statement is offered, SoCalGas objects to this request as overly broad, unduly burdensome, and exceeding the scope of permissible discovery under Rule 10.1, of the Commission’s Rules of Practice and Procedure. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

Quick-start generators sited in California, including in SoCalGas’ service territory, can be found on the California Energy Commission (CEC) website:

<http://www.energy.ca.gov/sitingcases/alphabetical.html>

A list of California Independent System Operator’s (CAISO) generators Net Qualifying Capacities, including in SoCalGas’ service territory, and location of each generator can be found at website:

http://www.caiso.com/Documents/2018NetQualifyingCapacity_ResourceAdequacyResources.html

An example of quick-start electric generators in SoCalGas’ territory includes, but is not limited to, the following:

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SoCalGas Response 1:-Continued

CPV Sentinel – 850 MW capacity. An excerpt from the final CEC decision, at page 9 of Section V.A, states:

”[T]he Sentinel facility is a needed, nonrenewable generating resource. Because it can start quickly, it will provide flexible, dispatchable power necessary to integrate some of the growing generation from intermittent wind and solar generation.”

<http://www.energy.ca.gov/2010publications/CEC-800-2010-016/CEC-800-2010-016-CMF.PDF>

Other examples can be found in the CEC’s list of siting cases above, as well as in other matters of public record in CPUC, CEC, and CAISO proceedings and documents that are equally available to Sierra Club.

- 1.c See response to Questions 1.a and 1.b above, which are incorporated herein by reference, including the objections on the same grounds. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

The 50% Renewables Portfolio Standard (RPS) by 2030 under Senate Bill (SB) 350 will require increasing amounts of renewable energy on the electric grid, which would exacerbate the problem of intermittent load output from renewables, resulting in a greater need for quick-start, flexible generation resources such as the ones mentioned in Questions 1.a and 1.b. The CAISO recognizes this and states:

“Historically, the ISO directed conventional, controllable power plant units to move up or down with the instantaneous or variable demand. With the growing penetration of renewables on the grid, there are higher levels of non-controllable, variable generation resources. Because of that, the ISO must direct controllable resources to match both variable demand and variable supply.” CAISO further states that “[t]o ensure reliability under changing grid conditions, the ISO needs resources with ramping flexibility and the ability to start and stop multiple times per day. To ensure supply and demand match at all times, controllable resources will need the flexibility to change output levels and start and stop as dictated by real-time grid conditions.”

http://www.aiso.com/Documents/FlexibleResourcesHelpRenewables_FastFacts.pdf

Examples of conventional, controllable power plant units with such ramping flexibility – can be found in the links provided in response to Questions 1.a and 1.b above, as well as in other matters of public record in CPUC, CEC, and CAISO proceedings and documents that are equally available to Sierra Club.

- 1.d Responses are provided on behalf of SoCalGas.

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2. Exhibit SCG-23 (Herrera Direct Testimony) at p. CLH-2:5-7 states: “Fleet Services manages a mix of vehicles consisting of over-the-road (OTR) vehicles such as automobiles; light, medium, and heavy duty trucks; and non-over-the-road (Non-OTR) vehicles such as power operated equipment, including trailers and forklifts.” Table CLH-9 on p. CLH-19 lists the number of units of each vehicle type at year-end 2016.

a. Please identify the number of vehicles by fuel source (e.g., gasoline, diesel, compressed natural gas, and electric) for each vehicle type listed in Table CLH-9.

b. Please identify how the total number of vehicles by type and fuel source would change under the proposed \$75 million Operations and Maintenance (“O&M”) request for Fleet Services (see p. CLH-iii).

c. Please identify the witness(es) responsible for the answer to each and every subsection of this question.

SoCalGas Response 2:

a.

VEHICLE TYPES / No. of Units by Fuel Type	BI FUEL	CNG	DIESEL	ELECTRIC	HYBRID	LPG	NO FUEL	SOLAR	UNLEADED	Grand Total
AUTOMOBILES	102	180			85				14	381
COMPACT TRUCK & VANS									535	535
LIGHT TRUCK & VANS	193	536							2,153	2,882
MEDIUM DUTY TRUCK		10	489						66	565
HEAVY DUTY TRUCK		5	71							76
TRAILER			63				521	89	2	675
CONSTRUCTION EQUIPMENT			106	69		57	6		51	289
Grand Total	295	731	729	69	85	57	527	89	2,821	5,403

b. SoCalGas objects to this request on the grounds that it is vague and ambiguous. SoCalGas further objects to this request to the extent it misstates Exhibit SCG-23 testimony and suggests that the \$75 million O&M relates only to vehicle replacement. As stated in Exhibit SCG-23, the Fleet Services’ O&M request “is primarily driven” by four vehicle replacement related factors. Subject to and without waiving these objections, SoCalGas responds as follows:

SoCalGas intends to target the categories below by replacing non-AFV (unleaded gasoline and diesel fueled vehicles) currently in the fleet with AFV, taking into consideration the availability of AFV infrastructure, payload capacity requirements, and job functions of each workgroup. SoCalGas forecasts it will replace non-AFVs with AFVs in the quantities indicated below.

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SoCalGas Response 2:-Continued

CATEGORY	No of Units	REPLACEMENT YEAR
1-1.5 TON AFV	139	2017
CLASS 5 AFV	23	2017
FULL SIZE AFV	128	2017
PASS AFV	10	2017
1-1.5 TON AFV	131	2018
CLASS 5 AFV	15	2018
FULL SIZE AFV	166	2018
PASS AFV	10	2018
1-1.5 TON AFV	74	2019
CLASS 5 AFV	15	2019
FULL SIZE AFV	160	2019
PASS AFV	20	2019

- c. Responses are provided on behalf of SoCalGas.

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3. Exhibit SCG-23 (Herrera Direct Testimony) at p. CLH-3:17-21 states: “As an Alternative Fuel Provider fleet, 90% of the SoCalGas’ annual light duty vehicle purchases are required under the EAct to be approved alternative-fuel vehicles. . . . SoCalGas plans to continue buying alternative-fuel vehicles that are sold at a premium.”
- a. What vehicle types identified in Table CLH-9 on p. CLH-19 does SoCalGas contend fall under the EAct alternative fuel vehicle fleet requirements?
 - b. Please confirm that SoCalGas’ definition of “alternative-fuel” is the same as that set forth in 42 U.S.C. § 13211(2). If not, please state SoCalGas’ definition of “alternative fuel” for the purposes of compliance with alternative fuel vehicle requirements under the EAct.
 - c. What is the “premium” SoCalGas has historically paid for an alternative fuel vehicle when compared to a conventional (non-alternative fuel) vehicle?
 - d. What is the “premium” SoCalGas forecasts through Base Year (“BY”) 2019 for an alternative fuel vehicle when compared to a conventional (non-alternative fuel) vehicle?
 - e. For the alternative fuel vehicles currently in the SoCalGas fleet, please identify the average annual O&M for each vehicle class.
 - f. For the non-alternative fuel vehicles currently in the SoCalGas fleet, please identify the average annual O&M for each vehicle class.
 - g. Are SoCalGas’ “plans to continue buying alternative-fuel vehicles” limited to vehicles powered by natural gas? If not, please identify the fuel sources of other alternative fuel vehicles SoCalGas would procure as part of its requested \$75 million for Fleet Services’ O&M.
 - h. Please provide records of repairs related to natural gas leakage (fugitive emissions) from all alternative fuel vehicles currently in the SoCalGas fleet that use natural gas as the alternative fuel.
 - i. Is any of SoCalGas’ existing fleet of natural gas powered vehicles supplied by renewable natural gas (“RNG”)? If yes, please provide the applicable RNG contract(s) and state where the RNG is derived.
 - j. Please identify the witness(es) responsible for the answer for each and every subsection of this question.

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SoCalGas Response 3:

- a. SoCalGas objects to this request on the grounds that it is vague and ambiguous as to the term “fall under EPA Act alternative fuel vehicle fleet requirements.” SoCalGas further objects to this request to the extent it calls for a legal opinion or conclusion rather than the production of evidence or clarification of a factual matter. Subject to and without waiving these objections, SoCalGas responds as follows: Vehicle types Automobiles, Compact Trucks & Vans, and Light Duty Trucks & Vans.
- b. SoCalGas objects to this request on the grounds that that the request is vague and ambiguous. SoCalGas also objects to this request on the grounds that it is vague and ambiguous as to the term “confirm.” SoCalGas further objects to this request to the extent it calls for a legal opinion or conclusion rather than the production of evidence or clarification of a factual matter. SoCalGas also objects to this request to the extent it misstates the testimony in Exhibit SCG-23. The quoted testimony refers to “alternative fuel vehicles,” not “alternative fuels.” Subject to and without waiving these objections, SoCalGas responds as follows: Alternative fuel vehicles (AFVs) include any dedicated or dual fueled vehicle, which is any vehicle that operates solely on, or is capable of operating on, at least one alternative fuel. Please see <https://epact.energy.gov/>
- c. SoCalGas objects to this request on the grounds that it is vague and ambiguous to the term “historically paid.” SoCalGas further objects to this request pursuant to Rule 10.1 of the Commission’s Rules of Practice and Procedure to the extent it seeks information that is neither relevant to the subject matter involved in this proceeding nor is reasonably calculated to lead to the discovery of admissible evidence. Subject to and without waiving these objections, SoCalGas responds as follows: Comparing AFV passenger sedan units purchased in 2017 to MSRP pricing of non-AFV entry level pricing, the premium is estimated to be \$7,319 per unit. In 2017 SoCalGas saw an AFV premium ranging from \$12,831 - \$16,207 for ¾ ton trucks and 1 ton vans. In 2017 SoCalGas saw an AFV premium ranging from \$50k to \$65k for Medium Duty trucks.
- d. Please see the confidential version of supplemental workpapers in SCG-23WP, page 1, SCG-23-ESRF-CLH-2RF003 AFV Premiums (confidential) for a listing of estimated AFV premiums by vehicle type and technology.
- e. SoCalGas objects to this request on the grounds that that the term “vehicle class” is vague and ambiguous. Subject to and without waiving the foregoing objection, SoCalGas responds as follows: SoCalGas does not track O&M costs in this manner.

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SoCalGas Response 3:-Continued

- f. SoCalGas does not track O&M costs in this manner. SoCalGas objects to this request on the grounds that that the term “vehicle class” is vague and ambiguous. Subject to and without waiving the foregoing objection, SoCalGas responds as follows: SoCalGas does not track O&M costs in this manner.
- g. SoCalGas intends to purchase alternative fuel vehicles with technologies that meet business needs. As listed in response 2a, SoCalGas has procured vehicles with the following technologies: Bi-Fuel (Gasoline & CNG), CNG, Electric, Hybrid, LPG, and Solar.
- h. SoCalGas objects to this request on the grounds that it is vague and ambiguous. SoCalGas objects to this request on the grounds that the terms “natural gas leakage” and “fugitive emissions” are vague and ambiguous. SoCalGas objects to this request on the grounds that SoCalGas objects to this request on the grounds that it lacks foundation in that it assumes repairs related to “natural gas leakage.” SoCalGas objects to this request to the extent it seeks a legal opinion and/or conclusion rather than the production of evidence or clarification of a factual matter. SoCalGas further objects to this request pursuant to Rule 10.1 of the Commission’s Rules of Practice and Procedure to the extent it seeks information that is neither relevant to the subject matter involved in this proceeding nor is reasonably calculated to lead to the discovery of admissible evidence. Subject to and without waiving this objection, SoCalGas responds as follows: SoCalGas is not aware of any repairs of this nature.
- i. SoCalGas objects to this request on the grounds that it is vague and ambiguous. Subject to and without waiving this objection, SoCalGas responds as follows: No.
- j. Responses are provided on behalf of SoCalGas.

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4. Exhibit SCG-23 (Herrera Direct Testimony) at p. CLH-3:23-26 states: “Evolving California Air Resources Board (CARB) regulations requiring the reduction of diesel emissions by replacing diesel vehicles and off-road equipment necessitates that SoCalGas replace a large number of vehicles over the next couple of years.”

- a. Please identify the number of vehicles by vehicle class and engine year in the vehicle fleet SoCalGas contends require replacement under CARB regulations.
- b. Please identify the specific applicable regulation(s) triggering replacement of a “large number of vehicles.”
- c. Please identify the options to comply with the regulation(s) identified in subsection (b) above.
- d. Please identify the witness(es) responsible for the answer to each and every subsection of this question.

SoCalGas Response 4:

4. Exhibit SCG-23 (Herrera Direct Testimony) at p. CLH-3:23-26 states: “Evolving California Air Resources Board (CARB) regulations requiring the reduction of diesel emissions by replacing diesel vehicles and off-road equipment necessitates that SoCalGas replace a large number of vehicles over the next couple of years.”

- a. Please identify the number of vehicles by vehicle class and engine year in the vehicle fleet SoCalGas contends require replacement under CARB regulations.
- b. Please identify the specific applicable regulation(s) triggering replacement of a “large number of vehicles.”
- c. Please identify the options to comply with the regulation(s) identified in subsection (b) above.
- d. Please identify the witness(es) responsible for the answer to each and every subsection of this question.

SoCalGas Response 4:

- a. Please see below for the requested information by model year and vehicle type.

SoCalGas ATCM Replacements & In-Process Units subject to ATCM Replacement Requirements by Model Year and Vehicle Type									
Vehicle Type/Model Year	2001	2002	2003	2004	2005	2006	2007	2008	Grand Total
Medium Duty Truck	3	4	27	33	46	10	31	61	215
Heavy Duty Truck				1	4	1			6

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SoCalGas Response 4:-Continued

- b.** SoCalGas objects to this request on the grounds that it misstates the testimony in Exhibit SCG-23. The testimony states that vehicles will be replaced “over the next couple of years.” SoCalGas objects to this request to the extent it seeks a legal opinion and/or conclusion rather than the production of evidence or clarification of a factual matter. Subject to and without waiving this objection, SoCalGas responds as follows: See ARB Truck and Bus Regulation Compliance Requirements Summary last updated August 29, 2014 for additional details on Title 13, California code of Regulations Division 3: Air Resources Board Chapter 1: Motor Vehicle Pollution Control Devices, Article 4.5:
<https://www.arb.ca.gov/msprog/onrdiesel/documents/tbfinalreg.pdf>
- c.** SoCalGas incorporates by reference the objections asserted in response to 11.a., above. Subject to and without waiving this objection, SoCalGas responds as follows:
Please see response 4.b.
- d.** Responses are provided on behalf of SoCalGas.

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5. Exhibit SCG-23 (Herrera Direct Testimony) at p. CLH-19:14-20:1 states: “Replacement scheduling is based on targeted useful life of vehicles by various classes.”
- a. Please identify the “targeted useful life” for each class of vehicles.
 - b. Please indicate whether the “targeted useful life” for each class of vehicles varies with source (e.g., compressed natural gas, diesel, gasoline, etc).
 - c. Please identify the witness(es) responsible for the answer to each and every subsection of this question.

SoCalGas Response 5:

- a. Please see the list of targeted useful life or standard replacement cycle criteria in Sierra Club-UCS-SCG-001-Q2-11-Data, tab SC-5 (attached).
- b. No, the targeted useful life or standard replacement cycle does not vary by fuel source.
- c. Responses are provided on behalf of SoCalGas.

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6. Please provide all analysis and workpapers supporting the statement that, by growing its natural gas fleet, “SoCalGas expects to reduce approximately 29,500 metric tons of greenhouse gases over 5 years, which is the equivalent to reducing greenhouse gas emissions from 6,200 passenger vehicles driven for one year.” (Exhibit SCG-23 (Herrera Direct Testimony) at p. CLH-21:4-6).

SoCalGas Response 6:

SoCalGas objects to this request on the grounds that it is unfairly burdensome. SoCalGas further objects to this request on the grounds that “all analysis” is vague and ambiguous as to time. Subject to and without waiving these objection, SoCalGas responds as follows:

SoCalGas utilized the planned acquisition of AFV and forecasted CO2 reductions per vehicle when compared to unleaded or diesel vehicle CO2 emissions based on EPA Emission Factors for Greenhouse Gas Inventories published on November 19, 2015.

Description	2016	2017	2018	2019	2020	2021	2022-2030	
# of AFV Replacements in Fleet (cumulative)	270	560	835	1,140	1,300	1,300	1,300	
Average GHG Reduction per year per Vehicle	0.96	1.32	1.58	1.67	1.85	1.94	1.74	Total
Total GHG Savings per Year	260	742	1,319	1,902	2,399	2,518	20,345	29,486

Assumptions	Value
Diesel CO2 Factor	0.0102065
Unleaded Gasoline CO2	0.0087775
GGE CNG CO2 Factor	0.0068600

See Attached Sierra Club-01-GHG Emission Factors_Gas and Diesel for source of these factors. Please note CNG formula is for Gas Gallon Equivalent (CNG CO2 Factor per SCF 0.05444 x Gas Gallon equivalent factor 126.67)

See Sierra Club-UCS-SCG-001-Q2-11-EPA Emission Factors for Greenhouse Gas Inventories (attached).

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7. In addition to “Natural Gas Vehicles for America, Environmental Benefits,” cited in footnote 16 at Exhibit SCG-23 (Herrera Direct Testimony) at p. CLH-21, please provide all other support for the proposition that “[n]atural gas is the cleanest burning alternative transportation fuel that can economically power light-, medium-, and heavy-duty vehicle applications.” (Exhibit SCG-23 (Herrera Direct Testimony) at p. CLH-21:6-7).

SoCalGas Response 7:

SoCalGas objects to this request on the grounds that it is unfairly burdensome. SoCalGas further objects to this request on the grounds that “all other support” is vague and ambiguous as to time. SoCalGas also objects to the request to the extent it would require SoCalGas to search for matters of public record including in CPUC proceedings (decisions, orders, etc.). This information is equally available to Sierra Club. SoCalGas objects to the continuing and indefinite nature of this request on the grounds that it is unduly burdensome. Continuing interrogatories are expressly prohibited by California Code of Civil Procedure Section 030.060(g). Subject to and without waiving these objection, SoCalGas responds as follows: Refer to Exhibit SCG-23 (Herrera), pages CLH-20 through CLH-22; Exhibit SCG-20 (Cheung), pages ASC-40 to ASC-41; Direct Testimony on behalf of SoCalGas in A.17-01-020/22 (see attachment).

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8. “Natural Gas Vehicles for America, Environmental Benefits cited in footnote 16 at Exhibit SCG-23 (Herrera Direct Testimony) at p. CLH-21, as support for the proposition that “Natural gas is the cleanest burning alternative transportation fuel that can economically power light-, medium-, and heavy duty vehicle applications,” contains no comparison with electric vehicles.
- a. Please provide all analysis supporting this statement when comparing natural gas vehicles against electric and hybrid electric powered vehicles.

SoCalGas Response 8:

SoCalGas objects to this request on the grounds that it is unfairly burdensome. SoCalGas further objects to this request on the grounds that “all analysis supporting” is vague and ambiguous as to time. SoCalGas also objects to the request to the extent it would require SoCalGas to search for matters of public record including in CPUC proceedings (decisions, orders, etc.). This information is equally available to Sierra Club. SoCalGas objects to the continuing and indefinite nature of this request on the grounds that it is unduly burdensome. Continuing interrogatories are expressly prohibited by California Code of Civil Procedure Section 030.060(g). SoCalGas objects to this request on the grounds that it lacks foundation. It assumes that SoCalGas must compare natural gas vehicles with electric and/or hybrid electric powered vehicles. Subject to and without waiving these objection, SoCalGas responds as follows: Please see response 7.

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9. “Natural Gas Vehicles for America, Environmental Benefits,” cited in footnote 16 at Exhibit SCG-23 (Herrera Direct Testimony) at p. CLH-21, states that “NGVs [natural gas vehicles] provide the 13-21 percent reduction in total greenhouse gas emissions (well-to-wheels) compared to new diesel and gasoline vehicles”

a. Please explain how greenhouse gas reductions of this magnitude support “California’s state initiatives to . . . achieve greenhouse gas (GHG) emission reduction targets of 40 percent below 1990 levels by 2030, with continued progress towards an 80 percent reduction by 2050.” (Exhibit SCG-23 (Herrera Direct Testimony) at CLH-20:27-21:2).

b. Please provide the witness(es) responsible for the answer to each and every subsection of this question.

SoCalGas Response 9:

- a. SoCalGas objects to this request is vague and ambiguous as to time. SoCalGas also objects to the request to the extent it would require SoCalGas to search for matters of public record in CPUC proceedings (decisions, orders, etc.). This information is equally available to Sierra Club. SoCalGas further objects to this request in that it misstates the testimony in Exhibit SCG-23 (Herrera). Sierra Club omitted material sections of the testimony. Subject to and without waiving these objection, SoCalGas responds as follows:

Please see Exhibit SCG-23 (Herrera), pages CLH-18 through CLH-23; Exhibit SCG-20 (Cheung), pages ASC-40 to ASC-41; and, Direct Testimony on behalf of SoCalGas in A.17-01-020/22 (see attachment).

Further, SoCalGas supports California state initiatives by supporting the production, transportation, and use of renewable natural gas (RNG). At the end of 2016, almost 62% of natural gas vehicle fuel reported to CARB through the LCFS Program was RNG. RNG originates from a variety of sources, including but not limited to landfills, dairies, and food/green waste, that can support potential GHG reduction. Some sources of RNG, such as food/green waste biogas and dairy biogas, are considered “carbon negative” since these sources capture methane that would otherwise be released into the atmosphere.

- b. Responses are provided on behalf of SoCalGas.

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10. Exhibit SCG-23 (Herrera Direct Testimony) at p. CLH-53 states: “For TY 2019, the NGV Refueling Stations request is \$7.175 million in 2017, \$15.937 million in 2018, and \$18.799 million in 2019 ... to upgrade existing NGV stations and plan, design, and built eight new NGV refueling stations.”
- a. For each of the eight new NGV refueling stations:
 - i) What is the proposed location of each new NGV refueling station?
 - ii) What is the approximate cost of each new NGV refueling station? If proposed fueling stations vary in approximate cost, please explain the basis for the cost difference.
 - iii) What is the expected useful life of a new NGV refueling station?
 - iv) Please identify the proposed refueling stations that would be open to the public.
 - b. For each of the existing NGV refueling stations:
 - i) What is the location of each existing NGV refueling station?
 - ii) Please provide all records of repairs related to leakage (fugitive methane emissions) from each refueling station.
 - iii) If known, please state approximately how many vehicles each fueling station serves.
 - iv) For each fueling station with access for public vehicle fueling, please state the percentage of fueling that is from public vehicles?
 - c. Please identify the witness(es) responsible for the answer to each and every subsection of this question.

SoCalGas Response 10:

- a.
 - i) Please see workpaper SCG-23-CWP page 118, SCG-23-ESRF-CLH-734 NGV Refueling Stations for a listing of sites by base.
 - ii) Please see confidential version Supplemental Workpaper to SCG-23-CWP, page 7, SCG-23-ESRF-CLH-734 NGV Refueling Stations CONFIDENTIAL for a listing of sites and estimated costs. Costs are forecasted based on project specific scope, historical costs, and vendor estimates.
 - iii) SoCalGas objects to this request on the grounds that it is vague and ambiguous as to the term “expected useful life.” SoCalGas further objects to this request on the grounds that it lacks foundation. SoCalGas further objects to this request pursuant to Rule 10.1 of

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SoCalGas Response 10 Continued:

the Commission's Rules of Practice and Procedure to the extent it seeks information that is neither relevant to the subject matter involved in this proceeding nor is reasonably calculated to lead to the discovery of admissible evidence. Subject to and without waiving these objections, SoCalGas responds as follows: Please see Exhibit SCG-36-R, Depreciation (Ngai) at page 21, lines1-5.

iv) SoCalGas objects to this request on the grounds that it is vague and ambiguous as to the terms "proposed," and "open to the public." SoCalGas further objects to this request on the grounds that it lacks foundation. SoCalGas further objects to this request pursuant to Rule 10.1 of the Commission's Rules of Practice and Procedure to the extent it seeks information that is neither relevant to the subject matter involved in this proceeding nor is reasonably calculated to lead to the discovery of admissible evidence. Subject to and without waiving these objections, SoCalGas responds as follows:

The following sites are New Public Access NGV stations: Beaumont, Blythe, Branford, Corona, Fontana, Redlands, Ramona, San Luis Obispo, Valencia, and Visalia.

The following sites are being upgraded to add a public access NGV Station: Chino and Santa Maria. The listing of stations in Supplemental Workpapers SCG-23, page 117 will be updated at the next possible opportunity.

- b. i) SoCalGas objects to this request on the grounds that it is vague and ambiguous. SoCalGas further objects to this request on the grounds as to the term "existing NGV refueling station." Subject to and without waiving these objections, SoCalGas responds as follows: SoCalGas interprets this request to be seeking information about the funding requested in Exhibit SCG-23 (Herrera). The following existing stations are proposed to be upgraded: Canoga, Crenshaw, Pasadena, San Bernardino, Santa Ana, Santa Monica, Yukon, Autogas (Software upgrade), Azusa, Compton, ERC, Garden Grove, Murrieta, Oxnard, and San Pedro. The listing of stations in Supplemental Workpapers SCG-23, page 117 will be updated at the next possible opportunity.

ii) SoCalGas objects to this request on the grounds that it is vague and ambiguous. SoCalGas objects to this request on the grounds that the terms "leakage" and "fugitive methane emissions" are vague and ambiguous. SoCalGas objects to this request on the grounds that SoCalGas objects to this request on the grounds that it lacks foundation in that it assumes repairs related to "leakage." SoCalGas objects to this request to the extent it seeks a legal opinion and/or conclusion rather than the production of evidence or clarification of a factual matter. SoCalGas further objects to this request pursuant to Rule 10.1 of the Commission's Rules of Practice and Procedure to the extent it seeks information that is neither relevant to the subject matter involved in this proceeding nor is reasonably calculated to lead to the discovery of admissible evidence. SoCalGas objects to this request on the grounds that it is unfairly burdensome. SoCalGas further objects to this request on the grounds that it is vague and ambiguous as to time. Subject to and

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SoCalGas Response 10 Continued:

without waiving these objections, SoCalGas responds as follows: Please refer to Sierra Club-UCS-SCG-001-Q2-11-NGV Call Out Log (attached) for more information. Note that the log has been redacted to only show leak repair entries.

iii) SoCalGas objects to this request on the grounds that it is vague and ambiguous. SoCalGas objects to this request on the grounds that the term “how many vehicles” is vague and ambiguous. SoCalGas also objects to this request on the grounds it is vague and ambiguous as to time. SoCalGas further objects to this request pursuant to Rule 10.1 of the Commission’s Rules of Practice and Procedure to the extent it seeks information that is neither relevant to the subject matter involved in this proceeding nor is reasonably calculated to lead to the discovery of admissible evidence. Subject to and without waiving these objections, SoCalGas responds as follows: SoCalGas interprets this request to be seeking information about the funding requested in Exhibit SCG-23 (Herrera). Credit card transactions can be used as a proxy to estimate the number of public vehicles served. The number of credit card transactions/vehicles served at each existing fueling station in 2017 is shown in the following table:

SoCalGas Public Access CNG Station	Number of Credit Card Transactions/Public Vehicles Served in 2017
Azusa	17,085
Compton	3,691
ERC	3,932
Garden Grove	11,120
Oxnard	6,566
San Pedro	6,397
Murrieta	8,379

iv) SoCalGas objects to this request on the grounds that it is vague and ambiguous as to the terms “access for public vehicle fueling” and “public vehicles.” SoCalGas also objects to this request on the grounds it is vague and ambiguous as to time. SoCalGas further objects to this request pursuant to Rule 10.1 of the Commission’s Rules of Practice and Procedure to the extent it seeks information that is neither relevant to the subject matter involved in this proceeding nor is reasonably calculated to lead to the discovery of admissible evidence. Subject to and without waiving these objections, SoCalGas responds as follows: SoCalGas interprets this request to be seeking information about the funding

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SoCalGas Response 10 Continued:

requested in Exhibit SCG-23 (Herrera). Please see below the percentage of public fueling from each existing CNG station in 2017.

SoCalGas Public Access CNG Station	% of Fueling from Public Access Dispensers in 2017
Azusa	80%
Compton	69%
ERC	100%
Garden Grove	79%
Oxnard	78%
San Pedro	100% *
Murrieta	90%

* Company usage time fill system was recently installed which will impact this percentage in the future.

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11. Public Utilities Code Section 740.3(c) states: “The commission’s policies authorizing utilities to develop equipment or infrastructure needed for electric-powered and natural gas-fueled low-emission vehicles shall ensure that the costs and expenses of those programs are not passed through to electric or gas ratepayers unless the commission finds and determines that those programs are in the ratepayers’ interest. The commission's policies shall also ensure that utilities do not unfairly compete with nonutility enterprises.”
- a. Please explain how the proposed NGV refueling stations that are not accessible to the public are in the ratepayers’ interest.
 - b. Please explain how the proposed NGV refueling stations that are accessible to the public but not significantly utilized by the public are in the ratepayers’ interest.
 - c. Please explain how the proposed NGV refueling stations that are accessible to the public do not unfairly compete with nonutility enterprises.
 - d. Please identify the witness(es) responsible for the answer to each and every subsection of this question.

SoCalGas Response 11:

- a. SoCalGas objects to this request on the grounds that it calls for a legal opinion or conclusion rather than the production of evidence or clarification of a factual matter. SoCalGas further objects to the request to the extent it would require SoCalGas to search their files for matters of public record including in CPUC proceedings (decisions, orders, etc.). This information is equally available to Sierra Club. SoCalGas also objects to this request on the grounds that it is improperly argumentative and lacks foundation. SoCalGas objects to the request pursuant to Rule 10.1 of the Commission’s Rule of Practice and Procedure to the extent it seeks information that is neither relevant to the subject matter involved in this proceeding nor is reasonably calculated to lead to the discovery of admissible evidence. Subject to and without waiving these objections, SoCalGas responds as follows:

See Exhibit SCG-23 (Carmen Herrera’s testimony) on pages CLH-19 through 22, and CLH-53 and CLH-54 as well as NGV Refueling Stations workpapers, Exhibit SCG-23-CWP. In addition, the operation of SoCalGas-owned NGV refueling stations used to fuel SoCalGas fleet vehicles supports its base operations, increases service reliability, and can allow for more efficient operations.

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SoCalGas Response 11 Continued:

- b. SoCalGas incorporates by reference the objections asserted in response to 11.a., above. In addition, SoCalGas objects to this request on the grounds that “significantly utilized” is vague and ambiguous. SoCalGas further objects to this request on the grounds that “significantly utilized by the public” is not a recognized standard. Subject to and without waiving these objections, SoCalGas responds as follows: Please see response 11a.
- c. SoCalGas incorporates by reference the objections asserted in response to 11.a., above. In addition, SoCalGas objects to this request on the grounds that “unfairly compete with nonutility enterprises” is vague and ambiguous. Subject to and without waiving these objections, SoCalGas responds as follows: The California Public Utilities Commission regulates and approves the CNG fuel and CNG transportation charges as specified, for example, in the G-NGV tariff.
- d. Responses are provided on behalf of SoCalGas.

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12. Exhibit SCG-11 (Buczowski Direct Testimony) discusses “the reasonableness of \$275.5 million in capital expenditures by SoCalGas to complete the Aliso Canyon Turbine Replacement Project,” which among other things, contemplates a new Central Compressor Station (pp. DLB-1:4–5, DLB-11).
- a. What is the expected useful life of the Central Compressor Station?
 - b. Is it SoCalGas’ position that the Alison Canyon Turbine Replacement Project would still be reasonable if the Aliso Canyon facility was permanently closed within 10 years? If yes, please explain why.
 - c. If restrictions on maximum gas capacity at Aliso Canyon remain at approximately 23.6 Bcf, is it SoCalGas’ position that the Alison Canyon Turbine Replacement Project would still be necessary? If yes, please explain why.
 - d. Please identify the witness(es) responsible for the answer to each and every subsection of this question.

SoCalGas Response 12:

12 a. See Exhibit SCG-36, Depreciation (Ngai), page 14.

12 b. SoCalGas objects to this request on the grounds that it is vague and ambiguous, and calls for speculation. SoCalGas further objects to this request pursuant to Rule 10.1 of the Commission’s Rules of Practice and Procedure to the extent it seeks information that is neither relevant to the subject matter involved in this proceeding nor is reasonably calculated to lead to the discovery of admissible evidence. As explained on pages DLB-1 through DLB-8, the reasonableness of the Project’s construction and operation was established in D.08-12-020 in A.08-02-001, and D.13-11-023 in A.09-09-020. Further, the Commission has opened an Order Instituting Investigation (OII) pursuant to Senate Bill 380 (Statutes of 2016, Chapter 14), I. 17-02-002. The purpose of this OII is to determine the feasibility of minimizing or eliminating the use of the Aliso Canyon Natural Gas Storage Facility (Aliso Canyon) while still maintaining energy and electric reliability for the Los Angeles region and just and reasonable rates in California. To date, no determinations have been made regarding the feasibility of minimizing or eliminating the use of Aliso Canyon Natural Gas Storage Facility. Subject to and without waiving these objections, SoCalGas responds as follows:

Yes. See Exhibit SCG-11 (David Buczowski’s testimony) on pages DLB-3 and DLB-4.

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SoCalGas Response 12:-Continued

12 c. SoCalGas incorporates by reference the objections asserted in Response 12.b. Subject to and without waiving these objections, SoCalGas respond as follows:

See Response 12 b

12 d. For Question 12a, the witness for SCG Direct Testimony, Chapter 36 (Exhibit SCG-36) is the responsible witness. For questions 12b and c, the witness for SCG Direct Testimony, Chapter 11 (Exhibit SCG-11) is the responsible witness.

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13. Exhibit SCG-07 (Bernal and Musich Joint Direct Testimony) at pp. MAB-30–32 state that SoCalGas seeks over \$21 million (\$7.162 million annually for three years) for costs associated with the SoCalGas/SDG&E Application for the North-South Project, A.13-12-013. In D.16-07-015, the CPUC rejected the North-South project because SoCalGas and SDG&E “failed to demonstrate there is a need” for the project (D.16-07-015 at p. 25).

a .Please provide any known Commission precedent for rate recovery of costs from an application for a proposed capital project that was not approved by the Commission.

b. Please provide any known Commission precedent where rate recovery was denied for costs from an application of a proposed capital project that was not approved by the Commission.

SoCalGas Response 13:

SoCalGas objects to Questions 13a and 13b on the ground that they seek information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the State of California Public Utilities Commission. Questions 13a and 13b seek legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Questions 13a and 13b to the extent they would require SoCalGas to search their files for matters of public record in CPUC proceedings (decisions, orders, etc.). This information is available equally to Sierra Club.

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14. Exhibit SCG-21 (Alexander Direct Testimony) at p. LLA-3:14-17 states: “SoCalGas supports climate and air quality goals through Research, Development and Demonstration (RD&D) efforts, and by analyzing and determining how a broad range of legislative and policy issues all affect SoCalGas’ customers and operations, and then developing potential policy alternatives to help protect customer interests.”

- a. How does SoCalGas define “customer interests”?
- b. Does SoCalGas distinguish between the interests of its customers and those of SoCalGas shareholders? If yes, please explain the distinction.
- c. Please identify the witness(es) responsible for the answer to each and every subsection of this question.

SoCalGas Response 14:

SoCalGas objects to this request pursuant to Rule 10.1 of the Commission’s Rules of Practice and Procedure, on the grounds that it seeks the production of information that is neither relevant to the subject matter involved in the pending proceeding nor is reasonably calculated to lead to the discovery of admissible evidence, and on the grounds that the request is vague and ambiguous in the context of the testimony referred to by this request. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

As used in the context of Exhibit SCG-21 (Alexander Direct Testimony), SoCalGas defines customer to mean “ratepayer.” Customer interests may vary under different circumstances, but they are generally defined by statute and the California Public Utilities Commission’s regulations and policies. Similarly, the rights and obligations owed by corporations to shareholders are defined by statute.

Responses are provided on behalf of SoCalGas.

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15. Exhibit SCG-21 (Alexander Direct Testimony) at p. LLA-4:16–19 states that “the state’s goals require capture of 40% of methane emissions from primarily the state’s waste streams. This methane can be put to beneficial use if it is stored in our pipeline system and delivered to customers, who will not need to change their end-use equipment.”

- a. Please provide SoCalGas’ understanding of the total amount of methane that constitutes 40% of methane emissions captured “from primarily the state’s waste streams.” Please provide all documentation supporting this response.
- b. Please provide SoCalGas’ understanding of the total amount of methane that constitutes 40% of methane emissions captured “from primarily the state’s waste streams” located in SoCalGas service territory. Please provide all documentation supporting this response.
- c. What is the total annual gas demand from end-use equipment of SoCalGas’ customers?
- d. Please identify the witness(es) responsible for the answer to each and every subsection of this question.

SoCalGas Response 15:

- a. **Response:** SB 1383 (Lara) states: “No later than January 1, 2018, the state board shall approve and begin implementing the comprehensive short-lived climate pollutant strategy developed pursuant to Section 39730 to achieve a reduction in the statewide emissions of methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030.” (California Health and Safety Code Section 39730.5.)

The Final Short-Lived Climate Pollutant Strategy, March 2017, approved by the state board, provides the following inventory of methane emissions reductions from organic sources required to meet the 2030 goal as compared to the business as usual scenario. SoCalGas’ understanding of the total amount of methane in MMTCO_{2e} that constitutes 40% of methane captured from primarily the state’s waste streams is based on the amounts shown below, presented in California Air Resources Board, March 14, 2017, Short-Lived Climate Pollutant Reduction Strategy, p. 63.

https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final_slcp_report.pdf.

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SoCalGas Response 15:-Continued

Table 8: Proposed New Methane Emission Reduction Measures and 2030 Estimated Emission Reductions (MMTCO₂e)¹

Measure	2030 Annual Emission Reductions	2030 Annual Emissions
2030 BAU ²		117
Dairy and Other Livestock (Manure and Enteric Fermentation)	26	
Landfill	4	
Wastewater, Industrial and Other Miscellaneous Sources	7	
Oil and Gas Sector	8	
2030 BAU with new measures		71 ³

¹ Using 20-year GWPs from the 4th Assessment report of the IPCC

² "Business As Usual" (BAU) forecasted inventory includes reductions from implementation of current regulations

³ The specific annual reduction values shown above do not sum exactly to the total shown due to rounding error.

- b. Response:** SoCalGas has not calculated the total amount of methane that constitutes 40% of methane emissions captured from primarily the state’s waste streams located in SoCalGas’ service territory. The 40% reduction in methane emissions by 2030 goal established by SB 1383 is a statewide goal, not regional or utility service territory specific. Furthermore, California’s pipeline grid is interconnected, permitting biomethane supplies to be distributed throughout the state.
- c. Response:** According to the 2016 California Gas Report (http://docketpublic.energy.ca.gov/PublicDocuments/16-BSTD-06/TN212364_20160720T111050_2016_California_Gas_Report.pdf), total annual deliveries in 2015 by SoCalGas to end-use equipment were 460,630 MMCF/yr. This includes all core deliveries and deliveries to non-core commercial and industrial customers.
- d.** Responses are provided on behalf of SoCalGas.

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16. Exhibit SCG-21 (Alexander Direct Testimony) at pp. LLA-15–16 reference “memberships in trade groups such as NYSEARCH and Operation Technology Development.”

- a. Please list all trade groups for which SoCalGas is a dues-paying member. For each trade group listed, please state whether SoCalGas is seeking rate-recovery for membership fees, and if so, the amount of that fee.
- b. Please identify the witness(es) responsible for the answer to each and every subsection of this question.

SoCalGas Response 16:

- a. SoCalGas objects to this request pursuant to Rule 10.1 of the Commission’s Rules of Practice and Procedure, on the grounds that the request is vague and ambiguous in its use of the terms “dues-paying member” and “membership fees.” Subject to and without waiving the foregoing objection, SoCalGas responds as follows:

SoCalGas pays as part of its RD&D program authorized budget annual subscription fees or annual dues as a member of the following trade organizations:

Energy Solutions Center (ESC) – Annual Subscription Fee: \$32,000.

NYSEARCH – Annual Subscription Fee: \$60,000.

Pipeline Research Council International (PRCI) – Annual Subscription Fee: \$149,102.

Utilization Technology Development (UTD) – Annual Dues: \$350,000.

Operations Technology Development (OTD) – Annual Dues: \$750,000.

Gas Technology Institute Sustaining Membership Program (GTI-SMP) – Annual Dues: \$100,000.

- b. Responses are provided on behalf of SoCalGas.

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17. Exhibit SCG-21 (Alexander Direct Testimony) at p.LLA-21:18–26 states that the Policy and Environmental Solutions group “is further responsible for developing franchise strategies and leading timely negotiations of franchise agreements with municipalities within SoCalGas’ service territory to help secure cost-effective outcomes for both customers and the company. In addition, the group engages in negotiations with local governments to protect franchise rights necessary to deliver energy to our customers. When local governments propose significant permit fees or attempt to impose conditions that potentially increase operating costs and/or create a precedent that may adversely impact customers, the group must increasingly engage with local governments to help mitigate these costs, thereby securing cost-effective outcomes. In the BY 2016, 5 FTEs were devoted to monitoring, analyzing and determining the impact of policy and legislative issues.”
- a. Please provide all active franchise agreements SoCalGas has executed with municipalities.
 - b. Please identify all actions by local government from BY 2016 to the present where the Policy and Environmental Solutions group intervened because the action would “potentially increase operating costs and/or create a precedent that may adversely impact customers.”
 - c. Does SoCalGas consider municipal purchases of electric buses “a precedent that may adversely impact customers.” If yes, explain why.
 - d. Does SoCalGas consider municipal incentives or requirements related to electric vehicles, electric vehicle charging stations, and/or electrification of customer end-uses, such as space and water heating, as potential actions that may adversely impact SoCalGas customers and require intervention by the Policy and Environmental Solutions group?
 - e. Please identify the witness(es) responsible for the answer to each and every subsection of this question.

SoCalGas Response 17:

SoCalGas objects to this request pursuant to Rule 10.1 of the Commission’s Rules of Practice and Procedure, on the grounds that it seeks the production of information that is outside the scope of this proceeding and neither relevant to the subject matter involved in the pending proceeding nor is likely reasonably calculated to lead to the discovery of admissible evidence, and to the extent it would require SoCalGas to search for matters of public record in public proceedings. This information is equally available to Sierra Club.

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SoCalGas Response 17:-Continued

SoCalGas further objects to the continuing and indefinite nature of this request on the grounds that it is unduly burdensome. Continuing interrogatories are expressly prohibited by California Code of Civil Procedure Section 2030.060(g). Subject to and without waiving the foregoing objection, SoCalGas responds as follows:

- a. See attached Sierra Club-UCS-SCG-001-Q17a-Register of Franchise Ordinances.pdf.
- b. SoCalGas does not maintain an exhaustive list of all actions by local governments where the Policy and Environmental Solutions group intervened because the action would “potentially increase operating costs and/or create a precedent that may adversely impact customers.” However, for the period BY 2016 to the present, these actions have included increased permit and inspection fees, addition of technology and general plan fees, double charging of fees, street work moratoriums, street cut fees, slurry backfill requirements, restriction on use of steel plates, and fees charged based on project cost rather than costs of service provided by local jurisdiction.
- c. As noted on LLA-3 lines 21-28, “SoCalGas supports technology neutral policies and regulations, and we work to ensure that the most economic and feasible pathways to achieving state goals will be considered by policy makers. This includes policy and regulations that consider the potential uses of the natural gas system to achieve environmental and economic policy goals – helping keep rates down. Without SoCalGas’ involvement, policies and regulations developed to meet long-term environmental objectives would risk foregoing cost-effective emission reduction strategies involving the use of natural gas and RG, and the stability of having a diverse, resilient fuel portfolio.”
- d. As noted on LLA-3 lines 21-28, “SoCalGas supports technology neutral policies and regulations, and we work to ensure that the most economic and feasible pathways to achieving state goals will be considered by policy makers. This includes policy and regulations that consider the potential uses of the natural gas system to achieve environmental and economic policy goals – helping keep rates down. Without SoCalGas’ involvement, policies and regulations developed to meet long-term environmental objectives would risk foregoing cost-effective emission reduction strategies involving the use of natural gas and RG, and the stability of having a diverse, resilient fuel portfolio.”
- e. Responses are provided on behalf of SoCalGas.

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18. Exhibit SCG-21 (Alexander Direct Testimony) at pp.LLA-27:26–28:5-state: “Our activities serve to protect the interests of customers by providing specific input, developed through internal and external analysis, on policy, regulatory and legislative approaches. Our role is to educate policymakers on gas utility operations and the use of natural gas and renewable gas by our customers and to support the agencies in achieving state environmental goals in the most cost-effective manner. CARB, CEC and all air districts benefit from our participation, including attendance at meetings and workshops, evaluation of technologies and monitoring systems, preparation of comments, and education of customers.”
- a. Please provide all comments referenced above from BY 2016 to the present submitted to CARB, the CEC, and all air districts that SoCalGas asserts “serve to protect the interests of customers.”

SoCalGas Response 18:

SoCalGas objects to this request pursuant to Rule 10.1 of the Commission’s Rules of Practice and Procedure, on the grounds that it seeks the production of information that is neither relevant to the subject matter involved in the pending proceeding nor is likely reasonably calculated to lead to the discovery of admissible evidence, and to the extent it would require SoCalGas to search for matters of public record in public proceedings. This information is equally available to Sierra Club. SoCalGas further objects to the continuing and indefinite nature of this request on the grounds that it is unduly burdensome. Continuing interrogatories are expressly prohibited by California Code of Civil Procedure Section 2030.060(g). Subject to and without waiving the foregoing objection, SoCalGas responds as follows:

Letters and comments presented by SoCalGas to various public bodies such as the California Air Resources Board, Southern Coast Air Quality Management District, California Energy Commission, San Joaquin Valley Air Pollution Control District, and Ventura County Air Pollution Control District, from BY 2016 through 2017 are part of the public record.

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19. Please identify the name and title of the 4.8 FTEs referenced in Exhibit SCG-21 (Alexander Direct Testimony) at p.LLA-28:16, which states: “In BY 2016, 4.8 FTEs were devoted to work on energy and environmental policy.”

SoCalGas Response 19:

SoCalGas objects to this request pursuant to Rule 10.1 of the Commission’s Rules of Practice and Procedure, on the grounds that it seeks the production of information that is neither relevant to the subject matter involved in the pending proceeding nor is likely reasonably calculated to lead to the discovery of admissible evidence, and on the grounds that the burden and intrusiveness of this request outweigh the likelihood that the information sought will lead to the discovery of admissible evidence. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

- 0.9 Program Manager - CARB
- 1.1 Sr Environmental Policy Advisor
- 0.9 Energy & Environmental Affairs Manager
- 0.9 Agency Relations Manager
- 1.0 Project Specialist

4.8 BY 2016 FTE

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20. Exhibit SCG-21 (Alexander Direct Testimony) at p.LLA-20:3–6 states: “The Low Carbon Resources RD&D team is investigating producing RG from biomass and other waste streams through thermochemical conversion processes, from SB 375 renewable electricity through a concept known as power-to-gas, and directly from sunlight via artificial photosynthesis technologies.”

- a. Are there any existing projects in California converting biomass to methane? If yes, please identify their name, location, and size, and state whether they are all or partially funded by SoCalGas.
- b. What is SoCalGas’ understanding of the conversion efficiency of biomass to methane?
- c. Is it SoCalGas’ position that electricity generated from the combustion of methane derived from biomass is more efficient than generating electricity directly from biomass? If so, please provide supporting documentation.
- d. What is “SB 375 renewable electricity”?
- e. Are there any existing power-to-gas projects in California? If yes, please identify their name, location, energy source (e.g. from grid or limited to renewable), and size, and state whether they are all or partially funded by SoCalGas.
- f. Are there any existing project generating methane through artificial photosynthesis technologies projects in California? If yes, please identify their name, location, and size, and state whether they are all or partially funded by SoCalGas.
- g. Please identify the witness(es) responsible for the answer to each and every subsection of this question.

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SoCalGas Response 20:

- a. There are publicly available resources listing the various commercial-scale projects that convert biomass to methane in California; however, these lists may not be all-inclusive.

Public project lists:

- CalRecycle lists over 25 active anaerobic digestion projects in California. None are funded in-whole or in-part by SoCalGas.
Source: <http://www.calrecycle.ca.gov/organics/conversion/ADProjects.pdf>
- EPA lists around 22 livestock anaerobic digestion projects in California. None are funded in-whole or in-part by SoCalGas.
Source: <https://www.epa.gov/agstar/livestock-anaerobic-digester-database>
- EPA lists around 76 landfill gas collection projects in California. None are funded in-whole or in-part by SoCalGas.
Source: <https://www.epa.gov/lmop/landfill-gas-energy-project-data-and-landfill-technical-data>
- The Coalition for RNG lists 54 renewable natural gas projects in the U.S., including 6 projects in California. Of the projects listed, 16 are undergoing expansion to increase total RNG production output. The list does not include 24 new production facilities currently undergoing construction. See attached Sierra Club-UCS-SCG-001-Q20a-Coalition for RNG.pdf.

The SoCalGas RD&D program does not provide funding for commercial projects utilizing mature technologies. Instead, RD&D support is provided to new, pre-commercial technologies to demonstrate performance and economic feasibility.

- b. The efficiency of converting biomass to methane is dependent upon many factors including, but not limited to, plant configuration, the conversion technology employed, and the nature of the feedstock used.
- c. The overall efficiency of generating electricity from the combustion of methane derived from biomass and the efficiency of generating electricity directly from biomass are dependent upon many factors including, but not limited to, plant configuration, the conversion technology employed, and the nature of the feedstock used.

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SoCalGas Response 20:-Continued

- d. This appears to be a typographical error and should read “renewable electricity.”
- e. We are aware of ongoing power-to-gas (P2G) projects in California. The below list may not be all-inclusive.
 - SoCalGas funded a P2G project at UC Irvine consisting of a 60 kW demonstration and research system that uses electricity from UCI’s microgrid.
 - The California Fuel Cell Partnership maintains a publicly available list of hydrogen fueling stations that contains two fueling stations in California that use electrolyzers to produce hydrogen on-site for fueling vehicles, a commercial demonstration of the P2G concept:
Source: <https://cafcp.org/stationmap>
 - i. The West LA station is listed as providing 33% renewable Hydrogen. This project is not funded by SoCalGas.
 - ii. The Riverside Station is listed as providing 100% renewable Hydrogen. This project is not funded by SoCalGas.
- f. We are aware of research on this nascent technology. For example, research is being performed in collaboration with the Department of Energy, the California Institute of Technology, and the Lawrence Berkeley National Laboratory.
Source: <https://solarfuelshub.org/who-we-are/overview/>
- g. Responses are provided on behalf of SoCalGas.

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21. According to page 5 of the report *Decarbonizing Pipeline Gas to Help Meet California's 2050 Greenhouse Gas Reduction Goal*, SoCalGas retained E3 to address questions related to a decarbonization pathway utilizing pipeline gas in lieu of a high electrification scenario (E3, *Decarbonizing Pipeline Gas to Help Meet California's 2050 Greenhouse Gas Reduction Goal*, Jan. 2015 (Revised from Jan. 2014), available at https://www.ethree.com/wp-content/uploads/2017/02/E3_Decarbonizing_Pipeline_01-27-2015.pdf).

- a. Were the costs associated with the preparation of the above-referenced report borne by SoCalGas shareholders? If SoCalGas has or intends to seek rate recovery for the cost of the above-referenced report, please provide the basis upon which SoCalGas believes these costs should be borne by ratepayers.
- b. Please identify the witness(es) responsible for the answer to each and every subsection of this question.

SoCalGas Response 21:

- a. SoCalGas objects to this request pursuant to Rule 10.1 of the Commission's Rules of Practice and Procedure, on the grounds that it seeks the production of information that is neither relevant to the subject matter involved in the pending proceeding nor is likely reasonably calculated to lead to the discovery of admissible evidence within the scope of the pending proceeding. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

SoCalGas incurred the expense for the report during 2014, and it was funded out of GRC-authorized funds.

- b. Responses are provided on behalf of SoCalGas.