

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

Order Instituting Rulemaking to Identify Disadvantaged Communities in the San Joaquin Valley and Analyze Economically Feasible Options to Increase Access to Affordable Energy in those Disadvantaged Communities.

R.15-03-010
(Filed March 26, 2015)

**COMMENTS OF THE UTILITY REFORM NETWORK ON THE PILOT PROJECTS
PROPOSED BY THE INVESTOR-OWNED UTILITIES**



Marcel Hawiger, Staff Attorney
Elise Torres, Staff Attorney
Eric Borden, Energy Analyst
THE UTILITY REFORM NETWORK

785 Market Street, Suite 1400
San Francisco, CA 94103
Phone: (415) 929-8876 ex. 308
Fax: (415) 929-1132
Email: marcel@turn.org

March 2, 2018

TABLE OF CONTENTS

I. SUMMARY.....	1
II. THE PROPOSED PILOTS PROVIDE NO PATH FOR A SCALABLE SOLUTION TO INCREASE ACCESS TO AFFORDABLE ENERGY IN THE SAN JOAQUIN VALLEY.....	3
A. Summary of Pilot Costs and Benefits.....	3
B. Scaling the Proposed Pilots to Households Without Natural Gas Would Cost About One Billion Dollars, and It Might be More Cost-Effective to Subsidize Propane Use ..	6
C. The Commission Should Keep in Mind that Expanding Electric Subsidies or Other Existing Programs May Prove More Cost-Effective than the Proposed Pilots	7
III. THE COMMISSION CANNOT EVALUATE THE REASONABLENESS OF SPENDING OVER \$200 MILLION FOR THE PROPOSED PILOTS WITHOUT ADDITIONAL SCRUTINY	10
A. The Commission Must Find That Spending Is Just and Reasonable.....	10
B. The Proposed Programs Do Not Qualify as True Pilots.....	10
C. The Commission’s Evaluation of Electric Vehicle Charging Pilots Offers an Example of the Appropriate Process for Reviewing Pilot Spending Proposals	11
D. Providing Parties One Month to Review Proposed Spending of Over \$200 Million Is Inadequate to Determine the Reasonableness of the Spending	12
IV. THE PROPOSED PILOTS ARE DUPLICATIVE AND DO NOT NEED TO BE REPLICATED IN MULTIPLE COMMUNITIES BY EACH UTILITY	16
A. Each Utility Should be Limited to Actual Pilots with a Cap on the Number of Participating Households and Spending	16
B. The Utilities Proposals to do the Same Pilots in Multiple Communities Is Unnecessary and Inconsistent with the Goals of a Pilot Program.....	18
1. PG&E	18
2. SCE	20
3. SoCalGas.....	21
C. More Information is Needed Regarding PG&E and SCE’s Community Solar Proposals, but they Appear to Reduce the Cost Shift to Nonparticipating Customers as Compared to a Virtual Net Energy Metering Community Solar Program	22
V. THE COMMISSION SHOULD MODIFY THE SCOPE OF WORK TO MAKE THE PILOTS MORE USEFUL AS A TEMPLATE FOR A SCALABLE FUTURE PROGRAM.....	25
VI. COST RECOVERY AND COST ALLOCATION.....	26

LIST OF TABLES

Table 1: Summary of Utility Pilot Proposals.....	5
Table 2: PG&E and SCE Behind the Meter Cost Assumptions	14
Table 3: Scope and Learnings for PG&E’s Electrification Pilot Proposals.....	18
Table 4: Explanation of Scope and Learnings for PG&E’s Electrification Pilots.....	19

COMMENTS OF THE UTILITY REFORM NETWORK ON THE PILOT PROJECTS PROPOSED BY THE INVESTOR-OWNED UTILITIES

I. SUMMARY

The utilities submitted proposals on January 31, 2018, for “pilots” that would be done over the course of the next three years at a cost of approximately \$207 million. PG&E and Edison propose to “electrify” homes of customers that use propane and install energy efficient electric appliances, while SoCalGas proposes to extend natural gas lines and retrofit the homes of customers who use propane. Altogether, the utilities target about 4,600 customers.

TURN reviewed the utility proposals as much as was possible to do within a one-month time period. TURN submitted several data requests, but obviously had limited time to review the responses. In our experience, utility proposals for spending amounts even much lower than the proposed \$207 million generally require a multi-month review process that includes discovery, expert testimony and hearings. Only in this way can the Commission ensure that programs make sense, are well designed, and do not unreasonably raise utility rates. TURN recommends that if the Commission seeks to approve anything approaching the scope proposed by the utilities, it must set a schedule and process to allow adequate review of these proposals.

Alternatively, the Commission could proceed in a more expedited fashion by authorizing a scope and costs that are more consistent with actual “pilots.” The utility proposals fail as “pilot” proposals. The utilities propose to electrify almost 3,000 homes with exactly the same scope of work, and propose to extend gas service to about 1,700 homes also with the same scope of work. There is very little difference in the multiple community electrification or gas-line extension pilots that would result in incremental learnings or data that would allow the Commission to eventually select a scalable program. Indeed, the programs as proposed would not scale, and providing customers who use propane and have electric service with an annual

electric bill credit might more effectively achieve the goals of AB 2672. TURN's primary recommendation, therefore, is that the Commission scale back the number of communities, and/or number of households, so as to have pilots that collect relevant data regarding costs and benefits and can be done much faster than three years. The Commission could reasonably authorize pilots that cost about \$50 million for all three utilities combined without engaging in extensive review, as long as there are adequate cost caps and there is no recovery of a capitalized "regulatory asset" for behind the meter appliance installations. Additionally, the Commission should order the pilots to test somewhat different appliance retrofit strategies in order to provide data useful for any future wide-spread program.

Due to the limited time for review, TURN cannot offer a package of comprehensive and mutually exclusive recommendations; however, TURN recommends the following more specific modifications to the pilots:

- Reduce the scope of work of PG&E's pilots to retrofit up to 500 households with a spending cap of \$20 million.
- PG&E's proposed gas "microgrid" should be denied because it is not a sustainable solution in financially or environmentally.
- Reduce the scope of work of SCE's pilots to retrofit up to 400 households with a spending cap of \$15 million.
- The Commission should not authorize PG&E to retrofit homes presently on an "all-electric" baseline, absent some evidence that those homes use propane. These customers are not the intended beneficiaries of § 783.5. TURN supports targeting only those customers who lack access to natural gas service.
- The Commission should instead order PG&E and SCE to analyze the bill and rate impacts of providing a greater baseline quantity to existing customers on the "all-electric" rate tariff. The Commission should include this option, as well as other

potential expansions of existing programs (CARE, medical baseline, FERA) in its Phase III analysis.

- The Commission should completely deny SoCalGas’s proposed pilots, but should instead authorize an adequate amount for SoCalGas to perform cost estimates for gas line extensions to all of the customers in eligible communities without gas service in SoCalGas’s service territory. However, if the Commission determines that it would be useful for SoCalGas to conduct a natural gas pipeline extension pilot, it should be limited to conducting such a pilot in 1 or 2 communities with a strict cost cap of \$15 million.¹
- Perform retrofits with and without home weatherization, to test the incremental impacts of weatherization. Home weatherization should be performed primarily through the Energy Savings Assistance (ESA) program, but only for those customers eligible for that program.
- The Commission should require some number of households to be retrofit only with electric water heaters, so as to analyze the financial and environmental benefits of a potentially more cost-effective work scope.

II. THE PROPOSED PILOTS PROVIDE NO PATH FOR A SCALABLE SOLUTION TO INCREASE ACCESS TO AFFORDABLE ENERGY IN THE SAN JOAQUIN VALLEY

A. Summary of Pilot Costs and Benefits

The three investor-owned utilities (IOUs) propose two primary types of programs.

First, PG&E and SCE both propose a “full electrification” program that includes: 1) “behind-the-meter” (BTM) replacement of all major propane-burning appliances (space heater, water heater, stove and clothes dryer), as well as other small appliances, with new efficient electric appliances;² and 2) complete home efficiency weatherization upgrades as well as any

¹ The natural gas pilots should be limited by community due to economies of scale in installing new mains.

² PG&E Proposal, Table 9; SCE Response to TURN-003-06.

necessary electrical upgrades. PG&E proposes to retrofit 1,764 households in nine communities which use propane or wood. SCE proposes to retrofit 1,190 households in three communities. PG&E also proposes a natural gas microgrid for Le Grand as an alternative to the electrification project for Le Grand. The gas microgrid would use a natural gas tanker rather than building out gas transmission lines to the community, and retrofit residents with natural gas-burning appliances.

Second, SoCalGas proposes a natural gas program that includes: 1) BTM replacement of all existing propane appliances with natural gas-burning appliances (water heater, furnace, range and clothes dryer), and 2) extension of gas mains and services to the homes.

The following table summarizes the key components of the programs, and provides average cost and benefit data on a per household basis.

Table 1: Summary of Utility Pilot Proposals³

	<u>PG&E</u>	<u>SCE</u>	<u>SCG</u>	<u>Total or Average</u>
Number of communities	9	3	7	
Number of Households (HH)	1,764	1,190	1,722	4,676
Total Cost	\$70,635,200	\$37,500,000	\$99,847,100	\$207,982,300
Total Cost per HH	\$40,043	\$31,513	\$57,983	\$44,479
BTM Only Cost per HH	\$26,100	\$16,500	\$9,500	
Annual Energy Cost Savings per HH (range)	\$500-\$1500	\$529-\$719	\$696-\$780	
Annual Energy Cost Savings per HH (max)	\$1,500	\$719	\$780	
Annual Energy Cost Savings per HH (avg)	\$945			
Total Annual GHG Reduction (tons)	3,059	1,844	831	5,734
Annual GHG Reduction per HH (tons/HH)	1.73	1.55	0.48	1.23

The costs presented above include all project costs. For PG&E’s and SCE’s electrification proposals, the majority of the costs (except for the gas microgrid) are for behind-the-meter retrofit of all appliances, as well as additional electrical upgrades and efficiency upgrades. PG&E has not included any costs for community solar, while SCE has included costs for a 1.5 MW project, estimated assuming a \$5/watt cost of construction.⁴ PG&E estimates that the BTM cost for its “full electrification” package is \$28,000 per house, while the cost for the electric efficiency package (for households already on the “all-electric” tariff) is \$20,000 per

³ Based on Tables in the Proposals and worksheets submitted by the utilities in their proposals and data request responses. Due to the limited time, TURN regrettably does not provide specific citations to all of the numbers and data in this pleading.

⁴ SCE does not explain why its estimated cost is so much higher than current costs for solar, which are more in the range of \$2-\$3/watt for commercial projects.

house.⁵ SCE estimates the behind-the-meter costs for appliance retrofit and home upgrades at \$16,500 per household.⁶

For SoCalGas, the majority of the costs are for the actual installation of mains and services, with an estimated average per household cost of almost \$58,000. SoCalGas's BTM cost estimate to change out the water heater, furnace, range and clothes dryer is \$9,500 per household.⁷

B. Scaling the Proposed Pilots to Households Without Natural Gas Would Cost About One Billion Dollars, and It Might be More Cost-Effective to Subsidize Propane Use

As shown in Table 1, the forecast annual energy cost reductions for participants average less than \$1000 per household, while the average project cost per household is about \$45,000.⁸ This means that the “payback period” of the proposed program investment is almost 50 years.⁹ However, since the expected useful life of most of the appliances is less than 25 years,¹⁰ the economic benefits to the participants will never even equal the ratepayer “investment.”

⁵ The costs appear to be the same, for exactly the same work, in each community. The average costs differ in different communities only because there is a different mix of “all-electric” versus “propane” customers, who receive different packages of equipment retrofits.

⁶ SCE's total per household cost of \$25,670 includes costs for the community solar system.

⁷ See, for example, SoCalGas Alpaugh Proposal, p. 36.

⁸ This number is skewed by the high SoCalGas cost of gas line extensions. The average per household cost for just PG&E and SCE is about \$37,000.

⁹ TURN uses the term “payback” period loosely to denote the number of years in which the ratepayer-funded investment amount would equal to program participant benefits on a nominal basis, assuming for sake of argument the ratepayer cost per household is borne by the participant. This is not meant to represent an accurate “payback period.” SCE's data (TURN-DR-003-01) regarding increased electricity use due to home “electrification,” with resulting increased utility revenues, allows calculation of an actual payback period (comparing ratepayer investments with ratepayer revenues), and shows that the payback period is 43 years when the cost is \$30,000 per household, but declines to 14 years when the cost is \$10,000 per household. This means that spending \$10,000-\$15,000 per household may allow cost recovery over the life time of the appliance.

¹⁰ PG&E Response to TURN DR PG&E-001-02 and 002-03.

TURN appreciates that a full cost-effectiveness analysis would include the environmental benefits due to GHG emissions reductions, and perhaps other societal benefits. Nevertheless, it is difficult to imagine the economic feasibility of scaling any program similar in cost to the pilots to the 170 eligible communities. There are approximately 890,000 households in these communities, and about 30,000 of those lack access to natural gas.¹¹ Retrofitting all households in the manner proposed by PG&E and SCE would cost around \$27 billion, while the cost to electrify households that lack natural gas service would be in the range of one billion dollars, assuming a per household cost of \$30,000.

From a societal perspective, additional public subsidies for propane use, rather than utility investments, may be a more cost-effective way to increase access to affordable energy for these communities. For example, rather than going forward with the proposed pilots, the Commission could instead inform the Legislature that massive expansion of electric or natural gas service to the eligible San Joaquin Valley communities might cost \$30,000-\$60,000 per household, and recommend that the Legislature should instead enact a program that subsidizes propane service for SJV customers.

C. The Commission Should Keep in Mind that Expanding Electric Subsidies or Other Existing Programs May Prove More Cost-Effective than the Proposed Pilots

While the proposed pilots are testing the potential to electrify homes, or increase access to natural gas, eventually the Commission will have to evaluate all options available pursuant to § 783.5(b)(2). It is worthwhile keeping in mind these options in deciding what pilots are worthy of testing.

For example, the Commission could develop a program to allow residents who lack natural gas service to receive an annual \$500-\$1000 bill credit on their electric bill, so as to

¹¹ Report of the Data Working Group, August 29, 2016, Attachment 1, p. 2.

offset the cost of propane. It appears that all of the proposed pilot participants already receive utility electric service and pay electric bills of about \$1000 per year.¹² Thus, these participating households would get the exact same economic benefit by simply getting a credit on their existing utility electric bill, at a cost that might be significantly lower than the proposed pilot costs over the 20-30 year expected life of the appliances. In fact, a temporary bill credit until 2030 would provide all the benefits at a fraction of the cost, and allow reevaluation of the program consistent with future changes in renewable generation, residential electrification, and potential GHG reductions in the transportation or industrial sectors.

Since Public Utilities Code (“P.U.C.”) § 783.5(b)(2)(B)¹³ explicitly directs the Commission to analyze the economic feasibility of “increasing subsidies for electricity for residential customers in those disadvantaged communities,” it appears that the Commission may have the legal authority to increase electric bill credits as a means of increasing access to affordable energy without violating the anti-discrimination provision of § 453. At the very least, the Commission must evaluate this option as compared to the alternative of spending over \$30,000 per household to achieve the same outcome.¹⁴

Section 783.5(b)(2)(C) also directs the Commission to evaluate the economic feasibility of “other alternatives that would increase access to affordable energy” in the identified disadvantaged communities. As TURN has noted in previous pleadings, the Commission should evaluate existing programs designed to increase energy affordability and consider targeted

¹² See, SCE, Table C-2; PG&E, Table 3.

¹³ All statutory references in this pleading are to the Public Utilities Code, unless indicated otherwise.

¹⁴ TURN appreciates that evaluating this option might be precisely the task of Phase II. The point here is that if it is clear that the pilots would not produce a more cost-effective option, there is little rationale for spending such a huge amount on these pilots.

education and outreach campaigns to the identified communities to increase enrollment in these programs. One existing program that Commission should consider is the Medical Baseline Program which provides residential customers that have special energy needs due to certain qualifying medical conditions, with financial assistance for utility bills. Eligibility for the Program is based on a qualifying medical condition or use of “life support equipment”, which refers to equipment that uses mechanical or artificial means to sustain, restore, or supplant a vital function, or mechanical equipment that is relied upon for mobility within and outside of buildings.¹⁵ In 2016, only 3.4% of PG&E and 2% of SCE accounts received a medical baseline allowance.¹⁶ TURN’s expert in the Residential Rate Design proceeding testified that according to her work with social service providers, public health professionals, and community groups, it is reasonable to conclude that a significant number of utility customers who are eligible for the Medical Baseline Program are not enrolled in the program.¹⁷ One of the eligible pieces of life support equipment for medical baseline is electrostatic and ultrasonic nebulizers which are used for the treatment of asthma. Given the high rates of asthma in the San Joaquin Valley it is likely that many residents qualify for the Medical Baseline Program. Evaluating strategies to increase enrollment in the Medical Baseline Program could increase access to affordable energy for a potentially significant number of San Joaquin Valley residents for a small fraction of the costs of the utilities’ proposed pilot programs.

¹⁵ See <http://consumers.cpuc.ca.gov/medicalbaseline/>.

¹⁶ See PG&E’s and SCE’s Quarterly Disconnection Data Reports, 4th Quarter 2016, filed in R.10-02-005 on January 25, 2017. SDG&E filed an updated report on March 30, 2017.

¹⁷ R.12-06-013, TURN Testimony (Sandoval), p. 5.

III. THE COMMISSION CANNOT EVALUATE THE REASONABLENESS OF SPENDING OVER \$200 MILLION FOR THE PROPOSED PILOTS WITHOUT ADDITIONAL SCRUTINY

A. The Commission Must Find That Spending Is Just and Reasonable

The Commission must evaluate utility spending requests to determine whether the resulting rate increases are “just and reasonable” pursuant to § 451. The Commission has consistently held that a utility bears the ultimate burden of proof of reasonableness. In a ratesetting proceeding, the Commission must reach findings that are supported by substantial evidence, pursuant to § 1757.

B. The Proposed Programs Do Not Qualify as True Pilots

It is true that the Commission provides greater latitude for programs that are truly “pilots” intended to test new technologies or processes. However, the size and scope of the proposed programs are inconsistent with the notion of a “pilot.”

In the past, the Commission has approved pilots to test the efficacy of different technologies and to evaluate assumptions concerning costs and benefits before approving a full-scale program. For example, the Commission held that “The purpose of a pilot is to test a new concept or program design that is intended to address a specific area of concern or gap in existing DR programs.”¹⁸ The Decision went on to state “[P]ilots should be limited in scope and duration so that the results are available in a specified timeframe and limited in budget so that unsuccessful programs have a limited impact on the overall portfolio.”¹⁹ Examples of pilot programs include the Submetering Pilot Program adopted in D.13-11-002 which consisted of only 500 participants for each of the utilities and cost between \$2 million to \$5 million²⁰ and

¹⁸ D.12-04-045, p. 181.

¹⁹ *Id.* at p. 181-182.

²⁰ Alternative Fuels Vehicles Proceeding (R.09-08-009), see D.13-11-002, p. 47, FOF 8 & p. 49, OP 7

PG&E's Demand Response Pilot, which cost approximately \$2.5 million over the course of three years (2013 to 2015).²¹ The same rationale used to develop these prior pilot programs should be applied to the proposed pilots, whereupon results from the pilot phase can inform and optimize deployment in later phases, if deemed prudent and necessary.

Where pilots have been much bigger, such as utility pilots to build electric vehicle infrastructure, the Commission has required the utilities to submit applications which were evaluated using the standard regulatory process of discovery, testimony and hearings, as discussed further below.

C. The Commission's Evaluation of Electric Vehicle Charging Pilots Offers an Example of the Appropriate Process for Reviewing Pilot Spending Proposals

The Commission faced similar issues in reviewing three utility "pilot proposals" for installing electric vehicle charging stations.

The Commission ordered the utilities to file applications for those pilots, and the utilities submitted applications proposing to spend \$65 million (SDG&E), \$650 million (PG&E)²² and \$22 million (SCE). After extensive review, including the submission of expert testimony and holding evidentiary hearings, the Commission ultimately adopted reduced programs (for PG&E and SDG&E) with budgets of \$45 million (SDG&E), \$160 million (PG&E), and \$22 million (SCE).²³ The Commission succinctly explained that it rejected utility proposals as submitted "due to their cost and size."²⁴

²¹ PG&E AL 4077-E, filed June 2012.

²² PG&E's proposal acknowledged that it was not a pilot program, and the Commission ordered PG&E to file supplemental testimony for an initial phase of the program with a greatly reduced scale (2,510 charging stations compared to the originally proposed 25,100 charging stations), which PG&E forecast at about \$220 million. See A.15-02-009, Joint Assigned Commissioner and Administrative Law Judges' Scoping Memo and Ruling, September 4, 2015.

²³ See, Decisions 16-01-045 (SDG&E), D.16-12-065 (PG&E) and D.16-01-023 (SCE). Parties settled SCE's proposal, as its scope and size was more reasonably appropriate for a pilot.

²⁴ D.16-01-045, p. 3.

The Commission must balance the goals of promoting cost effective options for increasing access to affordable energy pursuant to § 783.5 with the goals of just and reasonable rates pursuant to § 451. One of the primary means of balancing these objectives is to ensure that the size of any “pilot” is only as large as necessary to achieve the “test and learn” objectives that are at the heart of any pilot. Indeed, in a very similar situation, where the Legislature had expressly directed the Commission to support the deployment of electric vehicles, the Commission found that examining “the cost and size” of proposed utility infrastructure programs was a key task necessary to ensure that “what action we need to take in terms of promoting EVs and EV charging infrastructure” is appropriately “balanced with the statutory requirement of having just and reasonable rates.”²⁵ The Commission should reach the same finding regarding the pilots proposed by PG&E and SoCalGas in this proceeding, and should significantly scale back the proposals. Generally, the SCE pilot proposal is more reasonable, and should be modified as explained in other sections.

D. Providing Parties One Month to Review Proposed Spending of Over \$200 Million Is Inadequate to Determine the Reasonableness of the Spending

The three IOUs are requesting authority to spend a combined \$207,982,300. A significant amount of this spending occurs “behind-the-meter,” meaning that the benefits accrue to individual participants who then own the appliances paid for by other ratepayers, and have no obligations to maintain, keep or use those appliances. In order to comply with the statutory mandates discussed above, the Commission must base its findings on factual record evidence. The utilities presented much summary data concerning costs, economic benefits to participants (energy cost reductions), and environmental benefits to the world (GHG emissions reductions). However, the utility submissions provided a high level overview of the methodologies and

²⁵ D.16-01-045, p. 97.

assumptions with little explanation for how critical data and assumptions were made. The Commission cannot reach findings concerning the appropriateness of spending over \$200 million based on parties sponsoring paper comments after one month of review.

There are at least two problems with the process and schedule, which allows parties one month to evaluate the utility spending proposals, given the size and scope of the proposals. First, there is insufficient time to evaluate the validity of factual assumptions and the reasonableness of utility proposals, as required by § 451, or to reach findings based on substantial evidence, as required by § 1757. For instance, the proposed costs and claimed benefits (namely GHG and participant bill reductions) of each program incorporate assumptions that need to be vetted by the Commission if it seeks to approve large-scale programs. It is more appropriate for smaller programs (actual pilots) to contain assumptions that must be tested through real-world deployment, but large-scale programs should not be approved before there is a better understanding of key assumptions.

TURN has submitted data requests to all the utilities seeking additional information. TURN is concerned that basic data and assumptions concerning program costs and benefits may be incorrect. For example, the following illustrate three of the identified problems and inconsistencies:

- Utility cost estimates for behind the meter home retrofits are \$10,000 (SCG), \$16,000 (SCE) and \$28,000 (PG&E). The differences in the proposed home retrofit work do not explain these discrepancies, as there are large differences in forecast unit costs for similar appliance retrofits, as shown below:

Table 2: PG&E and SCE Behind the Meter Cost Assumptions²⁶

	PG&E	SCE	Difference
Water Heater	\$ 3,000	\$ 2,296	\$ 704
Space Heating and Cooling (1)	\$ 7,000	\$ 5,504	\$ 1,496
Efficiency Measures (2)	\$ 2,700	\$ 6,500	\$ 3,800
(1) PG&E assumes a new heat pump and SCE a split system for heating and cooling.			
(2) PG&E efficiency measures for test and seal ductwork and air sealing, attic insulation. SCE refers to its efficiency work as weatherization, safety, and wiring.			

- SoCalGas states that its estimate of appliance retrofit costs was derived from requests from information from licensed contractors in the San Joaquin Valley, including contractors who have performed BTM work under the ESA program for SoCalGas.²⁷ SCE states that it “used several sources to gather cost estimates, including SCE technology research projects, contractor estimates, and pricing from major retailers.”²⁸
- PG&E’s forecast of environmental and economic benefits is driven by the assumption that total electric use will **decrease** as a result of its electrification pilots. For a household currently using propane, it is inconceivable that electric use would decline after conversion to electric appliances. PG&E explains that this result is driven by the fact that it includes customers who are presently on an “all-electric” tariff as part of its proposal.²⁹ For those customers, replacing existing electric appliances with more

²⁶ Data requests TURN-SCE-003, question 6 and TURN-PG&E-01, “Electrification Workpapers,” tab “Customer and Cost data.”

²⁷ For example, SoCalGas Alpaugh Proposal, p. 35-36.

²⁸ TURN-SCE-03, question 6.

²⁹ Response to TURN-DR-PG&E-002-04. Approximately 28% of PG&E’s households are on an all-electric tariff.

efficient appliances could thus reduce electric consumption. TURN has not yet calculated the relative impacts of just the propane conversion.

- PG&E’s filing forecast monthly GHG reductions of 45,129 metric tons, or an annual GHG reduction of about 256 tons per household per year.³⁰ This number appeared inconsistent with total California GHG emissions. However, PG&E corrected this number in a data response to be 3,059 metric tons, which is consistent with SCE’s estimate.
- The costs of any future community solar installations are either unknown or very high. PG&E does not provide a cost estimate for its community solar installation. Nevertheless, the company does assume \$1.2 million for “billing system changes” presumably to allocate the rate benefit of the community solar project to participants.³¹ This appears excessive. On the other hand, it is not clear whether SCE’s proposal contains a request for billing system changes or if this is embedded somehow in the total cost estimate. SCE estimates \$7.5 million for its community solar installation, or \$5 per watt.³² This also appears high considering utility-scale solar can be built for around \$1 per watt, commercial solar for \$2 per watt, and residential for \$3 per watt.³³ There is no reason a community solar project should exceed the cost for a residential solar installation; in fact the cost should likely be similar to commercial or utility installation costs.

Second, the proposed pilots should be much more differentiated to obtain data that could eventually result in a scalable program. For example, PG&E intends to retrofit four major appliances and several minor appliances, and proposes two “packages” for customers who either use propane and or are already on an all-electric baseline tariff. Approximately 28% of the

³⁰ PG&E Pilot Proposal, Attachment J (summing number of households and monthly GHG emissions reductions).

³¹ Data request TURN-PG&E-01, Electrification workpapers, tab “customer and cost data.”

³² TURN-SCE-003, question 6.

³³ NREL, <https://www.nrel.gov/docs/fy17osti/68925.pdf>.

households are on the all-electric baseline tariff, and so presumably already have at least electric heat. TURN assumes that one important consideration regarding costs is the relative cost of a site visit (the fixed cost of a truck roll and work inside any home), versus the incremental cost of replacing additional appliances. This question is critical for evaluating the potential costs and benefits of retrofitting only the water heater, and not all other appliances.

If the Commission does not choose to significantly reduce the size of the pilots, so they are really “pilots” and not programs in multiple communities, it should quickly set a schedule in the proceeding that allows parties to obtain additional data, hold a workshop on key program elements, and ultimately allow for testimony and hearings.

IV. THE PROPOSED PILOTS ARE DUPLICATIVE AND DO NOT NEED TO BE REPLICATED IN MULTIPLE COMMUNITIES BY EACH UTILITY

A. Each Utility Should be Limited to Actual Pilots with a Cap on the Number of Participating Households and Spending

The utilities propose the same types of programs focused on appliance conversions.

PG&E and SCE both propose a “full electrification” program that includes 1) replacement of all major propane-burning appliances (space heater, water heater and stove) with electric appliances, and 2) complete home efficiency upgrades. PG&E and SCE also both propose a community solar program for each community. PG&E proposes to replicate the electrification program in eight communities and SCE proposes to do so in three communities. SoCalGas proposes a natural gas program that involves extending gas lines and services to homes and replacing all existing propane appliances with natural gas-burning appliances. SoCalGas proposes to replicate this pilot in seven communities. PG&E also proposes a natural gas microgrid.

The cost of SoCalGas’ gas service extension pilots is approximately \$100 million and will replicate the same pilot program in seven communities. The scope of work and cost of natural gas main and service extensions are largely known and represent typical gas utility work.

Accordingly, there is no reason why SoCalGas needs to conduct these pilots at all, especially not seven times. All of the relevant information to be gained through these pilots could be obtained through a paper pilot that analyzes the costs of the program for a small fraction of the costs of SoCalGas' proposal. If the Commission determines it would be useful for SoCalGas to implement a pilot program, particularly to test appliance replacement costs (which is not "typical" gas utility work), then it should limit SoCalGas' pilots to 1-2 communities and a total cost of \$12-15 million.

While TURN suggests a limit on the number of communities, there is no indication in the proposals of any economies of scale to be gained by retrofitting some minimum number of households in each community for electrification.³⁴ Thus, TURN assumes that the "number of households" limit is the more appropriate and significant limit, and that households could in theory be spread out over several communities. In other words, TURN would not object to retrofitting 500 (for PG&E) households in total in two to five communities, if the utilities believe that it is useful to test conversions in different communities. TURN presumes that at some point there are economies of scale, such that it is more effective to retrofit some minimum number of households in a particular community.

The timeframe for the utilities' pilot proposals ranges from 2.5 to 3 years for PG&E and SCE to 1 to 5+ years for SoCalGas. The Commission should limit the pilots to a shorter duration of 1-1.5 years, so that the data collected through the pilots can be evaluated and used to develop scalable programs more quickly.

³⁴ This would not apply to SoCalGas's natural gas pilots, since gas line extensions likely have economies of scale on a "community" level.

The Commission should evaluate variations³⁵ of the various pilot projects proposed and only select those projects that are scalable and are sized appropriately to achieve the “test and learn” objectives that are at the heart of any pilot.

B. The Utilities Proposals to do the Same Pilots in Multiple Communities Is Unnecessary and Inconsistent with the Goals of a Pilot Program

All three of the utilities propose “pilot” programs focused on fuel switching appliance conversions in multiple communities. The scope of work proposed by each utility for the various communities appears to be almost exactly the same, such that deploying these pilots in different communities will not produce incremental learnings.

1. PG&E

PG&E proposes pilots for nine communities, seven of which have the exact same scope and expected learnings, as illustrated in the table below.³⁶

Table 3: Scope and Learnings for PG&E’s Electrification Pilot Proposals³⁷

Community	Estimated Cost (\$M)	Number of Participating HH	Est. Monthly Savings per HH (Avg. \$/yr.)	Time to complete (yrs)	Scope	Learnings
ALLENSWORTH CDP	4.42	100	1446	2.5	Scope A	Learnings A
ALPAUGH CDP	13.42	316	959	2.5	Scope A	Learnings A
CANTUA CREEK CDP	5.36	130	981	2.5	Scope A	Learnings A
FAIRMEAD CDP	10.64	296	911	2.5	Scope A	Learnings A
LA VINA CDP	3.24	86	937	2.5	Scope B	Learnings B

³⁵ For example, instead of adopting the utilities electrification proposals to replace every appliance in a home, the Commission should consider focusing on the most energy intensive appliances such as space heating and/or water heating as discussed in Section V.

³⁶ Note that the table below does not include PG&E’s ninth pilot project, the gas microgrid for LeGrand.

³⁷ PG&E Response to TURN DR-01, Q1, PG& SJV DC Pilots, Electrification Workpapers, Summary Tables tab.

Community	Estimated Cost (\$M)	Number of Participating HH	Est. Monthly Savings per HH (Avg. \$/yr.)	Time to complete (yrs)	Scope	Learnings
LANARE CDP	5.89	134	1280	2.5	Scope A	Learnings A
LE GRAND CDP	24.91	638	973	2.5	Scope A	Learnings A
SEVILLE CDP	2.76	64	1278	2.5	Scope A	Learnings A

Further, there is only a very minor difference between the scope and learnings for seven of the projects (Scope A and Learnings A above), and the scope and learnings for the eighth pilot (Scope B and Learnings B), as shown in the below table.

Table 4: Explanation of Scope and Learnings for PG&E’s Electrification Pilots³⁸

Scope A:	Learnings A:
-Subject to per-household cost cap: <ul style="list-style-type: none"> • Convert Households using propane or wood to all electric • Improve Efficiency of all Remaining Households able/willing to receive home improvements -Reduce bills for any household unable/unwilling to receive home improvements through simple Efficiency measures and Solar Care Plus participation -Upgrade electric distribution grid as needed to accommodate new load	<u>-Cost of fuel switching home retrofits</u> <ul style="list-style-type: none"> -Potential to coordinate existing programs with fuel switching work -Participant opt-out reasons and rates / Customer perspectives on fuel switching -Load and cost assumptions to model fuel switching in transmission and distribution planning scenarios -Vendor challenges associated with fuel switching -Customer perspectives on grid-responsive appliances

³⁸ *Id.*

<p>Scope B:</p> <ul style="list-style-type: none"> -Subject to <u>Community-Level</u> cost cap: <ul style="list-style-type: none"> -Convert Households using propane or wood to all electric -Improve Efficiency of all Remaining Households able/willing to receive home improvements -Reduce bills for any household unable/unwilling to receive home improvements through simple Efficiency measures and Solar Care Plus participation -Upgrade electric distribution grid as needed to accommodate new load 	<p>Learnings B:</p> <ul style="list-style-type: none"> -<u>Variability in cost of fuel switching home retrofits across an entire community and challenge of getting 100% participation</u> -Potential to coordinate existing programs with fuel switching work -Participant opt-out reasons and rates / Customer perspectives on fuel switching -Load and cost assumptions to model fuel switching in transmission and distribution planning scenarios -Vendor challenges associated with fuel switching -Customer perspectives on grid-responsive appliances
--	--

Indeed, as shown in Table 4, the only difference between the La Vina pilot (Scope B) and the other seven Scope A pilots is that La Vina employs a community level cost cap instead of a household level cost cap. A separate pilot program is unnecessary “Learnings B,” as they could be easily derived from the data gained from a Scope A pilots, simply by manipulating the cost numbers. However, if the Commission determines the learnings from the Scope A and Scope B pilots are better achieved through individual pilots, then it should direct PG&E to do two electrification pilots, one with each of the two scopes.

2. SCE

SCE proposes the same electrification pilot for three communities, California City, Ducor, or West Goshen.³⁹ SCE’s discussion of the potential learnings from the pilot does not differentiate between the three communities which indicates that the learnings from the pilots are the same for all three communities.⁴⁰ There is no reason for this pilot to be done in all three communities, or for so many households. Further, the scope of SCE’s electrification pilots is

³⁹ SCE’s Pilot Proposal, Appendix A, p. A-2.

⁴⁰ *Id.*, Appendix B, pp. B-7 – B-8.

essentially the same as PG&E’s electrification pilots. Accordingly, the Commission should limit the SCE’s electrification pilots to 400 households with a spending cap of \$15 million.

3. SoCalGas

SoCalGas proposes to provide natural gas service to seven communities and approximately 1,700 households by extending existing pipelines, installing gas service to each household and replacing existing propane appliances with new natural gas appliances.⁴¹

SoCalGas’ proposed scope of work for each community is the same, as are the objectives and goals of each pilot.⁴² The “Specific Outcomes to be Achieved” are also the same for all of the communities⁴³ except for some variations in the per household annual savings and per household annual emissions reductions that are driven by differences in 2016 and 2017 average and actual gas usage for each ZIP code that was used to model post-pilot natural gas estimated usage.⁴⁴

There is no reason for this gas extension pilot to be done in all seven communities.

Further, as TURN has noted in previous filings, the extension of natural gas pipelines is not appropriate for treatment as a “pilot project” because such pipeline infrastructure work is typical for a gas utility and is not likely to be the basis of any new learnings. SoCalGas’ proposals should be evaluated for cost and feasibility through “paper pilots” rather than actual project implementation. However, if the Commission determines that it would be useful for SoCalGas to conduct a natural gas pipeline extension pilot it should be limited to conducting such a pilot in 1 or 2 communities with a strict cost cap of \$15 million.

⁴¹ See SoCalGas Pilot Proposals, Exhibits 1, 4, 7, 10, 13, 16 & 19.

⁴² See SoCalGas Pilot Proposals, Exhibits 1, 4, 7, 10, 13, 16 & 19, p. 4 & 6 (Proposal Summary and Objectives and Goals sections).

⁴³ See SoCalGas Pilot Proposals, Exhibits 1, 4, 7, 10, 13, 16 & 19, p. 11.

⁴⁴ See SoCalGas Pilot Proposals, Exhibits 1, 4, 7, 10, 13, 16 & 19, Appendix A, Table 2 Calculations, p. 31.

C. More Information is Needed Regarding PG&E and SCE’s Community Solar Proposals, but they Appear to Reduce the Cost Shift to Nonparticipating Customers as Compared to a Virtual Net Energy Metering Community Solar Program

Both PG&E and SCE propose community solar programs for customers who also receive electrification packages. PG&E and SCE do not provide a detailed proposal for their community solar programs and more information is needed to fully evaluate these proposals. However, TURN’s preliminary review of these proposals indicates they provide a better structure for community solar than a program that utilizes virtual net energy metering (VNEM) to provide bill credits to participants. As TURN discussed in its Comments on the Phase II Scoping Memo, there is no way to limit the significant cost-shifting that would occur under VNEM which would have a net effect of pushing rates up for all other ratepayers, including other low-income and CARE customers. TURN thus supports a community solar pilot program that uses a bill crediting structure similar to that proposed by PG&E or SCE. A PD and APD were recently issued in the NEM 2.0 Phase II proceeding (R.14-07-002) that both propose a community solar model similar to that proposed by PG&E. The APD also proposes a community solar program with VNEM and specifically references the use of such a program by residents of the same San Joaquin Valley communities identified in this proceeding.⁴⁵

PG&E states, “The community solar portion of this pilot would be largely modeled off of PG&E’s SolarCARE Plus proposal, which was put forth in the NEM 2.0 Phase II proceeding as a model for increasing access to renewable energy in disadvantaged communities.”⁴⁶ It appears PG&E intends to model its community solar program off of its existing Green Tariff Shared Renewables (GTSR) Program, as participants will have the opportunity to have 100% of their

⁴⁵ R.14-07-002, Alternate Decision Adopting Alternatives to Promote Solar Distributed Generation in Disadvantaged Communities, p. 109, FOF 32.

⁴⁶ PG&E Proposals for Pilot Projects, Attachment B, p. 20.

usage supplied by new solar projects located within the San Joaquin Valley at no premium and will receive a 10% bill credit.⁴⁷ PG&E notes for the community solar portion of the pilot there will be costs associated with making IT changes to the GTSR program and “to provide the premium buy-down and other program support costs preferably from the Greenhouse Gas Reduction Funds (GGRF) managed by the California Air Resources Board (CARB).”⁴⁸

More information is needed regarding the mechanics and costs of PG&E’s proposal; but TURN supports the concept in principle, since the program combined with electrification initiatives increases access to affordable energy to the program participants. The proposal to provide a 10% bill credit provides customers with a transparent and easy to track subsidy and should result in meaningful cost savings for participants combined with the cost savings received from the no cost conversion of appliances from propane to electric. TURN also supports PG&E’s proposal to use Greenhouse Gas Reduction Funds to cover premium buy-downs and other program support costs, as it is essential to limit the cost impact on non-participating ratepayers in order to be scalable.

SCE similarly proposes a community solar program with little detail regarding the actual implementation and structural mechanics of the program. SCE proposes to support “the development of a community renewable energy project” but explains that it is unclear as to cost impacts of supporting projects in each of the three pilot communities versus a single larger project not specifically located in each community.⁴⁹ SCE goes on to explain that “Community feedback, data gathering, and other stakeholder input will help identify the range of opportunities

⁴⁷ *Id.*

⁴⁸ *Id.* at p. 5.

⁴⁹ SCE’s Pilot Proposal, Appendix A, p. A-10 & FN 14.

and trade-offs with respect to community solar.”⁵⁰ SCE proposes to make the community solar program open to any customer who installs at least one electric appliance through the pilot program.⁵¹ SCE proposes the community solar program to include a 1.5MW facility and estimates the solar construction costs using an average cost of \$5.00 per watt for materials and construction for a total cost of \$7,500,000 for the 1.5 MW community solar facility.⁵² SCE’s cost assumptions result in a cost per household for just the community solar project construction of \$6,300.⁵³ As discussed elsewhere in these comments, SCE’s assumption of \$5.00 per watt is high and inconsistent with current market conditions. Further investigation and analysis of SCE’s solar cost proposals is necessary before the Commission can approve SCE’s community solar proposal.

SCE’s pilot proposal does not discuss the bill crediting structure it proposes for the community solar program. However, through discovery SCE explained that it does not plan to use VNEM to allocate bill credits to participating customers.⁵⁴ SCE assumes electric bill subsidies from the community solar project of \$2,870, which is the assumed total electric bill subsidies per household over the 20 year life of the project.⁵⁵ In order to calculate the electric bill subsidies, SCE used an illustrative example of a bill credit of 6.5 cents per kWh.⁵⁶ The basis for the community solar bill credit is a key consideration in this proceeding, and more information is needed regarding SCE’s proposal. If the Commission chooses to pilot a community solar program,

⁵⁰ *Id.* at p. A-10, FN 14.

⁵¹ *Id.* at p. A-13.

⁵² *Id.* at p. A-24 & SCE Response to TURN DR-003, Q6(c).

⁵³ *Id.* at p. A-23, Table A-7.

⁵⁴ SCE Response to TURN DR-003, Q7(b).

⁵⁵ SCE’s Pilot Proposal, Appendix A, p. A-23, Table A-7 & SCE Response to TURN DR-003, Q6(c).

⁵⁶ SCE Response to TURN DR-003, Q7(a).

TURN generally supports using a bill credit that is based on the generation component of a customer's electric rate. Given that SCE proposes to provide customers with new appliances and subscriptions to a community solar project at no cost, a sufficient but not excessive bill credit will increase energy affordability without unduly burdening non-participating customers.

V. THE COMMISSION SHOULD MODIFY THE SCOPE OF WORK TO MAKE THE PILOTS MORE USEFUL AS A TEMPLATE FOR A SCALABLE FUTURE PROGRAM

In addition to significantly reducing the scale of the proposed duplicative and unnecessary pilots, the Commission should also require modified scopes of work, so as to promote real pilots that would provide additional data, and that could conceivably be scaled to a larger program. As discussed above, TURN has not had the ability in one month to conduct discovery on all aspects of utility proposals; however, based on the data presented to-date by the utilities, the following are potential modifications to the proposed pilots:

- Reduce the number of pilots. There is no need for multiple pilots performing exactly the same work in “different” communities. There are no inherent differences between the various communities that warrant exactly the same electrification pilot.
- Do not include any person on an existing “all-electric” tariff in the electrification pilot. These customers already have, at a minimum, electric heating. They are not the residents who burn wood or propane who are the intended target of AB 2672. PG&E’s plan calls for retrofitting appliances for 494 “ell-electric” households, out of a total of 1764 households, with an “electric efficiency package” cost of \$20,000 per household. In essence, PG&E is proposing to spend \$20,000 per year on an appliance upgrade program for customers who might not even qualify for home efficiency upgrades under the Energy Savings Assistance program. This approach seems to violate the statutory intent of § 382 and does not further the goals of § 783.5.
- Amend the scope of the electrification pilots to test different appliance retrofit:
 - Replace only the two major propane appliances – space heater and water heater.

- Such a program would not require removing existing propane equipment. Whether it is feasible to combine natural gas-burning space heating and water heating with propane for other appliances would be a pilot test question.
 - The pilot should be done with and without home weatherizing, testing different households to evaluate 1) weatherizing costs; and 2) weatherizing benefits over time.
 - Replace only the water heater. According to PG&E, a new high efficiency water heater costs \$3,000,⁵⁷ whereas the space heat pump and other appliances proposed for installation total \$12,680.⁵⁸ Water heating is the primary residential building end-use of natural gas, accounting for 49% of natural gas consumption, as compared to 37% for space heating.⁵⁹ Retrofitting an existing propane water heater to use electricity could be a lower cost alternative than retrofitting the furnace and other appliances, and would still make a significant impact on annual propane use. Electrifying only the water heater, and allowing for a larger baseline allowance for those customers on a pilot basis, could provide a more cost-effective option that would reduce participant energy costs, though it would not entirely eliminate propane use for heating. Moreover, electric water heaters provide significant demand response capacity, since the hot water acts as an energy storage device (maintains its temperature), so that the electric heating can easily be “shifted” to avoid electricity consumption during peak periods and to target consumption during solar overgeneration.

VI. COST RECOVERY AND COST ALLOCATION

SCE proposes to fund its pilot through the Public Purpose Program (PPP) rate component, up to the cost cap of \$37.5 million.⁶⁰ PG&E proposes to collect costs of its pilots through electric distribution rates, specifically a one-way balancing account added to the

⁵⁷ SCE estimates about \$2,300 for a new water heater.

⁵⁸ Response to TURN-PG&E-001-01 and 002-02.

⁵⁹ KEMA, Inc., “2009 California Residential Appliance Saturation Study,” Executive Summary, October 2010, p. 9. TURN thus presumes that water heating consumes a significant amount of annual propane use also.

⁶⁰ SCE Proposed Pilot Projects in Response to Assigned Commissioner’s Ruling, p. A-25.

Distribution Revenue Adjustment Mechanism (DRAM) for the electrification pilots. For the gas microgrid or gas line extension (if ordered) PG&E proposes to allocate costs “based upon the adopted Distribution Base Revenue Requirements” for core and noncore customer allocation.⁶¹ SCG proposes “a financial cost-recovery approach like its current MHP [mobile home park] 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.”⁶²

There are three primary issues regarding cost recovery – balancing account treatment (one or two-way), cost allocation and rate treatment of home appliances.

Regarding the issue of balancing account treatment, it is important that the Commission know the scale of pilot it is approving, so a one-way balancing account is most appropriate. This gives the utility greater incentive to manage its spending to try and accomplish the most work possible at least cost, while mitigating the ratepayer risk of cost overruns. TURN does not oppose utilities accomplishing more work than expected (e.g. a greater number of households), as long as costs fall under the proposed cost cap discussed in A.

Regarding cost allocation, TURN agrees with SCE that costs should be collected through the Public Purpose Program non-bypassable charge, “similar to Energy Savings Assistance (ESA), Electric Program Investment Charge (EPIC), and Energy Efficiency (EE) programs.”⁶³ The program is similar to EPIC in that these should be (though they are not presently) discrete pilot programs designed to obtain data on environmental and economic costs and benefits, and similar to ESA in that they target low-income communities. In contrast, PG&E’s proposal to

⁶¹ PG&E’s Proposals for Pilot Projects in Designated Disadvantaged Communities in the San Joaquin Valley, p. 5.

⁶² Section 3.c. of pilot proposals, SCG Proposed Options for Pilot Projects.

⁶³ SCE Proposed Pilot Projects in Response to Assigned Commissioner’s Ruling, p. A-25.

collect costs through distribution rates is inappropriate because ratepayer funds will not be utilized for traditional distribution infrastructure (poles, wires, transformers, etc.). Indeed, the majority of spending is for “behind the meter” (BTM) work on the customer’s premises. Given the intent of the programs and actual work to be accomplished, the PPP charge is the most appropriate way to allocate costs.

With respect to the rate treatment of costs, both PG&E and SCE propose to expense the cost of household appliances, while SoCalGas plans to capitalize the material and labor installation cost of home appliances as a “regulatory asset,” so that the utility will earn profits on the installation of these appliances, analogous to the treatment of home electrical upgrades in the mobile home park upgrade program.⁶⁴ It is inappropriate to capitalize installations of home appliances. These are not assets constructed by the utility, nor are they under utility control. In the mobile home park case, the Commission authorized regulatory asset treatment of electrical upgrade work in the house. Electrical upgrades are more directly related to utility service, and are an element of building construction that cannot be moved, sold or replaced by the homeowner. The home owner has complete discretion regarding maintenance, use and disposal of the appliances. This situation is similar to rebates provided for electric vehicle charging stations installed on private property, and the Commission has held that the costs of those rebates should be treated as an expense.⁶⁵ For the purposes of the pilots, these BTM costs should be expensed.

⁶⁴ SCG states “The revenue requirements associated with actual “beyond the meter” project expenditures capitalized consistent with their status as a regulatory asset and amortized over ten years at a rate equivalent to the utility’s then-current authorized return on rate base.” SCG Pilot Proposals, Section 3.c., see for instance page 17 of the Alpaugh proposal.

⁶⁵ See D.16-12-065, p. 84, OP 3. See also D.18-01-024.

