EXHIBIT 3

Southern California Gas Company

SoCalGas Pilot Project Proposal for Alpaugh (Revised)

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1. Proposal Overview: Bringing Natural Gas Service to Alpaugh

Southern California Gas Company (SoCalGas) is honored to prepare this proposal to provide safe, affordable, and reliable natural gas to the residents of Alpaugh to help to meet the goals of Assembly Bill (AB) 2672, and lower household energy costs in the community. SoCalGas has served California as a responsible energy provider, employer and neighbor for over 150 years. SoCalGas is proposing to provide natural gas service to Alpaugh by installing gas service to each household and replacing existing propane appliances with new, energy efficient natural gas appliances - all, for no cost to households. Based on surveys by SoCalGas planners, SoCalGas estimate that there are approximately 46 households in Alpaugh that may be able to participate in a pilot in this proceeding.

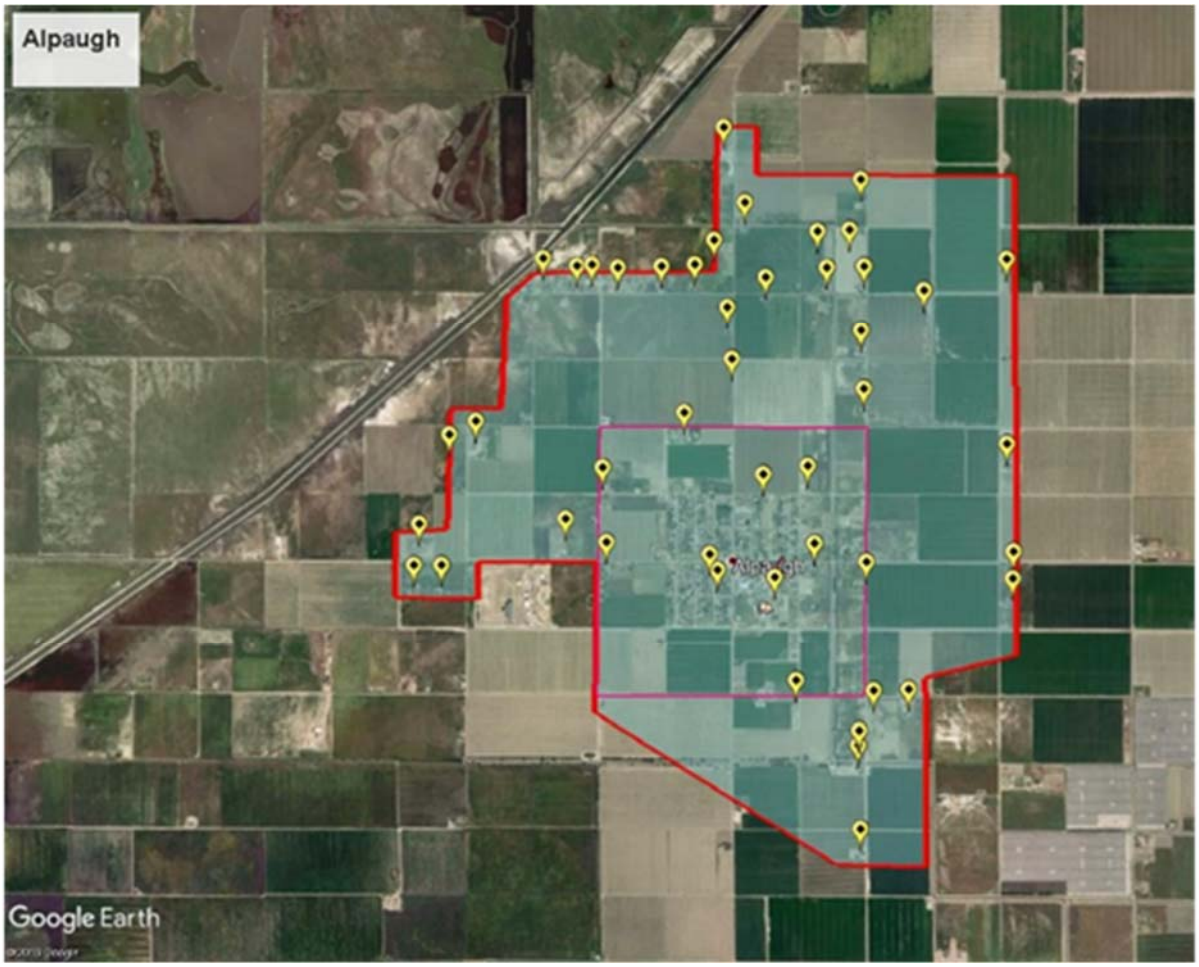

FIGURE 1. MAP OF COMMUNITY AND LOCATION OF PILOT HOUSEHOLDS

With such a low number of households and with their wide geographic dispersion, the total cost to convert all 46 households is approximately $8.7M, with an average cost per household of $190,000. However, as SoCalGas noted in the original proposal, 6 of these households could be converted for a significantly lower amount (approximately $21,600 per household) as they are located near existing SoCalGas pipelines. SoCalGas included all 46 households in the original

Pilot Proposal at the request of the Pilot Team, however has revised this proposal to only convert 6 of the households to natural gas and recommends conversion of the remaining 40 to another energy solution to create a hybrid-pilot.

SoCalGas believes that there are potentially many unique learnings from a hybrid pilot within a single community where low-cost natural gas extension can be installed alongside an all-electric option(s). Both the pilot communities of Lanare and Alpaugh present this opportunity and should be considered together.

SoCalGas has discussed a possible split or hybrid pilot with PG&E where some houses are converted to natural gas and others receive an all-electric option. Further discussions would be required to explore feasibility, potential pilot learnings, construction timing etc.

2. SoCalGas Pilot Project Proposal Rationale and Expected Outcome

a. Objectives and Goals

The objectives of the SoCalGas Pilot Project Proposal include bringing safe, affordable, reliable energy to Alpaugh in a cost-effective manner that will improve the health, comfort, and safety of the residents by replacing household propane and wood use with natural gas. Currently, some residents without natural gas service use alternative fuel sources such as propane or wood to heat their homes, food, and water. These alternative sources are expensive, creating a significant energy burden on the residents, are less environmentally friendly, and expose residents to health and safety issues. The goals of the SoCalGas Pilot Project Proposal are to:

- Reduce the energy burden and insecurity in the community by replacing household propane and wood use with natural gas.
- Provide a baseline reduction in energy burden by replacing household propane and wood use with natural gas to assess cost-effectiveness of natural gas in remaining communities. The baseline reduction will assist the California Public Utilities Commission (CPUC or Commission) to analyze economically feasible and replicable options to increase access to affordable energy in disadvantaged communities.
- Along with the reduction in energy burden, use actual post-pilot energy bills and use qualitative surveys to assess energy security, health, comfort, and safety. This information can be used to determine replicability for the remaining SJV DACs.
- Compare the level of impact on energy burden, and improvements to health, comfort and safety within the community for energy star energy efficient natural gas appliances and appliances in an all-electric energy solution.
- Track and compare customer preferences and attitudes towards natural gas and electric appliances across a significant period (1+ years) in order to gauge sentiment towards utility and cost of natural gas cooking, heating, water heating and clothes drying versus electric appliances.

- Assess the effectiveness of education materials, behavioral messaging about energy conservation (such as usage alerts), and customer engagement levels with mobile apps, online tools, and smart thermostats. Energy efficiency is one of the lowest cost methods to reduce energy demand and with over 70%of California homes currently using natural gas for space and water heating, SoCalGas believes that strategies driven by behavioral messaging combined with innovative energy efficiency measures can have a positive effect on reducing California's residential natural gas combustion GHG emissions – estimated in 2016 to be the source of under 6% of all GHG emissions in the state[1]. Successful measures can be replicated for the remaining SJV DACs.
- Assess energy efficiency measures from household weatherization efforts during the project to identify those measures having the greatest potential benefit towards reducing energy usage. During weatherization, identify common "barrier" issues preventing implementation of measures and document mitigation approaches along with "best practices." Successful measures can be replicated for the remaining SJV DACs.

b. Quantitative and Qualitative Analysis

Communities selected for a SoCalGas Pilot Project Proposal were identified in the Scoping Memo for Phase II of R.15-03-010. The ruling directed SoCalGas to file pilot project proposals for the identified communities located in SoCalGas' service territory. SoCalGas developed this natural gas pilot proposal for Alpaugh with the following considerations:

- Significant non-energy benefits (as listed below in "Anticipated Non-Energy Benefits") would be recognized by conversion of households from propane to natural gas.
- Alpaugh has been partially served by SoCalGas for many years. This pilot would extend that service to those not currently served by SoCalGas.
- Using natural gas for space and water heating produces less GHG than propane and wood and does not produce PM2.5[2] from wood combustion, improving local air quality.
- Once natural gas pipelines are in place to the community, extension of natural gas service to economic development opportunities would be more affordable.

Pre-Pilot Average Annual and Monthly Bills

To calculate pre-pilot average annual and monthly propane usage for Alpaugh, SoCalGas analyzed 2016 and 2017 actual natural gas usage in ZIP code 93201,[3] and then calculated the

[1] California Air Resources Board (2018). GHG Emission Inventory (GHG EI) 2000-2016.
Data and documentation is available on-line at: https://www.arb.ca.gov/cc/inventory/data/data.htm.

[2] PM2.5 is particulate matter 2.5 micrometers or less in diameter with the potential of causing serious health problems.

[3] Residential usage available in January 2018 from the Energy Data Request Program (EDRP) was used.

equivalent amount of estimated annual propane usage per household.[4] Using $3.50 as the average cost per gallon of propane,[5] SoCalGas calculated the equivalent estimated monthly and annual propane bill for the average household[6] in Alpaugh. Detailed assumptions and calculations for modeled pre-pilot usage and bills can be found in Appendix A.

Table 1: Estimated pre-pilot propane usage and cost per household

Estimated Pre-Pilot Propane		**Estimated Usage**
Monthly Cost	$ 113	32.4 gallons
Annual Cost	**$1,356**	

The Pilot Team[7] and the participating Investor Owned Utilities (IOUs)[8] do not have reliable data on the average annual cost of wood or the average annual amount of wood used by residents in Alpaugh at this time. As such, SoCalGas did not include a pre-pilot average annual cost for wood space or water heating. More details will be available once in-home data surveys are completed.

Post-Pilot Average Annual and Monthly Bills

As shown below, natural gas using the CARE rate is more affordable than propane and provides a significant reduction in energy burden and energy insecurity, potentially lowering the average household heating bill in Alpaugh by up to 84% compared to using propane.

Absent in-home data surveys that would determine household conditions and detailed statistics for energy sources, SoCalGas is modeling conversion of 100% of the 46 households in Alpaugh from propane to natural gas. SoCalGas removed pre-pilot electric usage in the revised proposal due to a lack of agreement by the electric IOU's on how to calculate pre and post pilot electric usage. Detailed assumptions and calculations for modeled post-pilot usage and charges can be found in Appendix A.

Table 2: Estimated post-pilot natural gas usage and cost per household

Estimated Pre-Pilot Propane		**Estimated Post-Pilot**	
Propane	$ 113	Natural Gas	$ 25
Annual Total	**$ 1,356**		**$ 300**
		Estimated Annual Savings	**$ 1,056**

[4] To convert natural gas therms to propane gallons, the BTU of natural gas used was converted to gallons of propane using the BTU value for propane.
[5] In conjunction with SCE, PG&E, and the Pilot Team, the average cost of propane was estimated based on feedback received from community residents during the May and June SJV Community Workshops.
[6] Details by household type (single-family, multifamily and mobile home) are not available at this time and will be available once in-home data surveys are completed.
[7] The Pilot Team refers to Self-Help Enterprises, Center for Race, Poverty, and the Environment, and the Leadership Counsel for Justice and Accountability.
[8] IOUs are defined in this proceeding as PG&E, SCE, and SoCalGas.

Anticipated Non-Energy Benefits

The non-energy benefits listed below are anticipated to be seen by the community after conversion to natural gas from propane or wood for heating:

- Increased access to a resilient energy resource that provides heat and hot water for homes increases household health and comfort. Many natural gas appliances will operate during a power outages and households with wall heaters can still stay warm, have hot water and prepare warm meals.
- Increased options for economic development and expansion to the community. Natural gas infrastructure in the community provides an attractive low-cost energy option for potential commercial or agricultural business when considering locations, as-well-as developers of multi-family or public facilities. Unlike other energy solutions that only produce energy limited for each household, natural gas can be readily scaled for more residential, agricultural and commercial demand.
- Increased household comfort as a result of the reliability of natural gas supply compared to propane which serves the household by a tank that needs to be monitored constantly and refilled regularly to prevent unexpected loss of space heating and water heating. This will reduce the stress and impact of scheduling and negotiating with propane suppliers and the added diesel truck emissions in the community from propane delivery.
- Reduced emissions, improved appliance performance and safety from appliance maintenance provided by SoCalGas at no-cost to households
- Improved household financial management from enrollment in SoCalGas' Level Pay Plan or Automatic Monthly Payments and/or ability to request payment extensions online or by phone, reducing the potential need for unsecured lending institutions.

Household Costs

The SoCalGas Pilot Project Proposal incorporates CARE and Energy Savings Assistance Program but does not require subsidies from any other sources nor does it require out-of-pocket costs for participating households. Additionally, SoCalGas proposes to waive (with Commission approval) the service establishment charges for all residents and, similar to the Mobile Home Park Pilot program (MHP) (D.14-03-021), SoCalGas proposes to waive (with Commission approval) deposit fees for low-income customers.

SoCalGas is proposing a financial cost-recovery approach similar to the MHP, such that all construction, household conversion and appliances costs would be covered under utility rates via a two-way balancing account. See "3. d Tariffs and Existing Ratepayer Program Utilization Plan," below.

Total Cost of SoCalGas Pilot Project Proposal

SoCalGas field planners conducted drive-by surveys in Alpaugh to estimate the number of households[9] without natural gas and to better understand the terrain. After further evaluation, and in response to comments from other parties in this proceeding and the Commission discussion on per household and project costs, SoCalGas has reduced its proposal for Alpaugh to convert 6 of the 46 households counted in the drive-by surveys from propane to natural gas. In-home data surveys will be performed before the planning phase for the SoCalGas Pilot Project Proposal and the actual counts may change.

The estimated SoCalGas Pilot Project Proposal costs include:

- The natural gas infrastructure "to the meter," which includes all infrastructure and substructures necessary to complete the distribution and service line extensions up to and including the individual meter, and will be owned and operated by SoCalGas; and
- "Beyond the meter" costs, which include house line, yard line, household conversion, contingency for household conversion issues, appliance purchase and installation costs.

The estimated SoCalGas Pilot Project Proposal cost for extending natural gas to Alpaugh is approximately $130K.[10]

Table 3 Total cost estimates for Alpaugh

"To the meter" Construction	$ 59,800
"Beyond the meter" Conversion	$ 57,500
Project Management and Outreach	$ 2,400
Other	$ 9,900
Total Pilot Project Cost Estimate	**$ 129,600**

Rate Impact of SoCalGas Pilot Project Proposal

The proceeding has not provided guidance on pilot funding, therefore all SoCalGas Pilot Project Proposal costs including (but not limited to) the "to the meter" costs, the "beyond the meter" costs, project administration, and costs for project supplies have been calculated to be allocated across all ratepayers. Allocation of the SoCalGas Pilot Project Proposal costs across all ratepayers is an affordable and fair solution for these disadvantaged communities due to the minimal rate impact. Rate impact of the SoCalGas Pilot Project Proposal for Alpaugh on the average residential customer is estimated to be a range from ($0.00000)/therm to a high of $0.00001/therm for years 2019 through 2021. Projections of the residential bill impact in the

[9] In determining which households to include within a community, SoCalGas considered the boundaries established by the U.S Census. If a property containing a habited structure was situated within approximately100 feet of our proposed main extension but located outside of the community boundary, it was included within the community estimate. However, a property located more than appoximately100 feet from the main extension was not included as it could significantly increase the project costs.

[10] Further details on scope and approach used to calculate total project cost estimate can be found later in this document and in Appendix C.

years 2019 through 2021 show minimal monthly increase range of ($0.00) to $0.00 per month. Bill impact analysis detailed below shows that the SoCalGas Pilot Project Proposal can be undertaken at a very small cost to ratepayers.

Table 4: Estimated residential rate impact

		2019	2020	2021
Estimated Residential Bill	$/month	$38.69	$38.69	$38.69
Increase vs. 2018	$/month	*($0.00)*	*$0.00*	*$0.00*
		0.00%	0.00%	0.00%
Year over Year Increase	$/month	*($0.00)*	*$0.00*	*$0.00*
		0.00%	0.00%	0.00%

Rate impact of the proposed SoCalGas Pilot Project Proposal on the average core[11] commercial and industrial customer is estimated to be a range from ($0.00000)/therm to a high of $0.00000/therm for the years 2019 through 2021 and bill impact in the years 2019 through 2021 show minimal monthly increase range of ($0.00) to $0.00 per month for customers using 300 therms/month.

c. Specific Outcomes to be Achieved

Reduction in Energy Burden - Implementation of the SoCalGas Pilot Project Proposal will bring benefits to the residents of Alpaugh in several important ways. The affordability of natural gas should reduce the energy burden of the residents as they switch from propane and, in limited instances, wood, for home heating and cooking. Estimated annual savings are $1,056 for participating households from replacing propane with natural gas (see Table 2 above).

Reduction in GHG Emissions - Natural gas appliances produce less CO_2 and NOx than propane appliances. Using the same usage assumptions and estimates as in Table 1 and Table 2, SoCalGas estimated the annual household reduction in CO_2 in Alpaugh from replacing household propane use with natural gas.

Table 5: Estimated annual emissions reductions per household

	Pre-Pilot Propane	Post-Pilot Natural Gas
Annual Household CO_2 lbs. Produced	4,807	3,763
Reduction in Annual Household CO_2 lbs.		**1,044**
Reduction in Annual Community CO_2 lbs.		**48,045**
2020 – 2030 Reduction in Community CO_2 lbs.		**528,496**

[11] Non-core rate increase is virtually non-detectible at $0.00001/therm.

Learnings from a Unique Test Group - With information from the pre-construction survey, data from installing new energy-efficient end use appliances, and data from weatherization measures in older households, SoCalGas will have a test population of pilot homes newly connected to the gas system to perform randomized control trials and compare data points such as:

- Energy usage to other customers and pilots in the San Joaquin Valley in the same community;
- Energy usage to other customers with similar vintage households in other pilots and in the community;
- The effect of regular online viewing of usage and billing data, surveys, or Bill Tracker Alerts emails and SMS text;
- Interaction with Smart Thermostats;
- The efficiency and effectiveness of controlled conservation marketing on bill reduction, or targeted marketing based on customer segments; and
- Latency in bill payment and the effectiveness of targeted behavioral messaging, or the effectiveness of varying bill reminder cadence to reduce late payments and shutoffs.

These information in combination with the appliance information will improve the ability to measure the actual reductions in energy burden from replacing household propane and wood use with natural gas, provide real-world measurements of the performance of new appliances in older weatherized households and will help to assess cost effectiveness in the remaining SJV DACs unserved and/or partially-served communities.

3. SoCalGas Pilot Project Proposal Implementation Plan

a. Summary of Scope and Approach

The SoCalGas Pilot Project Proposal for Alpaugh includes both the infrastructure for "to the meter" construction and the "beyond the meter" household conversion, appliance purchase, and the appliance installation effort required to convert each household to natural gas. In addition, this proposal includes several customer on-boarding initiatives.

Scope of the "to the meter" work includes (but is not limited to):

- Assessments to identify potential environmental and cultural issues related to "to the meter" construction;[12]
- Installation of new gas systems (e.g., distribution mains, service lines, gas meters, advanced meter transmission units (MTUs), and regulator stations) along with the associated trenching, excavation, and substructure work;
- Site restoration work (e.g., paving, hardscape, and landscape); and

[12] If environmental or cultural issues are found, costs and timeline may be impacted depending on reviews or permits triggered (e.g., California Environmental Quality Act (CEQA) review, National Environmental Policy Act (NEPA) review, Federal Habitat Conservation Plan, California Department of Fish and Wildlife (CDFW) Incidental Take Permit, Jurisdictional Delineation, Land Use Permits, Air Permits, Water Permits, Hazardous Materials and Waste, etc.).

- Costs associated with construction management (e.g., planning of distribution mains and service lines, gas handling, administration of construction bid process, and completion sketches).

Scope of the "beyond the meter" work includes (but is not limited to):

- House and yard line trenching and installation;
- Gas piping to the point of service connection;
- Purchase and installation of energy efficient natural gas appliances;[13]
- Minor repairs required to complete installation of appliances to meet inspection requirements;
- Permitting and inspection;
- Energizing the house line and appliances; and
- Gas turn-on services.[14]

Each household in Alpaugh will vary in the level of effort required to convert to natural gas and pass inspection. Some households may require significant structural repair and improvement to bring them "up to code" prior to the conversion and installation of appliances. See "4.k. Risk Management Plan" for a discussion on household conversion risk management and "Appendix E – Risks and Issues" for a list of currently identified risks with "beyond the meter" construction.

SoCalGas would acquire neither ownership of, nor responsibility to maintain, the new distribution infrastructure on the customer-side of the meter. The gas meter would continue to be the demarcation point separating utility and customer. The gas meter will be installed at a location determined by SoCalGas, such that SoCalGas will have unfettered access to the meter. All households will have an Advanced Meter (AM) installed and online access to their account.[15] In order to maximize energy conservation, bill management and customer engagement, SoCalGas proposes all participating households will be required to have an AM.

New SoCalGas customers would be:

- Offered no-cost energy savings household weatherization via Energy Savings Assistance Program measures, if qualified;
- Enrolled in low-income or cost-saving programs, such as CARE, if qualified;
- Trained on appliance safety and the use of new technologies such as Smart Thermostats;
- Automatically enrolled in My Account to provide them online access to hourly usage;
- Offered enrollment in automatic bill payment plans;
- Offered enrollment in level-payment plans; and
- Enrolled in other electric rate or bill-reduction program to which they qualify.

[13] Gas appliances may include gas range, dryer, water heater, and furnace. For further detail, refer to sample appliance packages included in Appendix C. Other propane end-uses and/or electric appliances will not be converted to natural gas.
[14] Turn-on services will be performed by SoCalGas employees, who will put appliances into service at that time.
[15] No additional Data Collector Units (DCUs) are needed to provide appropriate network coverage in Alpaugh.

Below is a preliminary listing of each phase for the "to the meter" and the "beyond the meter" construction effort in the SoCalGas Pilot Project Proposal for Alpaugh.

- The Pre-Planning Phase includes initial customer contact, community meetings, in-home data surveys, and initial household inspections.
- The Planning Phase includes planning of service lines and mains, ordering materials, sketching, construction bid process, and contractor selection.
- The Construction Phase constitutes a majority of the "to the meter" costs and efforts. It includes trenching, excavation, substructure work, the construction of service lines and mains up to and including the riser, setting the new meter, and site restoration work.
- The Post-Construction Phase refers to the necessary closure activities for the "to the meter" work. This phase includes reconciliations, completion sketches, and updates to our Geographical Information System (GIS).
- House line & Appliance Conversion Phase is "beyond the meter" work where each household will be prepared for natural gas. Work in this phase includes the installation of a yard line extension and extension to the new gas riser, conversion or possible replacement of the existing house line, installation of new appliances, and energizing the house line and new appliances.
- Pilot Analysis Stage is when actual reductions in energy burden and GHG are measured. Tests on behavioral messaging will occur to help improve EE messaging and content. Household surveys on appliance performance and changes to health, comfort and safety.

Coordination between meter sets, "beyond the meter" work, and new customer enrollment, including outreach, will be timed appropriately to minimize disruptions to community residents. For example, no "beyond the meter" work is planned during winter months to prevent households from not having heating during cold weather.

b. Community Engagement/Outreach Plan

SoCalGas will have an Outreach team that will create and follow a Community Outreach Plan. The Community Outreach Plan defines the communication and outreach activities among external and internal stakeholders to provide two-way communication of construction timing and pilot objectives throughout the SoCalGas Pilot Project Proposal. The Community Outreach Plan will also describe opportunities for stakeholders to provide input both before and during construction. SoCalGas will consider input from members of the community, the Pilot Team and other stakeholders in the design, review and implementation of the Community Outreach Plan.

Because of the size and nature of this SoCalGas Pilot Project Proposal, community support will be crucial for a successful outcome, and outreach activities will be key to maintaining community support, thereby minimizing any impact to residents. Alpaugh is a community of

approximately 1,124 residents living in 285 households.[16] Just over half of the residents own their homes (51.9%), with a 43.6% poverty rate, the median household income is just below $39,000. Most Alpaugh residents self-identify as Hispanic, with around 64.3% native Spanish speakers.[17]

The Outreach team is responsible for community surveys and education activities, coordination with Community Based Organizations (CBOs) and other stakeholders involved in outreach, including customer assessment surveys. Once planning begins for project implementation, a stakeholder map will be defined for the community and will include local government agencies, CBOs and any economic development agencies. Communication and outreach plans for the community will then be written based on qualitative information gathered by in-home pre-pilot data surveys done in the community.

The pre-pilot survey will measure baseline quantitative and qualitative factors such as energy usage, energy sources, energy burden, attitudes and expectations, among others. During construction, customer assessment surveys will collect data on household expectations, readiness, and energy management education challenges. Customer assessment survey results will be used to update the Outreach plan, identify unique household needs for energy and energy management, and identify any barriers or other issues.

Community surveys will be performed at the end of construction and end of the pilot term for comparison to the pre-pilot survey and provide a measurement of change in energy burden, reduction in propane and wood used for heating, participant satisfaction, etc. All surveys and data collection will be coordinated with and combined with databases used by the proposed Pilot Project Working Group, and the Data Gathering Working Group.

The pre-pilot community surveys will be followed by community resident forums before and during construction that will discuss the following:

- Open forum on concerns of the residents;
- Benefits of the project;
- Anticipated project schedule;
- What to expect during construction (e.g., construction impacts, traffic impacts, site debris, noise, equipment laydown yards);
- Household conversion process and how residents will become a customer of the utility;
- Benefits from being a customer of the utility (e.g., customer service benefits);

[16] 2012-2016 American Community Survey 5-Year Estimates, https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF, retrieved 1/19/2018
SoCalGas drive-by surveys only identified 46 households in Alpaugh and is using that number for all estimates in the SoCalGas Pilot Project Proposal. Actual count will need to be determined by in-home data surveys during the planning phase.
[17] 2012-2016 American Community Survey 5-Year Estimates, https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF, retrieved 1/19/2018

- Opportunity to sign up for customer assistance programs (CARE, Energy Savings Assistance Program, etc.)
- Natural gas safety, technology, and Energy Management System (EMS) tools (e.g., mobile application).

The Outreach team will work collaboratively with city, county, and other governmental officials to inform them about the SoCalGas Pilot Project Proposal, project schedule, including estimated beginning and ending dates, and gather feedback. The Outreach team will coordinate with local city or county entities that have inspection authority over households and provide construction notifications to impacted residents, schools and businesses within a reasonable distance of the construction. Additionally, the team will adhere to any permit conditions requiring public outreach.

Communication channels to be utilized for external education and communication may include:

- Community meetings;
- City/County briefings;
- Tailored email communications;
- Outbound automatic dialer-enabled calls;
- Door hangers;
- Fact Sheets and Frequently Asked Questions;
- Community flyers;
- Ads, newsletters;
- Displays; and
- Videos/Photos posted on websites or social media.

In order to support households during conversion to natural gas, each community will be assigned a bilingual outreach advisor who will be a single point of contact to address any issues or concerns, answer questions and assist with program enrollment. The advisor will coordinate the onboarding of new customers, confirm customers are comfortable and trained on appliance safety, trained on use of new technologies such as Smart Thermostats and enrolled in all eligible assistance programs for which the customer is eligible and qualified. This would include other utility rate discount programs like CARE or Family Electric Rate Assistance (FERA), Non-utility state and federal programs for home improvements loans or grants, such as Residential Energy Efficiency Loan (REEL), United States Department of Agriculture (USDA) or Low-Income Home Energy Assistance Program (LIHEAP), as well as non-utility state and federal assistance programs like CalFresh, Medicaid, and Social Security.

c. Landlord/Tenant concerns

SoCalGas has concerns about how the landlord/tenant relationship will be impacted by the conversion of a household from propane to natural gas and the pilot projects will provide an opportunity for all parties to see (and measure) the scope of changes that may occur in that relationship after household conversion to natural gas. Community surveys will ask open-ended questions about any changes occurring between the landlord and the tenant due to the pilot.

Because of the scope of the household conversion effort and the low percentage of homeownership, engaging landlords will be as important as tenant outreach, and all of the techniques listed above will include landlords. Landlords will be invited to all meetings to discuss the project and ask questions about their participation prior to construction planning. and will also perform two surveys during conversion.

Once pilot projects and communities are selected, pilot teams can provide recommendations for strategies or policies to obtain assurances from property owners during the pilots. A workshop should be organized for review and sharing of the recommended strategies. The workshop on strategies and policies should be held well before pilot implementation begins. Selected practices can be utilized by the pilot projects. After pilot projects are complete, Pilot Project Working Group should report on successes and lessons learned.

d. Tariffs and Existing Ratepayer Program Utilization Plan

While the SoCalGas Pilot Project Proposals are not dependent on the completion of any proceedings that are currently underway, the SoCalGas Pilot Project Proposal, as proposed, may require modifications to existing programs prior to implementation in the specific communities as described below. SoCalGas will work with the CPUC to modify or expand existing ratepayer programs within pilot communities, as appropriate.

- Current existing low-income tariffs or ratepayer programs such as CARE and Medical Baseline should be extended to new customers in Alpaugh if they meet qualification requirements.
- During household conversion, the Energy Savings Assistance Program may be utilized to fund weatherization measures in each eligible household.
- The California Solar Initiative – Thermal (Solar Thermal) program may be utilized to further reduce the energy burden and GHG emissions of participating households.
- Participation in Energy Savings Assistance Program and the Solar Thermal program is currently limited to utility customers, so the Outreach team will pre-qualify residents of Alpaugh as utility customers eligible for the Energy Savings Assistance and Solar Thermal programs.

New tariffs or revised tariffs or to ratepayer programs that the CPUC would need to adopt for the SoCalGas Pilot Project Proposal include:

- SoCalGas requires the establishment of a two-way balancing account for cost-recovery of "to the meter" service and main installations, line extensions, "beyond the meter" household conversions, and other costs as appropriate. This balancing account would be established by a Tier 2 advice letter filed with the CPUC, effective with the date of the decision for recording costs associated with the initial pilot and subsequent projects awarded to SoCalGas (see discussion below for more details).
- Energy Savings Assistance (ESA) Program: Measures should be approved for replacement of propane space heating, water heating, cooking and clothes drying equipment with natural gas equipment for the pilot projects only, at no cost to the customer.

- Energy Efficiency (EE) programs: Some measures may be helpful in funding pilot efforts and SoCalGas will determine once pilot planning has begun if any EE measures should be approved for non-income qualified customers in order to provide incentives to convert from propane appliances to energy-efficient natural gas appliances.
- Solar Thermal program: Should be modified to fund 100% of the installation costs for qualified low-income residential customers.

In addition, a new ESA program, or measures, should be considered to implement recommendations from the California Energy Commission Low-Income Barriers Study[18] that will address funding for household conversions and upgrades that will cost more than the "beyond the meter" household cap. Specifically, recommendation 1.c *"Ensure that energy retrofit programs facilitate access to available funds from programs that address non-energy work, such as asbestos, lead, and mold removal and structural maintenance so that work can be conducted in conjunction with energy upgrade projects. Explore the potential for energy upgrade programs to coordinate with local housing rehabilitation efforts in low-income and disadvantaged communities."* This program will be key to successful implementation of the proceeding to the remaining communities in the San Joaquin Valley.

SoCalGas proposes that the remaining costs of the SoCalGas Pilot Project Proposal be allocated across all ratepayers. Allocating costs across all ratepayers is an affordable solution to provide safe and reliable energy to disadvantaged communities, meets the spirit and the letter of AB 2672, and reduces the energy burden households experience in the community. Costs for construction "to the meter" would be placed in SoCalGas' rate base. Costs for household conversion "beyond the meter" (e.g., installation of yard lines) would be placed in rates and amortized over ten (10) years. SoCalGas does not anticipate the need for any new tariffs to pay for the maintenance of distribution services for this pilot.

SoCalGas proposes a financial cost-recovery approach like its current MHP program, whereby "to the meter" service and main, line extension costs and "beyond the meter" household conversion costs are covered under utility rates via a two-way balancing account. Under this mechanism, the revenue requirements (depreciation/amortization, operations, and maintenance, return and taxes) associated with actual, prudently incurred program costs would be recorded in a two-way balancing account for recovery beginning in the first year following cut over of service. No work would begin until such a mechanism exists. The revenue requirements recorded to the balancing account reflect:

- The revenue requirements associated with actual "to the meter" project expenditures capitalized at the utility's then-current authorized return on rate base, and
- The revenue requirements associated with actual "beyond the meter" project expenditures capitalized consistent with their status as a regulatory asset and

[18] California Energy Commission DRAFT STAFF REPORT Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-Income Customers and Small Business Contracting Opportunities in Disadvantaged Communities, December 2016.

amortized over ten years at a rate equivalent to the utility's then-current authorized return on rate base.
- The O&M costs for the installation of appliances and other applicable O&M costs incurred in order to provide direct utility service to customer.

SoCalGas proposes that cost recovery be requested in connection with its annual regulatory account balance update filing based on the revenue requirements recorded in the balancing account at the time of the filing as well as the ongoing, actual revenue requirements that will continue to be recorded in the balancing account through the end of the current year and into the following year where rates will be established. Both these revenue requirements, as recorded in the balancing account at the time of filing and the ongoing revenue requirements that will be recorded to the balancing account, are based on "actual" project expenditures, and therefore exclude any forecasted revenue requirement requested for cost recovery under this proposed process.

Recovery of the revenue requirements for the SoCalGas Pilot Project Proposal would be subject to reasonableness review as follows:

- Review for reasonableness of "to the meter" costs would occur in the general rate case where those costs are put into rate base.
- Review for reasonableness of "beyond the meter" costs would occur in the first general rate case after service begins.

e. Non-ratepayer Funding Sources and Other Program Utilization Plan

The San Joaquin Valley Air Pollution Control District (SJVAPCD) offers various incentives for the replacement of wood or pellet devices through the Burn Cleaner program.[19] Priority is given to low-income applicants,[20] specifically those purchasing natural gas devices and those that reside in areas currently without piped natural gas service. SoCalGas may be able to coordinate with SJVAPCD during the planning phase of construction to access these incentives. An incentive of up to $3,000 per household may be available to assist with appliance purchases and offset "beyond the meter" household conversion costs.

The United States Department of Agriculture (USDA) Rural Development provides loans and grants to help expand economic opportunities and create jobs in rural areas. USDA Rural Development has several grant programs, including the Single-Family Housing Repair Loans & Grants program that grants up to $7,500 to elderly very-low-income homeowners in order to remove health and safety hazards in their households. SoCalGas may be able to coordinate with USDA Rural Development during the planning phase of construction to access this program (and possibly other USDA grant programs) to assist with appliance purchases and offset "beyond the meter" household conversion costs.

Residential Energy Efficiency Loan (REEL) program are funded by banks, while the IOUs provide credit enhancements that keep interest rates low for homeowners. Challenges of using

[19] http://valleyair.org/grants/burncleaner.htm
[20] As defined by the Burn Cleaner application.

the REEL program that may reduce participation in the pilot include, but are not limited to, the requirement of participant financial contribution and the requirement of a minimum FICO score to qualify for the loan.

f. Siting and Safety Plan

Working safely is a SoCalGas priority. Safety is embedded into all phases of the SoCalGas Pilot Project Proposal by having its employees and vendors follow company safety guidelines while performing their work. SoCalGas regularly performs new pipeline construction projects, pipeline integrity testing and pipeline replacement projects, providing a safe work environment for everyone: employees, contractors, customers, and the public.

SoCalGas has the resources and experience to meet the environmental requirements triggered by this proposal, including, but not limited to, California Environmental Quality Act (CEQA) compliance. SoCalGas' Environmental Services Department has dedicated resources for environmental compliance, including subject matter experts in CEQA, Natural Resources, Cultural Resources, Water Quality, Air Quality and Hazardous Materials. Some of the issues and/or compliance reviews may include:

- Natural Resources: Surveys and impact reviews for potential endangered/threatened species (e.g., Tipton kangaroo rat, burrowing owls, vegetation) may trigger permits that could take up to 18 months or longer.
- Land Use, Air, Water Permits: Permits may be triggered based on survey findings and could take up to two (2) months to prepare and submit.
- Cultural Resources: Review of any areas where disturbance occurs is required. If any listed sites or potential cultural resources are identified, a plan to avoid them will be required.
- Hazardous Materials and Hazardous Waste: If any waste is generated that has the potential to be hazardous waste, it must be characterized properly prior to off-site disposal. This includes spent materials that may contain asbestos (pipe wrap), oil, gasoline, or paint related materials. If these materials are encountered, sampling may be required, as well as an EPA identification number. An EPA identification number can take one month to obtain. If contaminated soil is encountered, soil sampling, analysis and disposal costs associated with it could be substantial.

g. Potential Infrastructure Coordination Opportunities

The Pilot Team has provided a matrix of community infrastructure needs at July 23-24 workshop, that could potentially be incorporated in pilot proposal construction efforts to reduce costs and improve the quality of life in the pilot communities. Because of the uncertainty of when pilot proposals will be approved, and which pilot proposals will receive natural gas, SoCalGas has not scheduled construction efforts. Once natural gas pilots are approved, SoCalGas will work with the Pilot Team during the planning phase to review what infrastructure coordination opportunities exist at that time in order to leverage the natural gas pilot for other community benefits.

h. Management Plan

To manage the SoCalGas Pilot Project Proposal, a Project Management Office (PMO) will be established to provide overall governance and timely, cost-effective conversion of households in each community. The PMO will provide project governance by defining policies and procedures for all management functions, manage project risks and issue resolution, and establish financial controls by providing overall budgeting and accounting functions.

The PMO will be responsible for overall program management, including:

- Managing the overall schedule;
- Managing the integration of "to the meter" and "beyond the meter" deliverables;
- Managing risks, issues, and changes;
- Managing overall budgets, budget reporting;
- Ensuring regulatory compliance and regulatory reporting (both annual and ad-hoc); and
- Managing outreach activities including implementation of the Community Outreach Plan.

SoCalGas has extensive project management experience and expertise with construction projects across a broad range of locations and conditions, utilizing modern construction management techniques and approaches. Once established, the PMO will work to identify potential partnerships with other stakeholders such as public utilities or municipal utilities, water agencies, CBOs, appliance dealers and plumbing contractors.

Table 6 below defines the roles and activities for possible project team members. The final team composition will be determined after the planning phase.

Table 6: Roles of project team members

Role	Activities
Program Manager	Overall project management, budget, schedule, and reporting. Environmental and Community issue mitigation. Manages schedule between "to the meter" construction, "beyond the meter" contractors, and customer service technicians. Oversees tracking, controlling and reporting project costs.
Compliance and Regulatory Advisor	Provides legal and regulatory advice in accordance with mandated reporting.
"Beyond the Meter" Project Manager	Provides coordination with "beyond the meter" contractors performing household conversions and appliance installations.
Outreach Project Advisor	Coordinates and collaborates with external stakeholders. Implements outreach plan, coordinates with households and construction managers. Creates outreach communication and education materials. Enrolls new customers in all qualified programs.

All "beyond the meter" work will be performed by a third-party vendor(s) principal contractor who would be subject to the permitting and inspection requirements of the agencies that hold

such authority. SoCalGas will select a principal contractor that employs qualified, licensed contractors to perform all necessary "beyond the meter" construction, plumbing, and/or electrical work. SoCalGas will establish guidelines for principal contractor selection so that "beyond the meter" work will meet required safety standards for connection to its distribution system. SoCalGas will select the principal contractor based on selection criteria that includes scoring to consider local employment and capabilities. SoCalGas may utilize input from CBOs and other stakeholders in the third-party vendor selection criteria to maximize the potential economic benefits to the community, including employment opportunities for local residents.

SoCalGas' ESA contractors will be eligible to bid on the "beyond the meter" work. Those ESA contractors requiring training will be able to attend the training curriculum currently provided as part of SoCalGas' ESA Program:

- ESA Program Outreach Specialist training
    - Enrolling customers in the ESA Program (obtaining and validating income information and documentation)
    - Assessing the home for feasible measures including measuring available combustion ventilation air
    - Providing energy education to customers including energy efficiency practices for gas, electricity, and water
    - Enrolling customers in My Account
    - Soft skills related to customer service and sales

- Weatherization training (initial and refresher)
    - ESA Program policies and procedures relative to installation of weatherization measures including duct testing and installation and attic insulation
    - Natural Gas Appliance Testing

- HVAC Training (initial and refresher)
    - ESA Program policies and procedures relative to the installation of furnaces (FAU, wall and floor) and water heaters
    - Natural Gas Appliance Testing

- Inspection training
    - ESA Program policies and procedures relative to inspection of weatherization measures and furnace/water heater repair/replacement

- Back office training
    - Training related to documentation of completed ESA Program work and invoicing

i. Data Gathering and Evaluation Plan

Initial in-home data surveys in English and Spanish about the households in Alpaugh will be performed before the planning phase for the pilot and be used to update planning estimates, update the post-pilot cost savings estimates and create the Community Outreach Plan. The in-

home data surveys will be performed by a third-party vendor visiting each household in the community and will gather the data shown below about the actual household structure and existing appliances, demographic data about the residents, and self-reported data about energy usage. The cost to perform the initial in-home data surveys for each household is included in the outreach costs.

The initial in-home data surveys will be augmented during the planning phase by the addition of energy information, utility bill history information, externally available demographic information, and geographic information supplied by the utilities.

Table 9 in Appendix D – Data Elements in Data Gathering Plan provides a draft listing of the target data SoCalGas will capture as part of the in-home data surveys.

Estimated annual cost savings for Alpaugh will be calculated by the following formula:

Estimated annual cost savings = Estimated annual propane costs – Estimated annual natural gas costs.[21]

Where,

Estimated annual propane costs	=	Estimated price of propane * Estimated annual propane usage
Estimated annual natural gas costs	=	Using utility billing information, calculate the average annual bill amount for natural gas in for a household in a nearby community with the similar climate zone and latitude.
Estimated price of propane	=	$ 3.50 (or market price)
Estimated annual propane usage	=	Convert the estimated annual amount of natural gas usage to British Thermal Units (BTU), and using the BTU value of propane, calculate the estimated annual propane usage in gallons.

Reports will be provided every 6 months after completion of the household conversions. The reports will document changes to energy usage and energy burden, changes to health, comfort and safety appliance performance, household performance, weatherization barriers, and energy efficiency messaging and outreach trial results. Final report design will occur in the Planning Phase.

Success will be defined by reduced energy burden and insecurity through lower monthly bills, conversion percentage of eligible households, number of households weatherized, solar thermal installations, and a reduction in GHG as estimated above.

[21] Assumes changes in electricity usage are negligible.

j. Replication Plan

To share information on best practices and lessons learned, workshops should be held where each pilot project proposer would present information on overall status, completion and successes to-date, past and upcoming challenges, lessons learned and possible best practices. Workshops should be held: (1) before most SoCalGas Pilot Project Proposals have completed planning but have not begun construction, (2) after most SoCalGas Pilot Project Proposals have completed construction; and (3) after most SoCalGas Pilot Project Proposals are completed.

The SoCalGas Pilot Project Proposals will provide useful information that will benefit future project implementation and allow for replication across the remaining disadvantaged communities identified in Phase I (D.17-05-014). Successful replication of SoCalGas Pilot Project Proposal outcomes to other communities will be determined by the level of similarity between the SoCalGas Pilot Project Proposal community and the remaining communities. Characteristics that should be similar for remaining communities to achieve comparable results would be:

- Amount of propane and wood used for space heating, water heating, cooking and clothes drying;
- Household construction type, age and condition;
- Number of households with similar proximity to each other;
- Proximity to an existing natural gas pipeline; and
- Environmental considerations and soil characteristics or type.

While some of these factors may be derived from public information, it will be difficult to identify where a pilot community would be replicable until in-home data surveys of the remaining communities is completed.

k. Conversion Risk Management Plan

The PMO will be responsible for a formal risk management practice including the initial assessment of all aspects of the project, the identification of issues, risks and their owners, estimation of the probability of the risk becoming an issue, the potential impact and the approval of each mitigation plan.

Each household in Alpaugh will vary in the level of effort required to convert to natural gas and pass inspection. Some households may require significant structural repair to bring them "up to code", before and after installation of appliances. To mitigate risk and control costs, the "beyond the meter" costs for each household will be estimated and compared to a "common case"[22] cost of $9,500,[23] which is the estimated cost of $7,600 plus 25% contingency. "Beyond the meter" funds for each community will be pooled to create a single "community fund" for each such that savings from households that require less than the "common case" amount would then be made available for households where the conversion effort is estimated to exceed the "common case".

[22] See Appendix C, Construction Cost Estimates.
[23] Household conversion funds would not be used for cosmetic upgrades or un-needed improvements to the household.

Management of the fund and selection of households that utilize the community fund would be handled by the PMO. It is possible that some households will incur unplanned costs[24] once conversion begins and therefore the "community fund" will maintain a buffer amount. SoCalGas will perform in-home surveys before the planning phase to count the houses available for natural gas, assess household conditions, and generate a preliminary cost estimate for conversion. Households will be classified into 3 levels of effort:

- Level 1 would consist of households where the conversion effort is estimated to be below or close to the "common case" amount. Planning for those households would proceed.
- Level 2 would consist of the households where the conversion effort is estimated to be greater than the "common case" amount. Level 2 households would be sorted by estimated cost and prioritized so that lowest cost households would have higher priority. Using the prioritized list, the PMO will proceed with construction for the remaining households up to the overall "community fund" amount.
- Level 3 would represent the households where the conversion effort would be prevented by either unsafe working conditions or significant pre-existing issues. Level 3 households will be estimated and on the bottom of the Level 2 list for possible conversion, but the level of effort and costs would be presumed to be too large for inclusion in the SoCalGas Pilot Project Proposal and requires CPUC approval before conversion.

If the "community fund" is exhausted before all households are converted, more funding would only occur with Commission approval via Tier 2 Advice Letter.

Key risks and issues identified with the SoCalGas Pilot Project Proposal and mitigation approaches to date are shown in Table 10 in Appendix E - Risks and Issues. They are not limited to those listed in Table 10 and additional unforeseen risks and issues may be identified in the future.

4. SoCalGas Pilot Project Proposal Timeline and Reporting

a. Pilot Timeline

Table 7 below shows anticipated major tasks, milestones, and deliverables for the SoCalGas Pilot Project Proposal. Outreach activities will occur before, during and after the timeline. Start date and final timeline will be determined by the number and location of approved SoCalGas Pilot Project Proposals. Pre-Planning will begin upon CPUC approval of the SoCalGas Pilot Project Proposal and the two-way balancing account.

[24] Unplanned costs come from discovery of construction, health or safety issues that are not eligible for program funding. Unplanned costs include but are not limited to: remediation of roof; remediation of foundation; remediation of interior walls or exterior walls from dry rot, pests, termites or code violations; asbestos, mold or lead removal; ventilation improvements requiring external venting, movement or addition of drainage; brick, tile or concrete destruction and/or reconstruction; and moving electrical wiring or water pipes.

Table 7: Estimated Pilot Timeline

Stage	Estimated Time (months)	Tasks	Deliverable/Milestone
Pre-Planning	0.5	Survey	In-Home Data Surveys
	0.5	Community Outreach	Community resident forum Development of cross-IOU pilot data database Data security policies and procedures documented (use existing cross-IOU)
Major Decision Point (Pilot Team, Community, CPUC)			
Planning	0.5	Engineering	Verify adequate system capacity Identify any potential construction coordination opportunities
		Gas Handling & Sketching	Preparation of safe gas handling procedure, Preparation of construction sketches
	1.5	Land Engagement	Secure land rights in private property (as needed)
		Survey	Construction survey, property boundaries (as needed) Schedule any potential construction coordination opportunities
		Environmental Review	Process Environmental Release, develop implementation plan (as needed)
		Encroachment Permits	Secure encroachment permits from governing agency
		Ordering Material	Order required construction material, not including gas meters Order household appliances
	1	Construction Bid Process	Determine the Gas Construction Contractors that will install mains and services and perform "beyond the meter" throughout the community
Construction	1	Construction	Installation of mains and services up to and including gas risers
		Environmental Implementation	Implement and monitor environmental review recommendations (as needed)
		Paving	Repair any asphalt cuts performed during construction (as needed) Customer Assessment Survey
Post-Construction	0.5	Reconciliation	Clerical reconciliation of construction main and service work performed

		Completion Sketching	Creation of completion sketch documenting installation of new main
	0.5	Posting New Main and Services into GIS Database	Uploading new main and service data into SoCalGas GIS database
House Line & Appliance Conversion	1	Install Yard Line Extension	Extend converted/replaced house line to location of new gas riser
		Convert Existing House Line	Verify existing house line is adequate for conversion to natural gas, if not, replace
		Set Meters	Customer service to set meter, customer house line energized
		Convert/Replace Appliances	Convert/Replace appliances of existing residence Customer Assessment Survey
Total Estimated Time	7 months		
Post Pilot Reporting	+ 6 months		First bi-annual pilot report Final construction report
Post Pilot Reporting	+24 months		Final pilot report

b. Construction Reporting

SoCalGas will provide a written quarterly progress report on construction progress to the Commission. SoCalGas will work with the Commission to determine what information will be included in the quarterly report in addition to the following:

- Number of households connected and new customers;
- The status of each construction phase (including deliverables and milestones);
- Actual costs compared to estimates both for construction and conversion work;
- Actual milestone completion dates against proposed timelines;
- Leveraging of utility or external programs;
- Community outreach, marketing and education efforts and effectiveness; and
- Barriers or issues encountered and their status.

Quarterly calls may be scheduled with Commission staff, parties and pilot communities to discuss status and share learnings from the quarterly report.

A final report with all elements agreed upon above will be submitted to Commission staff approximately six (6) months after completion of household conversion for the community. In

addition to the above information, SoCalGas will work with the Commission to determine what additional information will be included in the final report.

5. SoCalGas Pilot Project Proposal Budget Summary

Table 8: Budget summary for 6 households

	Year 1	Year 2	Total	% of Project
"To the meter" Construction				
Contract Labor and Materials	$ 17,100		**$ 17,100**	13.2 %
Construction Management	$ 38,000		**$ 38,000**	29.3 %
Meter Set[25]	$ 4,000		**$ 4,000**	3.1 %
Meters	$700		**$ 700**	0.5 %
"Beyond the meter" Construction				
Contract Labor and Materials		$ 57,500	**$ 57,500**	44.4 %
Program Management Office (PMO)				
PMO – Labor				
PMO – Materials and Other	$ 1,200	$ 1,200	**$ 2,400**	1.9 %
Outreach				
Other Project Costs[26]	$ 5,800	$ 4,100	**$ 9,900**	7.6 %
Total Estimated Cost	**$ 66,800**	**$ 62,800**	**$ 129,600**	**100 %**

Details on cost estimates can be found in Appendix C. Above costs do not include contingencies for potential environmental issues and associated costs (e.g., permits, remediation, and "stop-the-job" conditions).[27]

There exists an opportunity to reduce costs for this pilot and for other pilots, by recognizing the economies of scale available from having more than one pilot project in SoCalGas' service territory at one time. Having more households increases the opportunities to receive bulk pricing, while fixed costs in all aspects of the pilot project (e.g., management, outreach and construction), that remain the same for one pilot, can be spread across multiple projects; making them a smaller percentage of the total cost, reducing the overall cost per household, and reducing the impact to ratepayers. In addition, with each community and with each household, the pilot implementation team will progress further along the learning curve and become more efficient and more cost-effective with their efforts.

[25] Includes meter installation and turn-on, legacy system purging and installation. Turn-on services will be performed by SoCalGas employees, who will put appliances into service at that time.
[26] Includes escalation, CWIP property tax, and AFUDC.
[27] If environmental or cultural issues are found, costs and timeline may be impacted depending on reviews or permits triggered (e.g., California Environmental Quality Act (CEQA) review, National Environmental Policy Act (NEPA) review, Federal Habitat Conservation Plan, California Department of Fish and Wildlife (CDFW) Incidental Take Permit, Jurisdictional Delineation, Land Use Permits, Air Permits, Water Permits, Hazardous Materials and Waste, etc.).

Bulk purchasing of appliances

SoCalGas will use best practices to select the contractors and suppliers to the pilot proposal, including bulk purchasing and RFP's when appropriate such that it will reduce costs and will not create a significant impact to pilot construction timelines. SoCalGas will also include vendor selection criteria to maximize the potential economic benefits to the community, including employment opportunities for local residents.

Appendix A – Energy Usage and Conversion Calculations

Unit Conversion Rates

These multipliers are standard conversion factors, independent of fuel-specific heat content, according to http://convert-to.com/conversion/energy/convert-kwh-to-thm.html (December 2017).

	Multiplier
1 kWh to therm	.0341296
1 therm to kWh	29.30011

For propane conversions, the following multiplier was used, according to https://www.eia.gov/energyexplained/index.cfm/index.cfm?page=about_energy_units (December 2017). In conjunction with SCE, PG&E, and the Pilot Team, the average cost of propane was estimated based on feedback received from residents during Community Workshops.

Price of propane / gallon	$3.50
Btu / gallon	91,333
Price / MMBtu	$38.32
Price / therm	$3.83

Calculations for Table 1

To calculate pre-pilot average annual and monthly propane usage for Alpaugh, SoCalGas analyzed 2016 and 2017 existing natural gas usage in ZIP code 93201, and then calculated the equivalent amount of annual propane usage per household.[28] Using $3.50 as the average cost per gallon of propane,[29] SoCalGas calculated the equivalent monthly and annual propane bill for the average household[30] in Alpaugh.

Average therms consumed	29.6
Propane price / therm	$3.83
Propane cost / month / household	$113

Calculations for Table 2

SoCalGas calculated modeled post-pilot natural gas monthly usage based on the Energy Planning Analysis Tool (http://epat.gastechnology.org/BuildCityHouse) estimated natural gas consumption for energy efficient appliances in single family detached households in Bakersfield.

	Efficiency Level	**Yearly Therm**

[28] To convert natural gas therms to propane gallons, the BTU of natural gas used was converted to gallons of propane using the BTU value for propane.
[29] In conjunction with SCE, PG&E, and the Pilot Team, the average cost of propane was estimated based on feedback received from residents during Community Workshops.
[30] Details by household type (single-family, multifamily and mobile home) are not available at this time and will be available once in-home data surveys are completed.

		Usage
Space Heating	Natural Gas, AFUE 92%	149
Water Heating	Natural Gas EF 0.82 - Modulating Condensing Storage	126
Cooking Range	Gas Standard	31
Clothes Dryer	Natural Gas EF 2.75	35
	Annual Therm Usage	**341**
	Average Monthly Therm Usage	**28.4**

For purposes of the SoCal Gas Pilot Proposal and the modeling of post-pilot natural gas estimated usage, SoCalGas averaged 2016 and 2017 residential natural gas consumption based on EDRP data for ZIP Codes of 93219, 93201, 93501, 93504, 93505, 93218, 93656, 93292, and 93291.

ZIP Code	Average Therm Usage
93219	32.55
93201	29.56
93501, 93504, 93505	29.38
93218	32.55
93656	29.93
93292	31.90
93291	32.24
Average Monthly Therm Usage	**31.16**

For Alpaugh, the difference between the average and the actual usage for ZIP code 93201 was added to the estimated average monthly therm usage used to model post-pilot bills.

Average Usage	31.16
Average Usage in 93201	29.56
Difference	(1.60)
EPAT Average Monthly therm usage	28.4
Alpaugh estimated post-pilot average natural gas monthly usage	**26.82**

Estimated natural gas charges were calculated based on 2019 forecasted CARE rates.

Customer charge per month	$ 4.00
Average monthly usage	**26.8 therms**
CARE Baseline charge	$ 10.69
CARE Non-Baseline charge	$ 1.23
Commodity charge	$ 6.74
PPPS charge per month	$ 1.87
G-PUC regulatory fee	$ 0.04
Total Charge	**$ 24.58**

Appendix B – GHG Calculation

Emission Factors

In conjunction with SCE, PG&E, and the Pilot Team, SoCalGas is using the California Air Resources Board (CARB) GHG emission factors (EF) for natural gas and propane to calculate estimated CO_2 reductions.

- Propane CO_2 EF = 135.5 lb./MMBTU
- Natural Gas CO_2 EF = 116.9 lb./MMBTU

Table 5 Calculations

Estimated GHG reductions are calculated based on the EF above and pre-pilot propane usage, as calculated in Table 1, and estimated post-pilot natural gas usage, as calculated in Table 2.

Natural Gas Annual Usage in Therms	321.8
Natural Gas EF (lb./MMBTU)	116.9
Natural Gas Annual CO_2 Emissions	**3,763**
Propane Annual Usage in Therms	354.7
Propane EF (lb./MMBTU)	135.5
Propane Annual CO_2 Emissions	**4,807**

Appendix C – Construction Cost Estimates

"To the meter" Construction Cost Estimates

The Alpaugh SoCalGas Pilot Project Proposal includes both the infrastructure "to the meter" construction and the "beyond the meter" household conversion, appliance purchase, and appliance installation effort required to convert each household to natural gas. In addition, this proposal includes several customer on-boarding initiatives.

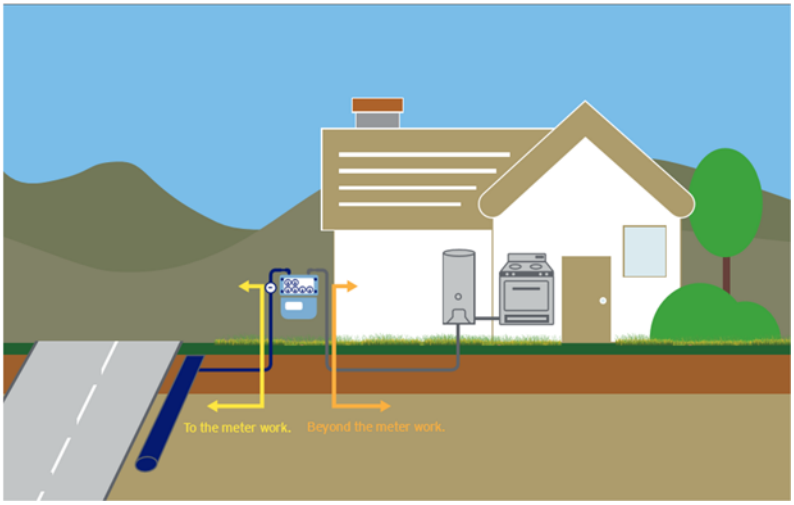

Figure 2. Diagram showing "to the meter" and "behind the meter" at household

Scope of the "to the meter" work includes, but is not limited to:

- Assessments to identify potential environmental and cultural issues related to "to the meter" construction;[31]
- Installation of new gas systems (e.g., distribution mains, service lines, gas meters, advanced meter transmission units (MTUs), and regulator stations) along with the associated trenching, excavation, and substructure work;
- Site restoration work (e.g., paving, hardscape, and landscape); and
- Costs associated with construction management (e.g., planning of distribution mains and service lines, gas handling, administration of construction bid process, and completion sketches).

Description	**Cost Estimate**	**Quantity**
Distribution Mains		
Service Lines	$ 17,100	6 Services
Gas Meters and Modules	$ 700	6 Meters
Meter Installations	$ 4,000	-
Environmental Services		-
Construction Management	$ 38,000	-
Total Estimated Costs	**$ 59,800**	-

"Beyond the meter" Cost Estimates and Contingencies

Scope of the "beyond the meter" work includes, but is not limited to:

- House and yard line trenching and installation;
- Gas piping to the point of service connection;
- Purchase and installation of natural gas appliances[32] including repairs required to complete installation of appliances in accordance with inspection requirements;
- Permitting and inspection;
- Energizing the house line and appliances; and
- Gas turn-on services.[33]

"Beyond the meter" construction is required for the entire new distribution system to function and prevents the abandonment of partially constructed infrastructure, since without both halves of a new system in place, no household conversion is possible.

[31] If environmental or cultural issues are found, costs and timeline may be impacted depending on reviews or permits triggered (e.g., California Environmental Quality Act (CEQA) review, National Environmental Policy Act (NEPA) review, Federal Habitat Conservation Plan, California Department of Fish and Wildlife (CDFW) Incidental Take Permit, Jurisdictional Delineation, Land Use Permits, Air Permits, Water Permits, Hazardous Materials and Waste, etc.).

[32] Gas appliances may include gas range, dryer, water heater, and furnace. Other propane end-uses and electric appliances will not be converted to natural gas.

[33] Turn-on services will be performed by SoCalGas employees, who will put appliances into service at that time.

To estimate "beyond the meter" costs, SoCalGas has created a "common case" for the household conversion and appliance replacement costs. These assumptions were derived from the average age and condition of households in Alpaugh as observed by the SoCalGas field planners' drive-by surveys. To estimate appliance and installation costs, SoCalGas issued a request for information (RFI) to licensed contractors in the San Joaquin Valley in October of 2017. Some of the contractors that responded have previously performed "beyond the meter" work for SoCalGas' Energy Saving Assistance program, and have experience working in disadvantaged communities. SoCalGas reviewed results from five (5) RFI responses along with estimates from Home Advisor, Home Depot, and the Energy Savings Assistance Program, to come up with average appliance and installation costs.[34] Both affordability and energy efficiency standards were considered when selecting appliances to include in the "common case" packages. A contingency of 25 percent was added to the "beyond the meter" estimates to cover price variations in appliances and installations, sales taxes, and additional fittings needed for conversion.

	Percent of Households	**Cost Estimate[35]**
Yard and House Line	100 %	$ 1,600
Water Heater (40 gallon)	50 %	$ 1,400
Tankless Water Heater	50 %	$ 2,800
Wall Furnace	50 %	$ 1,500
Forced Air Furnace	50 %	$ 3,300
Clothes Dryer	100 %	$ 800
Gas Range	100 %	$ 700
"Beyond the meter" Estimate		**$ 7,600**
25% Contingency		**$ 1,900**
Total "beyond the meter" Estimate		**$ 9,500**
Households		**6**
Sub-Total "beyond the meter" Costs Estimate		**$ 57,000**
Loader Cost Estimate		**$500**
Total "beyond the meter" Costs Estimate		**$57,500**

Sample Appliance Packages

An example of natural gas appliances to be provided are shown below. Actual appliances installed may differ in brand, size, performance, cost and color.

[34] "Common case" estimates include disposal of propane appliances and installation of approximately 70 feet of house and yard line combined.
[35] Includes estimated installation costs.

Century GUH Series 92% 66000 BTU Input and 62000 BTU Output Natural Gas Hot Air Furnace
Model # GUH92A070B3M
Internet # 303645509

$1,361.03

Qty
1

Online Only
+ ADD TO CART

Rheem 9.0 GPM Natural Gas High Efficiency Outdoor Tankless Water Heater with Water Savings Setting and 12 Year Warranty
Model # ECOH180XLN-1
Internet # 300254247

$1,099.00

Qty
1

Online Only
+ ADD TO CART

Frigidaire 30 in. 4.2 cu. ft. Gas Range with 5 Burner Cooktop in Stainless Steel
Model # FFGF3052TS
Internet # 302145124

Was ~~$699.00~~
$428.00
Save $271.00 (39%)

Valid Through:
2017-11-01 to 2017-11-30

Qty
1

Online Only
+ ADD TO CART

LG Electronics 7.3 cu. ft. Gas Dryer with Front Control in White
Model # DLG1502W
Internet # 205473477

Was ~~$849.00~~
$599.00
Save $250.00 (29%)

Valid Through:
2017-11-10 to 2017-11-29

Qty
1

Online Only
+ ADD TO CART

List Subtotal: **$3,487.03** List Items: **4**

Rheem Performance Platinum 40 Gal. Tall 12 Year 40,000 BTU ENERGY STAR Natural Gas Water Heater
Model # XG40T12DM40U0
SKU # 1000034937
Internet # 204318409

$619.00

Qty
1

+ ADD TO CART

Williams 35,000 BTU/hr Monterey Top-Vent Gravity Wall Furnace Natural Gas Heater with Wall or Cabinet-Mounted Thermostat
Model # 3509622A
SKU # 861154
Internet # 100059323

$545.00

Qty
1

13 In Stock | Aisle: 30 Bay: 017

+ ADD TO CART

Frigidaire 30 in. 4.2 cu. ft. Gas Range with 5 Burner Cooktop in Stainless Steel
Model # FFGF3052TS
Internet # 302145124

Was ~~$699.00~~
$428.00
Save $271.00 (39%)

Valid Through:
2017-11-01 to 2017-11-30

Qty
1

Online Only

+ ADD TO CART

LG Electronics 7.3 cu. ft. Gas Dryer with Front Control in White
Model # DLG1502W
Internet # 206473477

Was ~~$849.00~~
$599.00
Save $250.00 (29%)

Valid Through:
2017-11-10 to 2017-11-29

Qty
1

Online Only

+ ADD TO CART

List Subtotal: **$2,191.00** List Items: **4**

Appendix D - Data Elements in Data Gathering Plan

Data would include (but is not limited to):

Table 9: Target data to capture

Household Data	**Source**
Address	In-Home Data Survey
Own/Rent	In-Home Data Survey
If Rented, Provide Landlord Contact Info	In-Home Data Survey
House Type	In-Home Data Survey
Construction Type	In-Home Data Survey
Build Date	In-Home Data Survey
Square Footage	In-Home Data Survey
Bedrooms	In-Home Data Survey
Bathrooms	In-Home Data Survey
Number of Occupants	In-Home Data Survey
Energy Savings Assistance Program Remediated Date	In-Home Data Survey
Energy Savings Assistance Program Measures Installed	In-Home Data Survey
Energy Savings Assistance Program Measures Not-Installed	In-Home Data Survey
Thermostat Type	In-Home Data Survey
Has Attic Insulation	In-Home Data Survey
Space Heating Energy	In-Home Data Survey
Space Heater Type	In-Home Data Survey
Water Heating Energy	In-Home Data Survey
Cooler Type	In-Home Data Survey
Cooling Energy	In-Home Data Survey
Cooking Energy	In-Home Data Survey
Clothes Drying Energy	In-Home Data Survey
Propane Pipe Condition	In-Home Data Survey
Propane Line Underground	In-Home Data Survey
Electric Panel Size/Condition	In-Home Data Survey
Electric Wiring Type	In-Home Data Survey
Electric Wiring Condition	In-Home Data Survey
Electric Code Issues	In-Home Data Survey
Roof Type/Condition	In-Home Data Survey
Customer Expectations For Construction	In-Home Data Survey
Customer Expectations For Energy Costs	In-Home Data Survey
Customer Experience With Construction	In-Home Data Survey
Customer Experience With Energy Costs	In-Home Data Survey

Customer Expectations With Appliances	In-Home Data Survey
Customer Experience With Appliances	In-Home Data Survey
Customer Identified Household Conditions	In-Home Data Survey
Tenant/Landlord Expectations	In-Home Data Survey
Tenant/Landlord Experience	In-Home Data Survey
Other Customer Concerns	In-Home Data Survey
Demographic Data	
On All-Electric Rate	In-Home Data Survey
On CARE Rate	In-Home Data Survey
On FERA Rate	In-Home Data Survey
On MBL Rate	In-Home Data Survey
MBL Qualified	In-Home Data Survey
Disability	In-Home Data Survey
Household Income by Range	In-Home Data Survey
# of Occupants	In-Home Data Survey
# of Occupants aged 65 and older	In-Home Data Survey
Email Address	In-Home Data Survey
Internet Access @ Home	In-Home Data Survey
Internet Access on Mobile	In-Home Data Survey
Uses Facebook	In-Home Data Survey
Uses Twitter	In-Home Data Survey
Uses Nextdoor	In-Home Data Survey
Energy Costs per Household	
Annual Propane Cost/Gallon	External. Agreed upon by IOUs
Estimated Annual Propane Usage	Provided by natural gas utility, may be estimated from a nearby community with the similar climate zone and latitude. Agreed upon by IOUs
Annual Wood Cost	External. Agreed upon by IOUs
Estimated Annual Wood Usage	External. Agreed upon by IOUs
Average Monthly Electricity Bill (CARE)	Provided by electric utility
Average Monthly Electricity Usage kWh	Provided by electric utility
Average Annual Electric Bill (CARE)	Provided by electric utility
Estimated Annual Natural Gas Usage Post-Pilot	Provided by natural gas utility, may be estimated from a nearby community with the similar climate zone and latitude
Estimated Annual Natural Gas Bill (CARE) Post-Pilot	Provided by natural gas utility
Estimated Annual Electricity Usage kWh Post-Pilot	Provided by electric utility

Estimated Annual Electricity Grid Usage kWh Post-Pilot	Provided by electric utility
Estimated Annual Electricity Bill Post-Pilot	Provided by electric utility
Amount of GHG produced at source for 1kWh household use	External. Agreed upon by IOUs
Amount of NOx produced at source for 1kWh household use	External. Agreed upon by IOUs
Amount of GHG produced by 1 therm of natural gas household use	External. Agreed upon by IOUs
Amount of NOx produced by 1 therm of natural gas household use	External. Agreed upon by IOUs
BTU Conversion Ratio Propane to Natural Gas	External. Agreed upon by IOUs
BTU Conversion Ratio Propane to Electricity	External. Agreed upon by IOUs
Community-Level Data	
Monthly Average HDD	Provided by natural gas utility
Monthly Average CDD	Provided by electric utility
Latitude	External. Agreed upon by IOUs
Altitude	External. Agreed upon by IOUs
Climate Zone	External. Agreed upon by IOUs

Appendix E - Risks and Issues

Table 10: Risk/issues and mitigation plans

#	Risk/Issue	Mitigation Plan
1	Environmental issues or cultural resources are identified during pipeline construction causing permitting and/or remediation costs.	Perform both a "desktop" environmental & cultural review and an on-site assessment survey prior to pipeline construction. Have review/approval stage with community, Pilot Team and CPUC prior to construction to review issues and costs. Update construction estimates.
2	Land right-of-way, Air and Water Permits are required.	Start permitting process early, assign permit tracking to Program Advisor, schedule regular review of progress with PMO.
3	Easements over private property may be required	Assess for any required easements early and assign to tracking to Program Advisor, schedule regular review of progress with PMO.
4	Renter or homeowner does not want household converted to natural gas or homeowner cannot be reached	Perform community meetings and distribute material that explains benefits of natural gas versus propane and describes the requirements for participation. Perform in-home data survey to identify potential households that do not wish to participate in the program. Community Outreach Plan should also include residents that rent as well as the owner of the property. Have review/approval stage prior to construction to review issues and costs to discuss with community, Pilot Team, and CPUC. Regional Public Affairs (RPA) would contact county representatives for owner information. Track homeowner information and consent for conversion. Get written approval from homeowner prior to any pipeline construction.
5	Renter or homeowner decides to have household converted after planning has completed or decides not to complete conversion after construction has begun.	Perform community meetings and distribute material that explains benefits of natural gas versus propane and describes the requirements for participation. Perform in-home data survey to identify potential households that do not wish to participate in the program. Community Outreach Plan should also include residents that rent as well as the owner of the property. Have review/approval stage prior to construction to review issues and costs to discuss with community, Pilot Team, and CPUC. Regional Public Affairs (RPA) would contact county representatives for owner information.
6	Coordination of "to the meter" and "beyond the meter" contractor leaves customers without heat.	Assign dedicated PMO resources to consult and coordinate with third-party vendors, schedule regular progress reviews with third-party vendors and SoCalGas (e.g., check that "to the meter" facilities are gassed up and meter set is scheduled once "beyond the meter" facilities pass inspection).
7	Conditions in households require significant	Perform in-home data survey to identify potential households with issues and depth of issues prior to pipeline construction.

#	Risk/Issue	Mitigation Plan
	upgrading to reach code for new appliance installations or have hazardous waste disposal needs during conversion.	Have review stage prior to construction to review issues and costs to discuss with community, Pilot Team and CPUC. Classify each household into 3 Levels of effort and fund Level 1 & 2 households from the community fund within approved funding levels to handle household issues. Level 3 households would need CPUC approval to convert.
8	Inspection and approval of final system conversion is delayed by jurisdictional authorities.	Have Outreach team and RPA Managers contact jurisdictional authorities during planning process to communicate project timing, work with other stakeholders to enable visibility of planning calendar.