4.1. Please provide a copy of DRA-SCG-001 through DRA-SCG-026 complete with all files (attachments) that are embedded in the text of the response or otherwise attached to the response.

SoCalGas Response:

Please see the enclosed CD. For DRA-SCG-DR-001-026. DRA-SCG-018-MPS was withdrawn, and will not be provided. Please be apprised that the following responses are considered *Confidential protected materials pursuant to the signed NDA in this proceeding.*

DOCUMENTS REMOVED DUE TO CONFIDENTIALITY

4.2. Please provide a copy of TURN-SCG-001 through TURN-SCG-002 complete with all files (attachments) that are embedded in the text of the response or otherwise attached to the response.

SoCalGas Response:

Please see the enclosed CD for SoCalGas' response to TURN-SCG-001 & 002.

- 4.3 In her testimony, Ms. Wright requests \$850,000 in TY 2012 for the biogas conditioning portion of the RD&D program. Ms. Wright states: "with co-funding from vendors, the DOE and equity investors, these funds will be used to develop and test a low cost (both capital and O&M) biogas upgrading system that will recover at least 99% of biomethane from a landfill or digester. Candidate technologies include advanced PSA, amine scrubbing and cryogenic distillation." (GAW-A31, GAW-32)
 - 4.3.1 Has the facility for this biogas facility been identified?
 - 4.3.2 If the answer to the previous question is "yes," please identify the facility at which the biogas conditioning plant is expected to be installed.
 - 4.3.3 If the answer to the question prior to the previous question is "no," please identify the facilities that are being considered for installation.
 - 4.3.4 How long is the installation expected to take including the development of any contracts among the parties, obtaining any required permits, and constructing/installing the necessary facilities?
 - 4.3.5 Does SoCalGas expect that an environmental impact report under CEQA will be required in order for the facility installation to obtain the necessary permits?
 - 4.3.6 If the answer to the previous question is "no," please explain the basis for SoCalGas' conclusion.
 - 4.3.7 If the answer to the question prior to the previous question is "yes," how long does SoCalGas expect it to take to complete an environmental impact report?

- 4.3.1 A facility has not been identified.
- 4.3.2 Not applicable.
- 4.3.3 The facilities under consideration include waste water treatment plants, farms, feedlots and food processing operations, as well as landfills.
- 4.3.4 The installation of a biogas upgrading plant is expected to take approximately 12 24 months depending on complexity of the site and technology requirements.
- 4.3.5 SoCalGas does not expect that an environmental impact report under CEQA will be required to add biogas upgrading equipment to an existing digester.
- 4.3.6 The basis for SoCalGas' assumption that an environmental impact report under CEQA will not be required is that similar equipment installations at farms, food processors and wastewater treatment facilities that we are aware of have not triggered CEQA requirements.
- 4.3.7 Not applicable.

- 4.4 In her testimony, Ms. Wright requests \$705,000 in TY 2012 for the biofuels pyrolysis, gasification and syngas conversion portion of the RD&D program. (GAW-A31). Ms. Wright states: "with co-funding from vendors, the DOE and equity investors, these funds will be used to develop and build and test a pilot gasifier capable of using biomass such as municipal solid waste, agricultural waste, waste water treatment plant sludge and algae, along with low value fossil fuels such as petroleum coke. The syngas produced by the gasifier will be used as fuel for an oxy-fuel plant...and/or converter to methane for pipeline injection." (GAW-A32).
 - 4.4.1 Has the facility for this biofuels pyrolysis, gasification and syngas conversion facility been identified?
 - 4.4.2 If the answer to the previous question is "yes," please identify the facility at which the biofuels pyrolysis, gasification and syngas conversion plant is expected to be installed.
 - 4.4.3 If the answer to the question prior to the previous question is "no," please identify the facilities that are being considered for installation.
 - 4.4.4 How long is the installation expected to take including the development of any contracts among the parties, obtaining any required permits, and constructing/installing the necessary facilities?
 - 4.4.5 Does SoCalGas expect that an environmental impact report under CEQA will be required in order for the facility installation to obtain the necessary permits?
 - 4.4.6 If the answer to the previous question is "no," please explain the basis for SoCalGas' conclusion.
 - 4.4.7 If the answer to the question prior to the previous question is "yes," how long does SoCalGas expect it to take to complete an environmental impact report?

- 4.4.1 The specific facility for the biofuels pyrolysis, gasification and syngas conversion facility has not been identified.
- 4.4.2 Not applicable.
- 4.4.3 Potential locations for a pyrolysis, gasification and syngas plant include brownfield sites such as existing biomass combustion facilities; large wastewater treatment facilities that produce large quantities of bio-solids that must be transported to landfills; and industrial facilities such as pulp and paper mills.
- 4.4.4 It may take as long as 24 to 36 months to construct and install a thermochemical biomass conversion plant, assuming that an appropriate brown field site is secured.

Response to Question 4.4 (Continued)

- 4.4.5 SoCalGas does not know whether an environmental impact report under CEQA will be required at this point. It will have to be determined on a project by project basis.
- 4.4.6 See response 4.4.5.
- 4.4.7 If an environmental impact report is required, it could potentially take up to 1 year to complete. However, depending on the determination by the lead agency on the level of significant impact from preliminary assessment, the time line could be significantly reduced.

- 4.5 In her testimony, Ms. Wright requests \$377,000 in TY 2012 for the Biofuel Market Development team to complete market assessments and engineering studies with the "primary focus...in promoting and supporting the installation of biogas conditioning systems at certain customer sites for the purpose of capturing 'raw biogas' and converting it to pipeline quality biogas (biomethane)." (GAW-80).
 - 4.5.1 When does Ms. Wright expect that the market assessments and engineering studies will be completed?
 - 4.5.2 In Ms. Wrights testimony regarding biogas RD&D, she states that "RD&D work is necessary to address key biogas technology gaps" yet SoCalGas is intending to proceed with development projects without addressing those gaps. Please explain why it is appropriate for SoCalGas to proceed with biogas development without addressing the "key biogas technology gaps."
 - 4.5.3 Please explain in technically specific and detailed terms what distinguishes the projects proposed to be developed under the "Sustainable SoCal program" versus those proposed to be developed under the RD&D program, biogas projects.
 - 4.5.4 In response to DRA-SCG-044, Q.1, SoCalGas states that it has not yet selected the sites for any of its four proposed biogas installations. Are these market assessments and engineering studies intended to identify the four facilities or are they for some other purpose?
 - 4.5.5 In response to DRA-SCG-044, Q.2, SoCalGas provided a list of criteria for developing a "short list of potential wastewater treatment plants." How many wastewater treatment plants would meet SoCalGas' criteria?
 - 4.5.6 In response to DRA-SCG-044, Q.8, SoCalGas "estimates that 24% of the remaining 7 million scfd is from producer sites having volumes in the range of 200 to 600 scfm." How many wastewater treatment plants does this volume correspond to?

SoCalGas Response:

4.5.1 The \$377,000 proposed funding for biofuel market development activities includes 2 FTEs and approximately \$150,000 is budgeted for market assessments and engineering studies. SoCalGas does not currently have specific completion date(s) for the studies. The proposed funding will be utilized in 2012 and beyond to assess a variety of biogas market sectors, including but not limited to, wastewater, livestock waste, foodwaste and landfills. Each feedstock source has different composition and constituent levels, and will drive engineering requirements for the optimal biogas conditioning system using the best available technology option(s) at that time. SoCalGas has conducted similar types of studies and one example is the Gas Cleanup System RAM Study conducted in 2010. The purpose of this study was to examine the reliability and quantify the risk associated with various gas cleanup technologies.

Response to Question 4.5 (Continued)

- 4.5.2 The 2011 Bioenergy Action Plan for California¹ specifically encourages both the development of bioenergy projects and continued research and development of bioenergy technologies. Even though there are still biogas technology gaps to be overcome, SoCalGas believes it is important to demonstrate what is commercially available and feasible to achieve today. See response 4.5.3 below for further clarification of differences between the Sustainable SoCal program and RD&D biogas projects.
- 4.5.3 The "Sustainable SoCal" program will deploy commercial technology. By contrast, SoCalGas' RD&D program biogas projects will advance the state of the art of this technology in order to improve system performance, reliability and cost-effectiveness. SoCalGas' proposed RD&D projects will test and demonstrate advanced technologies to incrementally improve performance or lower operating costs of biogas conditioning systems such as new CO2-methane separation media, small gas upgrading systems that might be used on a more distributed basis, complex cycles involving CO2 recycling, and lower-cost gas quality monitoring systems, among others. The RD&D effort will thus increase near-term viability of future bioenergy projects. Examples where commercial projects currently proceed in parallel with RD&D include many technologies used by SCGC members, such as natural gas vehicles, adsorption chillers, micro turbines, fuel cells, solar photovoltaics and solar thermal systems.
- 4.5.4 As discussed in response 4.5.1 above, the proposed market assessment and engineering studies are for the general purpose of gaining knowledge and insight of biogas markets and to help prioritize development opportunities, and not specifically for the support of Sustainable SoCal program.
- 4.5.5 At this point in time, SoCalGas has identified nine wastewater treatment plants that met the initial screening criteria. Additional discussion with individual plant operators will be required in order to finalize the short list.
- 4.5.6 There are approximately nine wastewater plants that make up the 24% of the remaining seven mcfd.

¹ O'Neill, Garry, John Nuffer. 2011. *2011 Bioenergy Action Plan.* California Energy Commission, Efficiency and Renewables Division. Publication number: CEC-300-2011-001-CTF.

- 4.6 In Mr. Stanford's testimony, he requests about \$11.7 million in increased O&M expenses for Gas Engineering to support among other things the Sustainable SoCal Programs (bioenergy installation.) (RKS-14) According to his workpapers, Mr. Stanford's requested increase for the bioenergy installation work is about \$606,000 "for various equipment, maintenance, management costs associated with bioenergy installation" and "labor expense associated with managing the various equipment, maintenance, and contract costs for bioenergy installation." (SCG-05-WP, p23)
 - 4.6.1 Does SoCalGas intend to proceed with the selection of the short list of installation sites prior to the completion of a decision in this proceeding?
 - 4.6.2 If the answer to the previous question is "yes," please provide an estimate of when SoCalGas will have a short list of candidates for its biogas development projects.
 - 4.6.3 Does SoCalGas intend to select any of the sites for biogas development and start its contracting/permitting/site development process prior to the completion of a decision in this proceeding?
 - 4.6.4 How long is the installation expected to take including the development of any contracts among the parties, obtaining any required permits, and constructing/installing the necessary facilities?
 - 4.6.5 Does SoCalGas expect that an environmental impact report under CEQA will be required in order for the facility installation to obtain the necessary permits?
 - 4.6.6 If the answer to the previous question is "no," please explain the basis for SoCalGas' conclusion.
 - 4.6.7 If the answer to the question prior to the previous question is "yes," how long does SoCalGas expect it to take to complete an environmental impact report?

- 4.6.1 Yes, SoCalGas plans to proceed with the selection of the short list of installation sites prior to the completion of a decision in this proceeding.
- 4.6.2 At this point in time, SoCalGas has identified up to nine wastewater treatment plants that meet our initial screening criteria. Additional discussion with individual plant operators will be required in order to finalize the short list. SoCalGas expects to finalize the short list in the third quarter 2011.
- 4.6.3 Yes, SoCalGas plans to select the sites for the Sustainable SoCal Program prior to the completion of a decision in this proceeding. SoCalGas plans to do limited preliminary work as an effort to expedite the implementation timeline. The specifics of the preliminary work will be determined after site selection, but potentially includes contracting, permit, and site specific engineering analysis.

Response to Question 4.6 (Continued)

- 4.6.4 The installation of a biogas upgrading plant is expected to take 12-18 months, including permitting, contracting, construction and installation. However, SoCalGas plans to expedite this timeline by doing limited preliminary work as discussed in response 4.6.3.
- 4.6.5 SoCalGas does not expect that an environmental impact report under CEQA will be required to add biogas upgrading equipment to an existing digester.
- 4.6.6 The basis for SoCalGas' assumption that an environmental impact report under CEQA will not be required is that similar equipment installations at farms, food processors and wastewater treatment facilities that we are aware of have not triggered CEQA requirements.
- 4.6.7 See response 4.6.5.

- 4.7 In Mr. Stanford's testimony, he requests about \$11.3 million in capital costs for Gas Engineering to install bioenergy projects. According to Mr. Stanford, this investment will "advance the market development efforts associated with producing pipeline quality biogas from digested raw biogas generated from wastewater treatment plants, dairies, and food processing plants." He also states that "SoCalGas plans to install the first two BioEnergy units in the third-quarter of 2012, and two additional units will be installed after TY 2012" with "each installation costing approximately \$5.6 million to cover the costs related to the equipment purchase, interconnection, site specific feasibility study, required permits, and other installation costs including contractors' fees." (RKS-83) Mr. Stanford's workpapers indicate that he expects one installation to take place in 2013 and another in 2014. (RKW-CWP-256)
 - 4.7.1 How long is the installation expected to take including the development of any contracts among the parties, obtaining any required permits, and constructing/installing the necessary facilities?
 - 4.7.2 Does SoCalGas expect that an environmental impact report under CEQA will be required in order for the facility installation to obtain the necessary permits?
 - 4.7.3 If the answer to the previous question is "no," please explain the basis for SoCalGas' conclusion.
 - 4.7.4 If the answer to the question prior to the previous question is "yes," how long does SoCalGas expect it to take to complete an environmental impact report?

- 4.7.1 The installation of a biogas upgrading plant is expected to take 12-18 months.
- 4.7.2 SoCalGas does not expect that an environmental impact report under CEQA will be required to add biogas upgrading equipment to an existing digester.
- 4.7.3 The basis for SoCalGas' assumption that an environmental impact report under CEQA will not be required is that similar equipment installations at farms, food processors and wastewater treatment facilities that we are aware of have not triggered CEQA requirements.
- 4.7.4 See response 4.7.2.

- 4.8 Comparing the projects described above in Q.4.3, 4.5, 4.6 and 4.7, please answer the following questions:
 - 4.8.1 Why has SoCalGas proposed to RD&D funding for the biomass conditioning project (Q.4.3) while simultaneously proposing to add the cost of biomass conditioning projects to its rate base (Q.4.7) and O&M expense (Q.4.5 and Q.4.6)?
 - 4.8.2 What distinguishes the various projects that would justify such disparate rate making treatment?
 - 4.8.3 Is SoCalGas proposing in this application that any of these projects be covered by a profit sharing mechanism?
 - 4.8.4 If the answer to the previous question is "yes," please identify each such project and describe in specific terms the profit sharing mechanism that SoCalGas would expect to apply to each such project.
 - 4.8.5 For each of these biogas conditioning projects, please explain why the proposed ratemaking is the most appropriate for that project, citing Commission precedent and other pertinent information.

- 4.8.1 SoCalGas has proposed RD&D funding for biomass conditioning projects while simultaneously developing commercial projects. As stated in response 4.5.3, the RD&D activities will serve to improve the safety, reliability, performance and cost-effectiveness of future projects. This approach is used with most other successful technology development and commercialization efforts. Examples where commercial projects currently proceed in parallel with RD&D include many technologies used by SCGC members, such as natural gas vehicles, adsorption chillers, micro turbines, fuel cells, solar photovoltaics and solar thermal systems.
- 4.8.2 In general, if a project meets the requirements and RD&D definition as approved by the Commission in D. 82-12-005, it is a qualified RD&D project, and therefore should be accounted for as RD&D expense. The Sustainable SoCal Program does not meet the definition of RD&D project and it is for the benefit of SoCalGas ratepayers, therefore, traditional ratemaking treatment based on applicable accounting policies should apply.
- 4.8.3 SoCalGas is not proposing these projects be covered by a profit sharing mechanism. However, under SoCalGas' existing RD&D program, there is a potential for RD&D projects to have a royalty or equity sharing component. The applicability of the RD&D royalty or equity sharing mechanism depends on the specific technology development agreements employed and will be determined on a case-by-case basis.

Response to Question 4.8 (Continued)

- 4.8.4 Not applicable.
- 4.8.5 SoCalGas believes the proposed ratemaking is the most appropriate path for the Sustainable SoCal Program because the energy produced by the "program equipment" is delivered back to the utility for the benefit of ratepayers. It is noteworthy that the CPUC has approved a variety of utility renewable energy programs that result in ratepayers paying a subsidy/premium for renewable energy.

Examples of commission approved projects with similar ratemaking proposal include:

SDG&E's Sustainable Communities Program (SCP) proposed in TY2004 GRC, and was approved in Decision(D.) 04-12-015. The program entails SDG&E owning and operating environmentally sound energy systems on customer premises. A common project involves SDG&E leasing rooftop space on a commercial building and installing a photovoltaic system on the rooftop. SDG&E owns, operates and maintains the photovoltaic system, and all of the energy produced by the photovoltaics is delivered to the utility grid for the benefit of ratepayers. The proposed Sustainable SoCal Program is very similar to SDG&E's SCP in that both programs lease space on customer premises to facilitate utility ownership of "program equipment" that produces renewable energy. Similarly, D.10-04-028 approved PG&E and SCE's application to install utility owned fuel cell cogeneration systems on several University of California and California State University campuses. Each utility proposed to install three fuel cell systems with a total generating capacity of three megawatts on selected university campuses to advance acceptance of fuel cell technologies in California.

- 4.9 With respect to the GHG credit identified in Table GAW-32:
 - 4.9.1 Please identify the specific provisions of the CARB cap and trade regulations that would support SoCalGas' assumption that it would receive a GHG credit for its proposed biogas processing project.
 - 4.9.2 Please provide the calculations and other workpapers supporting the development of the \$1.60/MMBtu GHG credit.

- 4.9.1 The proposed Sustainable SoCal Program will not be seeking direct GHG carbon offset credits under CARB protocols (via the Climate Action Reserve or any other carbon registry). The financial value of the emission reductions from the proposed Sustainable SoCal Program will be recognized during the second compliance period of the cap and trade program scheduled to start in 2015 (per footnote 78 on page GAW-91). Under the second compliance period, the cap and trade program will be expanded to cover, among other things, natural-gas-deliverers such as SoCalGas. The pipeline quality biomethane injected into SoCalGas' gas distribution system will be used in place of natural gas that would otherwise have been consumed, creating a net reduction of natural gas and resulting in SoCalGas purchasing fewer GHG allowances under the cap and trade program.
- 4.9.2 The attachment below provides the calculation of GHG credits for a 300 scfm biogas conditioning system for the Sustainable SoCalGas Program.



- 4.10 With respect to SoCalGas' pending Advice Letter 4172, regarding its request for authorization to offer biogas conditioning services and bioenergy production facilities services on a non-tariffed basis:
 - 4.10.1 Would any of the facilities proposed in the projects described above at Q.4.3, 4.5,4.6 or 4.7 be expected to produce services that SoCalGas would offer on a non-tariffed basis if AL4172 was approved?
 - 4.10.2 If the answer to the previous question is "no," please state which tariff would allow SoCalGas to provide the services proposed in the Sustainable SoCal projects or state whether SoCalGas would expect to develop a new tariff.
 - 4.10.3 If the answer to the question prior to the previous question is "yes:"
 - 4.10.31 Please identify which projects or project facilities that SoCalGas would expect to offer on a non-tariffed basis.
 - 4.10.32 If these facilities are added to SoCalGas' rate base and O&M budget, why isn't it appropriate to offer the services on a cost of service basis by defining a tariff?
 - 4.10.33 Does SoCalGas believe that price it could charge for the services offered would be limited below cost of service by competing offers from other potential providers of the same service?
 - 4.10.4 Please explain in technically specific and detailed terms what distinguishes the projects proposed to be developed under AL4172 versus the projects proposed under the "Sustainable SoCal program" and those proposed to be developed under the RD&D program, biogas projects.

- 4.10.1 No, the facilities proposed in the projects described above at Q.4.3, 4.5, 4.6 or 4.7 are not expected to produce services that SoCalGas would offer on a non-tariffed basis if AL4172 was approved.
- 4.10.2 SoCalGas does not plan on developing or offering a tariff for the proposed Sustainable SoCal Program. SoCalGas will own the biomethane injected into SoCalGas' pipeline system and use it for company facility and fleet vehicle use.
- 4.10.3 Not applicable.
- 4.10.4 See responses 4.5.3 and 4.8.1 which describe the important differences that distinguish the proposed RD&D biogas projects from the Sustainable SoCal Program. Furthermore, the matrix below provides a side-by-side comparison of some of the key components for both the Sustainable SoCal Program and the

Response to Question 4.10.4 (Continued)

Biogas Conditioning Services and Bioenergy Production Facilities Services (as requested in Advice Letter No. 4172).

Program Detail	Sustainable SoCal Program	Biogas Conditioning Services & Bioenergy Production Facilities Services
What market sector(s) will be offered the program or services?	Small to medium wastewater treatment facilities	Various sectors, including but not limited to, large wastewater treatment facilities, municipal solid waste, dairy waste, food waste, and other biogas sources.
Does the biogas project/producer site need to have a digestion facility?	Yes, the small to medium wastewater treatment facility needs to have a digestion facility to produce the raw biogas.	No, there could be a feedstock owner who wants to build a complete bioenergy facility. An example of this would be a dairy that has feedstock (manure) and is currently using it for compost. In this case, in order for the dairy to produce biogas, they need to have a digester in order to produce raw biogas from their feedstock. Under this scenario, SoCalGas could provide both Bioenergy Production Facilities (ex: digester) and Biogas Conditioning Services.
What are the expected raw biogas volumes?	-	Generally, 1,000 scfm or greater
What is the funding source for the biogas projects?	Ratebase	SoCalGas Shareholders
Who will own, operate and maintain the equipment?	SoCalGas	SoCalGas
What type of biogas equipment will be installed?	Biogas conditioning system	Biogas conditioning system and/or bioenergy production system (ex: digester)
Who owns the raw biogas?	Wastewater treatment facility	Biogas developer or customer
Who owns the conditioned/pipeline quality biogas?	SoCalGas (ratepayers receive 100% of benefits)	Biogas developer or customer
Who receives the GHG credits/benefits?	SoCalGas (ratepayers receive 100% of benefits)	Likely the biogas developer or customer. It could be SoCalGas if the GHG credits are negotiated as part of the Service Agreement.

- 4.11 Regarding the statement in Ms. Wright's testimony at page GAW-93: "SCG will gain valuable operating experience from the initial four biogas conditioning systems, and gas transaction costs will be minimized by using the relatively low volume of pipeline quality gas for company facilities use and to fuel CNG fleet vehicles."
 - 4.11.1 Is SoCalGas intending to isolate the biogas from its Sustainable SoCal project from the rest of its system?
 - 4.11.2 If the answer to the previous question is "yes," please explain the reasons for isolating the biogas from the overall system.
 - 4.11.3 If the answer to the question prior to the previous question is "no," does this statement "using the relatively low volume of pipeline quality gas for company facilities use and to fuel CNG fleet vehicles" then only refer to SoCalGas' proposed allocation of the cost of the gas to its company use and fleet vehicles categories?

- 4.11.1 No, the biomethane from the Sustainable SoCal Project will not be isolated from the rest of its system. It will be injected into the utility pipeline.
- 4.11.2 Not applicable.
- 4.11.3 It refers to the accounting treatment rather than the physical use of the natural gas. The total biomethane produced by the four proposed installations will cover approximately 75-80% of SoCalGas' gas use for company facilities and fleet. Per Ms. Wright's testimony on page GAW-91, "The avoided costs for natural gas commodity will be reflected in reduced costs for "Other Company Use Gas", allocated to all customers in base rates, and in reduced costs for GHG credits for SoCalGas operations".