Exhibit: SBUA-___
Witness: Paul Chernick
Date: April 12, 2019

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

| | |
|---|---|
| Application of Southern California Gas Company (U 904 G) and San Diego Gas & Electric Company (U 902 G) for authority to revise their natural gas rates and implement storage proposals effective January 1, 2020 in this Triennial Cost Allocation Proceeding | Application 18-07-024 (Filed July 31, 2018) |

# DIRECT TESTIMONY OF

# PAUL CHERNICK

## ON BEHALF OF

## SMALL BUSINESS UTILITY ADVOCATES

Resource Insight, Inc.

**APRIL 12, 2019**

**REVISED APRIL 16, 2019**

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## I. Identification & Qualifications

**Q: Mr. Chernick, please state your name, occupation, and business address.**

A: My name is Paul L. Chernick. I am the president of Resource Insight, Inc., 5 Water St., Arlington, Massachusetts.

**Q: Summarize your professional education and experience.**

A: I received a Bachelor of Science degree from the Massachusetts Institute of Technology in June 1974 from the Civil Engineering Department, and a Master of Science degree from the Massachusetts Institute of Technology in February 1978 in technology and policy.

I was a utility analyst for the Massachusetts Attorney General for more than three years, and was involved in numerous aspects of utility rate design, costing, load forecasting, and the evaluation of power supply options. Since 1981, I have been a consultant in utility regulation and planning, first as a research associate at Analysis and Inference, after 1986 as president of PLC, Inc., and in my current position at Resource Insight. In these capacities, I have advised a variety of clients on utility matters.

My work has considered, among other things, the cost-effectiveness of prospective new electric generation plants and transmission lines, conservation program design, estimation of avoided costs, the valuation of environmental externalities from energy production and use, allocation of costs of service between rate classes and jurisdictions, design of retail and wholesale rates, and performance-based ratemaking and cost recovery in restructured gas and electric industries. My professional qualifications are further summarized in Attachment 1.

**Q: Have you testified previously in utility proceedings?**

A: Yes. I have testified over three hundred times on utility issues before various regulatory, legislative, and judicial bodies, including utility regulators in thirty-seven states and six Canadian provinces, and three U.S. federal agencies. This previous testimony has included planning and ratemaking for distributed resources, distributed resource planning, the benefits of load reduction on the distribution and transmission systems, utility planning, marginal costs, and related issues.

## II. Introduction

**Q: On whose behalf are you testifying?**

A: I am testifying on behalf of Small Business Utility Advocates.

**Q: What is the scope of your testimony?**

A: I examine three areas of the proposals of Sempra for its two gas distribution subsidiaries, Southern California Gas (SoCalGas) and San Diego Gas & Electric (SDG&E):

- The rate design for the Core Commercial and Industrial (CCI) classes, including the declining-block rates and Sempra's approach to setting customer charges.
- The distribution cost-allocation methodology, including the choice of marginal-cost allocation and the estimation of marginal costs.
- The computation of design winter conditions.

**Q: What are your recommendations?**

A: I recommend that the Commission do the following:

- Reject Sempra's proposal to increase the slope of the declining-block commodity rates for the CCI classes.
- Order Sempra to start reducing the steepness of the CCI commodity rates.
- Instruct Sempra to move toward embedded-cost allocation for all cost components.
- Accept Sempra's proposed design-weather planning method.

I discuss the basis for these recommendations in the following sections.

## III. Core Commercial Rate Design

**Q: Please describe Sempra's proposed rate design for core commercial and industrial customers.**

A: Sempra proposes to keep the monthly customer charge at the current $10/month for SDG&E and $15/month for SoCalGas and to steepen the existing declining-block rate commodity rate.

### *A. Declining-Block Commodity Rates*

**Q: Please describe Sempra's declining-block proposal.**

A: While Sempra says that "Neither SoCalGas nor SDG&E proposes any changes to the current methodology" (Revised Direct Testimony of Sharim Chaudhury at 24),[1] Sempra is in fact proposing to change the rate design. Table 1 shows the proposed changes for SoCalGas, and Table 2 shows them for SDG&E.

[1] Application, *Revised Prepared Direct Testimony of Sharim Chaudhury* (Mar. 2019), Ch. 12R (referred to as "Chaudhury Revised Direct"), p. 24.

**Table 1: Comparison of Existing and Proposed CCI Rates, SoCalGas[2]**

| Block size | Existing | | Proposed | | Increase in | | |
|---|---|---|---|---|---|---|---|
| (therms/month) | $/th | Ratios | $/th | Ratios | $/th | % | Ratio |
| first 250 | $0.54 | 1.906 | $0.65 | 1.918 | $0.11 | 20% | 0.012 |
| 251-4,167 | $0.30 | 1.036 | $0.35 | 1.024 | $0.05 | 18% | (0.013) |
| >4,167 | $0.13 | 0.453 | $0.14 | 0.424 | $0.02 | 12% | (0.029) |
| Average | $0.28 | 1.000 | $0.34 | 1.000 | $0.06 | 19% | |

**Table 2: Comparison of Existing and Proposed CCI Rates, SDG&E[3]**

| Block size | Existing | | Proposed | | Increase in | | |
|---|---|---|---|---|---|---|---|
| (therms/month) | $/th | Ratios | $/th | Ratios | $/th | % | Ratio |
| first 1,000 | $0.33 | 1.296 | $0.41 | 1.317 | $0.08 | 24% | 0.020 |
| Next 20,000 | $0.20 | 0.778 | $0.24 | 0.767 | $0.04 | 20% | (0.011) |
| Over 21,000 | $0.16 | 0.632 | $0.19 | 0.612 | $0.03 | 18% | (0.019) |
| Average | $0.25 | 1.000 | $0.31 | 1.000 | $0.06 | 22% | - |

For each utility, Sempra is proposing to increase the first block more than the second block, and the second block more than the third, both in $/therm and in terms of the percentage change. Sempra proposes to increase the ratio of the first-block price to the average price, and decrease the ratio of the second-block and third-block price to the average price.

**Q: Is this increase in the declining block appropriate?**

A: No. There is no reason to believe that transporting gas to a larger customer is less expensive than transporting gas to a smaller customer. Indeed, the declining blocks provide lower prices in the peak winter months for space-heating customers using more than the first block in those months; if anything, the winter transportation rate should be higher than the summer rate.

Small business customers would be paying much higher rates than larger customers.

[2] Chaudhury Revised Direct, Table 3 for SoCalGas, excluding adders. Chaudhury has two sets of tables with the same numbers but does not number the pages with tables.

[3] Chaudhury Revised Direct, Table 3R for SDG&E, excluding adders.

**Q: What rate design do you recommend for the Core C&I rates?**

A: Rather than increasing the first block rates disproportionately, Sempra should be reducing the share of the costs recovered from that block. One approach to gradually phasing in that improvement would be to increase the price for the first block by the $/therm increase that Sempra proposed for the last block, adjusted for the actual increase in the transportation commodity rate eventually granted by the CPUC. For SoCalGas, that would be 1.5¢/therm, or about 27% of the average increase in the transportation commodity rate; for SDG&E, it would be 2.9¢/therm, or about 50% of the average increase.

The rates for the higher blocks could be determined by increasing the third block by the $/therm increase proposed for the first block (again adjusted for the allowed total increase) and setting the second block to achieve the targeted revenue level.

That procedure would leave the transportation rates declining, but not as dramatically as Sempra proposes. Table 3 compares the existing rates to Sempra's steeper declining rates and my flatter block proposal.

**Table 3: Comparison to CCI Transportation Rate Designs**

| | SoCalGas | | | SDG&E | | |
|---|---|---|---|---|---|---|
| | | Sempra | | | Sempra | |
| **Block** | **Existing** | **Steeper** | **Flatter** | **Existing** | **Steeper** | **Flatter** |
| **First** | $0.54 | $0.65 | $0.56 | $0.33 | $0.41 | $0.36 |
| **Second** | $0.30 | $0.35 | $0.32 | $0.20 | $0.24 | $0.28 |
| **Third** | $0.13 | $0.14 | $0.24 | $0.16 | $0.19 | $0.24 |

## *B. Computing Customer Charges*

**Q: Do you have any comments on Sempra's approach to setting customer charges?**

A: Yes. While Sempra is not proposing any change to the customer charge for core commercial and industrial customers, it is proposing to substantially increase

residential customer charges, to levels above the CCI customer charges. I am concerned that, if the CPUC accepts Sempra's approach, Sempra will propose to increase CCI customer charges (which will fall most heavily on small businesses) in the future.

**Q: Is Sempra's approach to setting customer charges appropriate for its situation?**

A: No. Sempra's argument on the customer charges (Chaudhury Direct at 6–18) hinges on its position that the customer charge should be set as if every customer were a new location, requiring a new meter and service line. This approach is not relevant to Sempra's environment, since the price signals given by the customer charge are more likely to affect decisions to cease service than to install new meters and services. Once a customer's major end-uses for natural gas (usually space heating and water heating) are converted to electricity, many customers will still have minor uses, such as a decorative gas fireplace or a fire pit. High customer charges will tend to drive customers off the system entirely, while saving the utilities only the marginal costs of the billing cycle, meter maintenance and perhaps some scrap value for the meter (net of the cost of retrieving it). In this environment of falling usage, customer charges should be set to reflect the savings of getting rid of a customer, rather than the cost of adding a customer.

Interestingly, Sempra acknowledges that the benefit of losing a customer is less than the cost of adding a customer, but insists that only the cost of adding customers is relevant. Sempra Alfred E. Kahn's The Economics of Regulation, Principles and Institutions to the effect that "marginal cost is the cost of producing one more unit; it can equally be envisaged as the cost that would be saved by producing one less unit," and that marginal, incremental and avoided

costs are effectively synonymous, but then pretends that Kahn has insisted that only the costs of adding units of demand are relevant. (Chaudhury Direct at 13)

**Q: Do you have a specific proposal regarding customer charges?**

A: No. Residential customer charges are not of great concern to my clients, and Sempra is not proposing to increase the customer charges for core commercial and industrial customers.

## IV. Cost Allocation Methodology

### *A. Embedded versus Marginal Cost Allocation*

**Q: What are your observations about the cost allocation method proposed by Sempra?**

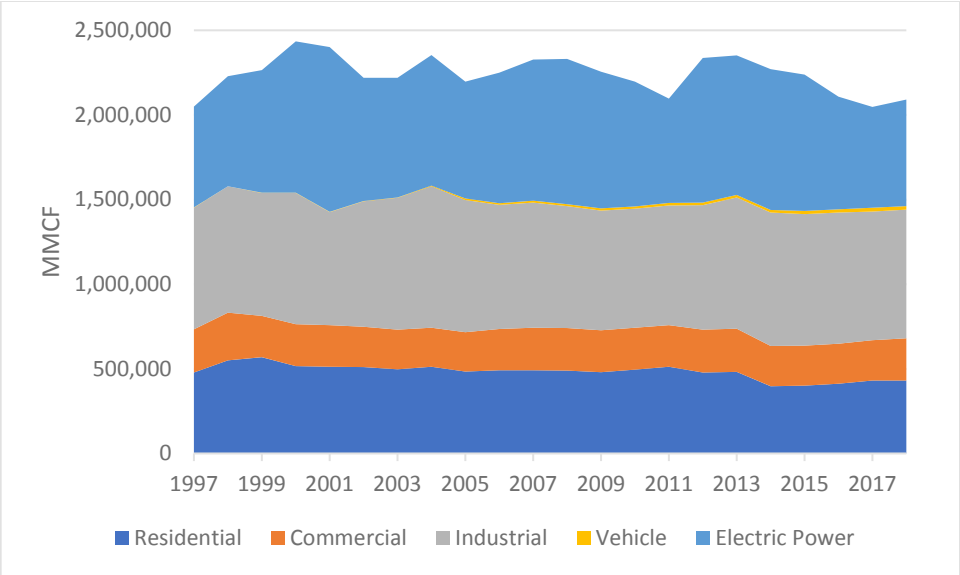
A: My major concern is that it is not clear that marginal-cost allocation is appropriate for the California gas utilities. The basic premise of marginal-cost allocation is that customers should pay for their incremental contribution to resource requirements. If the utility expects to need to add looping to increase its supply capacity by 100 Bcf/day, any customer on the system contributes to the need for that capacity and the attendant cost.

The current situation for the California gas utilities is very different from this basic marginal-cost paradigm.

**Q: Has natural gas load grown recently?**

A: No. The gas utilities have experienced falling sales over the last two decades. Figure 1 shows data from the Energy Information Administration on California gas sales since 1997.

**Figure 1: Natural Gas Delivered to California Consumers**[4]



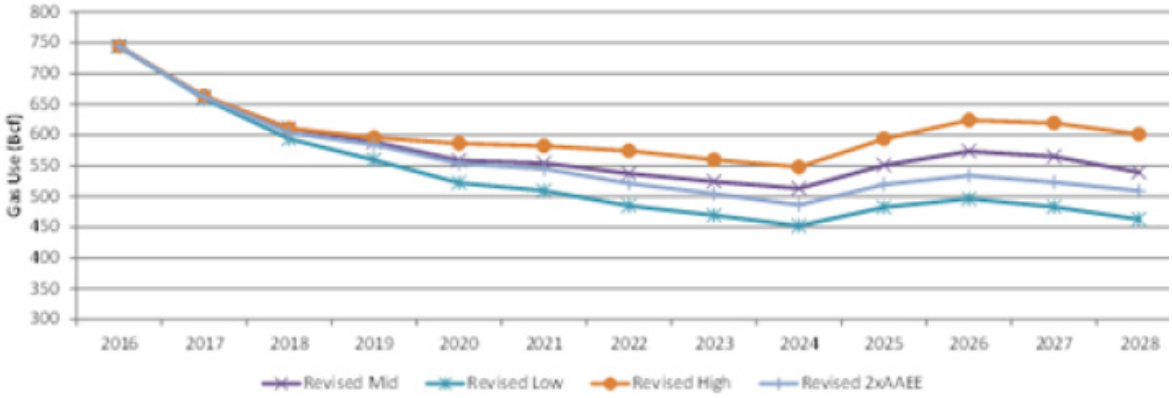

**Q: Is it reasonable to expect the historical decline to accelerate?**

A: Yes, due to changes in State policy regarding climate change. About 30% of recent gas consumption has been for electric generation fuel, which California is gradually phasing out as it transitions to renewable energy. Figure 2 shows the forecast of natural gas use for generation in California, from the 2017 Integrated Energy Policy Report (IEPR);[5] the legislature has raised renewable requirements since this report was published, so the 2019 IEPR is likely to project lower usage for power generation.

[4] Attachment 2, *Natural Gas Consumption by End Use*, U.S. Energy Information Administration, available at https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_m.htm.

[5] *2017 Integrated Energy Policy Report*, California Energy Commission, full report available at https://www.energy.ca.gov/2017_energypolicy/.

**Figure 2: California Annual Natural Gas Use for Power Generation for All Cases[6]**

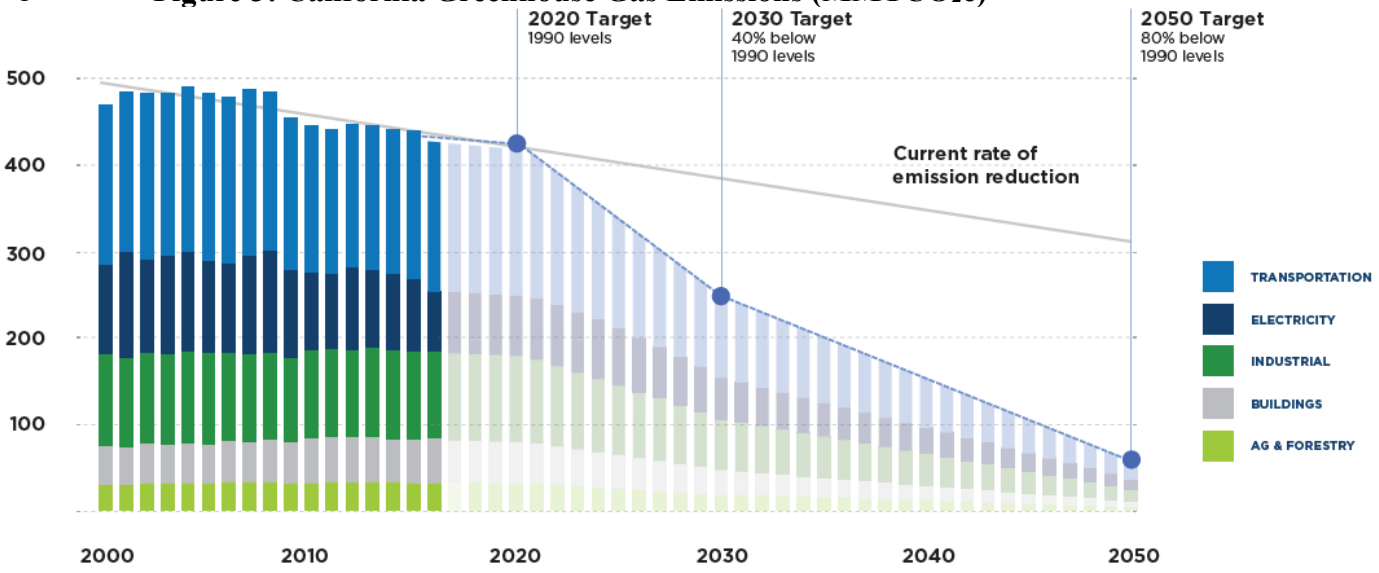



The State's commitment to decarbonization also implies that existing uses of natural gas will be converted to electricity powered by renewable generation. The largest and perhaps most-easily switched end uses are typically space heating and water heating, but the same forces will act on clothes drying, some cooking uses, and industrial processes (switching gas heating load to either electric heat or non-heating alternatives, such as freeze concentration of liquids, using UV and microwaves for various produce-curing tasks). Figure 3 shows the projection of carbon emissions by sector, from the 2018 IEPR, which cites the California Air Resources Board as the source of the estimates. The dark blue swath represents declining emissions from electric generation, confirming the projection from Figure 2.

The gray band, representing emissions from buildings, and the dark green band, representing industrial emissions, also fall rapidly. Natural gas would be a large portion of both of these categories.

[6] Attachment 3, *2017 Natural Gas Market Trends and Outlook*, Staff Final Report, California Energy Commission, p. 15, Figure 7. The poor image quality is from the original.

**Figure 3: California Greenhouse Gas Emissions ($MMTCO_2e$)[7]**




**Q: What are Sempra's forecasts for natural gas use?**

A: Sempra acknowledges that gas use will be falling, not rising.

> SoCalGas projects total gas demand to decline at an annual rate of 0.74 percent from 2018 to 2035. The decline in throughput demand is due to modest economic growth, CPUC-mandated energy efficiency (EE) standards and programs, tighter standards created by revised Title 24 Codes and Standards, renewable electricity goals, the decline in commercial and industrial demand, and conservation savings linked to Advanced Metering Infrastructure (AMI). (2018 California Gas Report, p. 66)[8]

Through 2035, SDG&E projected a 0.47% annual reduction in residential sales, 0.8% annual reduction in core industrial sales, about 0.3% annual reduction in core commercial sales, and a 1.3% annual reduction in electric generation sales. (2018 California Gas Report, pp. 119–121)

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[7] Attachment 4, *2018 Integrated Energy Policy Report Update*, Vol. 1, CEC-100-2018-001-V1, p. 6, also available at https://www.energy.ca.gov/2018_energypolicy/.

[8] Attachment 5, *2018 California Gas Report*, prepared by California Gas and Electric Utilities, in accordance with Commission Decision D.95-01-039. California Gas Report presents a comprehensive outlook for natural gas requirements and supplies for California through the year 2035.

The same pattern was predicted for peak demand, which determine the sizing of distribution equipment. Table 1 shows the current forecast of Sempra core extreme-peak (one day in 35 years) loads, from the 2018 California Gas Report, p. 96.

**Table 4: Core Extreme Peak Day Demand (MMcf/day)**

| | SoCalGas | SDG&E | Total |
|---|---|---|---|
| 2018 | 3,003 | 407 | 3,410 |
| 2019 | 2,987 | 406 | 3,393 |
| 2020 | 2,966 | 405 | 3,371 |
| 2021 | 2,945 | 403 | 3,348 |
| 2022 | 2,916 | 398 | 3,314 |
| 2023 | 2,870 | 396 | 3,266 |
| 2024 | 2,833 | 395 | 3,228 |

Interestingly, none of Sempra's discussion in the Gas Report acknowledges the effects of electrification in reducing gas loads. Under the heading "Assumptions Regarding Proposed Electrification Policy:"

> The proposed policies impact the State's ability to reduce GHG emissions generated by gas consumption in residential and commercial building stock by at least 40 percent below 1990 levels by January 1, 2030.
>
> SoCalGas and SDG&E are monitoring policy that is currently being proposed at the state legislature. The California utilities are aware of and are involved in the conversation regarding the longterm role of natural gas and renewable natural gas in the state's building stock. This topic will be examined in the 2018 IEPR at the CEC and legislation that has been introduced. However, since no bill has been signed into law requiring policy changes to the use of natural gas in either residential or nonresidential buildings, this report and the ensuing gas demand forecasts do not consider those policy changes. Any updates to the building code or other requirements set forth under law or regulation will be incorporated in future updates of this report, as appropriate. ((2018 California Gas Report, p. 68)

Sempra's gas loads have nowhere to go but down.

**Q: Does the falling use of natural gas mean that Sempra will never need to add medium and high-pressure distribution equipment?**

A: No. There may be small pockets in which gas load is growing or in which retirement of capacity requires the addition of a new line (or compression, or some other investment) to maintain adequate reliability, but those are likely to be quite limited.

### *B. Computation of Marginal Distribution Costs*

**Q: Do you have any observations regarding Sempra's computation of the marginal distribution costs?**

A: Yes. Given the lack of growth (and even decline) in load, Sempra cannot compute marginal distribution investments (High Pressure Distribution Mains and Medium Pressure Distribution Mains) in the normal fashion, dividing additions by load growth over corresponding periods. To get around this problem, Sempra creates a proxy load growth, consisting of the increase in customer number by class (for years when that number increases) times the average usage per customer in the class.

This work-around is creative, but it is not clear how accurate it may be. Sempra's load-growth proxy ignores all load growth by existing customers (new buildings on a campus, a new sauna at a day spa, heating added to a hotel pool, an additional oven at a bakery, and so on). This is unfortunate, since Sempra is using the proxy to allocate costs to classes based on all customers' loads, not just the loads of new customers. In addition, since Sempra loses some customers (in some years, losing more CCI customers than it gains), the gross number of new customers may be much larger than Sempra's estimates. There is no way of knowing how much larger than Sempra's proxy the actual growth driving each investment might have been.

On the other hand, it is also unclear whether some of the load growth that Sempra estimates is offset by efficiency, electrification and other load reductions

that occurred simultaneously. Since load growth and load reductions may occur in areas that use the same mains, or in completely separate areas, so reductions may or may not offset growth.

**Q: What do you conclude from this review?**

A: California no longer has the continuing growth and the marginal-cost allocation approach no longer makes sense.

**Q: Does Sempra propose to use marginal costs to allocate all costs?**

A: No. Sempra proposes to allocate backbone and local transmission, as well as storage costs, using embedded costs. The Companies propose to use the marginal approach only for what it considers to be costs related to customers, medium-pressure distribution, and high-pressure distribution.

**Q: How should Sempra respond to this lack of growth?**

A: Marginal load-related costs will be very small in the future. The gas utilities will be recovering legacy investments and associated expenses with a shrinking sales base. The issue is no longer one of equitably allocating the marginal costs of load growth, but of allocating embedded costs. Sempra should switch to using embedded-cost allocation approaches for all costs.

**Q: How has PG&E proposed to allocate the costs for which Sempra proposes to use marginal-cost allocation techniques?**

A: In its 2018 gas cost allocation proceeding (Application 17-09-006), PG&E has proposed using entirely embedded-cost approaches.[9] Sempra should follow that lead.

[9] The ALJ's recommended decision has not yet been issued.

## V. Design Weather Computation

**Q: What is unusual about Sempra's approach to determining design winter conditions in this proceeding?**

A: In the testimony of Gregory Teplow, Sempra explains that it computes the heating degree days (HDD) for the design Cold Year, which it expects to occur once every 35 years, by increasing the Average Year HDD by 2.025 standard deviations in the annual HDDs observed over the last 20 years. In this case, Sempra decided to adjust the historical standard deviation to eliminate the effect of the last four unusually mild years, which were "dramatically lower than in any preceding year going back to 1950" (Teplow Direct at 2).[10]

Paradoxically, the warm years actually increase the observed standard deviation of HDDs and hence the computed Cold Year HDD target. Sempra rejected this outcome and calculated the effect of those warmer years using a linear regression model with a dummy variable for 2014−2017, which turned out to be 364.9 HDD, at least for SoCalGas. Sempra added that value to the actual HDDs for those four years. Table 5 shows the difference between the Cold Year HDDs computed for each utility with the raw data and with Sempra's adjustment.

**Table 5: Sempra Cold Year Computation (HDDs)**

| | Adjusted | | | Non-Adjusted | | |
|---|---|---|---|---|---|---|
| | Average Weather | Standard Deviation | 1-in-35 Cold Year | Standard Deviation | 1-in-35 Cold Year | Effect of Adjustment |
| **SoCalGas** | 1,320 | 135.1 | 1,594 | 236.4 | 1,799 | -11.4% |
| **SDG&E** | 1,246 | 132.7 | 1,515 | 288.9 | 1,831 | -17.3% |

**Q: Is this a reasonable adjustment?**

[10] Application, *Prepared Testimony of Gregory Teplow* (July 2018), Ch. 2, p. 2.

A: Unless the recent warm spell is indicative of continuing climate instability that could produce correspondingly colder weather, removing this effect on the Cold Year computation seems appropriate.[11]

## VI. Self Generation Incentive Program (SGIP)

**Q: How do SoCalGas and SDG&E propose to allocated costs for the Self Generation Incentive Program (SGIP)?**

A: Sempra proposes to reallocate SGIP costs across customer classes in proportion to the classes' respective program participation, where the classes are residential, CCI, and non-core customers.

**Q: Is this new allocation for SGIP costs reasonable and fair to ratepayers?**

A: In part. It is more equitable for customers to pay the costs of the SGIP based on the benefits they (or customers like them) receive. This is especially true for SoCalGas's small commercial customers, who are unlikely to install the gas-fired self-generation systems that make up the bulk of SoCalGas's SGIP costs.

Unfortunately, the allocations do not differentiate between (1) the large CCI customers who are most likely to install the fossil self-generation that makes up 76% of SoCalGas's CCI SGIP payments or the large battery systems that comprise most of SDG&E's CCI SGIP payments, versus (2) the small CCI customers. All of SDG&E's CCI's CCI SGIP payments are for batteries. All of those CCI battery installations are at least 15 kW, 98.3% of the costs are for installations of than 20 kW, 91.2% for more than 50 kW, and 84.6% for more

[11] I am not well versed in climatology and have not determined whether climate change increases the risk of California experiencing winters much colder than past variability would suggest.

than 100 kW systems. SCE's Schedule GS-1 and SDG&E's Schedule A apply to customers with maximum demand less than 20 kW.[12] It is difficult to believe that many of those small customers are installing storage much larger than their peak demand.

**Q: How should the allocations be improved to match the recipients of the SGIP incentives?**

A: Rather than recovering the CCI SGIP costs equally from all usage in the CCI class, the utilities should recover SGIP costs primarily from the higher blocks of the commodity charge.[13] Unless Sempra can provide data on the distribution of SGIP incentives among the CCI blocks, the SGIP costs should be recovered only from the top block of commodity charges.

**Q: Does this conclude your testimony?**

A: Yes.

[12] *See* Attachment 6 (SCE's Schedule GS-1), also available at https://www.sce.com/NR/sc3/tm2/pdf/ce74-12.pdf; Attachment 7 (SDG&E's Schedule TOU-A), also available at http://regarchive.sdge.com/tm2/pdf/ELEC_ELEC-SCHEDS_TOU-A.pdf.

[13] Large electric consumers will often be large gas customers, but usage of these fuels is not perfectly correlated.