Docket No.: A.12-04-020

Exhibit No.: ______

Date: October 19, 2012

Witness: Mark E. Fulmer

TESTIMONY OF MARK FULMER ON BEHALF OF THE ALLIANCE FOR RETAIL ENERGY MARKETS, THE DIRECT ACCESS CUSTOMER COALITION AND 3 PHASES RENEWABLES REGARDING PACIFIC GAS AND ELECTRIC COMPANY'S APPLICATION TO ESTABLISH A GREEN OPTION TARIFF

1. Introduction and Background

Q: Please state your name and business address.

A: My name is Mark Fulmer. I am a Principal at MRW & Associates, LLC ("MRW"). My business address is 1814 Franklin Street, Suite 720, Oakland, California. My professional and educational background is provided in Attachment A.

Q: Have you previously testified before the California Public Utilities Commission?

A: Yes. I have previously testified before the California Public Utilities Commission ("CPUC" or "Commission") on behalf of the Direct Access Customer Coalition, the Alliance for Retail Energy Markets, Debenham Wind, Strategic Energy and Constellation NewEnergy, the City and County of San Francisco and the Marin Energy Authority. I have also submitted testimony in proceedings before the Federal Energy Regulatory Commission and state utility commissions in Arizona, Hawaii, Pennsylvania and Rhode Island.

Q: On whose behalf are you testifying?

A: I am testifying on behalf of the Alliance for Retail Energy Markets ("AReM"), the Direct Access Customer Coalition ("DACC") and 3 Phases Renewables. AReM is a California mutual benefit corporation whose members are electric service providers ("ESPs") that provide Direct Access ("DA") service to retail end-use customers throughout the state. DACC is a regulatory alliance of educational, commercial, industrial and governmental customers who have opted for DA service for some or all of their loads. 3 Phases Renewables is an ESP providing renewable power to the California DA market.

Q: Please provide some background to this proceeding.

A: In this Application, PG&E proposes to implement a new rate schedule, the Green Option, pursuant to which "customers may voluntarily choose to pay a rate that supports up to 100% renewable energy through PG&E's purchase of Green-e Energy certified renewable energy credits ('RECs') for a modest premium on their current utility bills."[1] PG&E says that participating customers will pay all the costs of the program, and that any shortfall between the costs of the program and the revenues will be borne by PG&E. The premium that customers will pay under the Green Option may vary over time, but will not exceed two cents per kilowatt-hour. Subject only to this cap, PG&E may adjust the price charged to customers upon no less than ninety days' notice to customers as provided in a Tier 1 advice letter. PG&E expects to "contract all or a significant portion of its marketing and REC procurement requirements to a third-party provider with existing experience and a record of success in 'green pricing' programs."[2] Finally, PG&E can terminate the program upon ninety days' notice.

Q: Please describe AReM, DACC, and 3 Phases Renewables's interest in this proceeding.

[1] Application, p. 1.
[2] Application, p. 4.

A: While **AReM, DACC, and 3 Phases Renewables** fully support allowing customers to make decisions that meet their renewable energy goals and preferences, they object to PG&E offering what is effectively a competitive service under its rate regulated tariffs.

Q: Please summarize your conclusions and recommendations.

A: My conclusions and recommendations are as follows:

- The Commission should reject the Application because it would allow PG&E to offer a competitive value-added service through regulated rates in violation of the utility affiliate rules.
- The Commission should require that, if PG&E is interested in providing competitive products and services to customers, it should do so through a competitive affiliate. Doing so would preclude direct harm to competitive markets, ensure that customers have meaningful alternatives to meet their environmental goals, and protect bundled, DA and Community Choice Aggregation ("CCA") customers from subsidizing competitive products.
- If the Commission allows PG&E to offer the Green Option tariff as described in the Application, the Commission should require PG&E to more fully document its allocation of costs and resources to the program to ensure that the program is not being subsidized by customers who do not elect service under this voluntary rate.

2. PG&E's proposal is anti-competitive, violates the Affiliate Rules and should not be allowed

Q: Please describe current Commission policy regarding competition in California.

A: When California restructured its energy markets in 1998, the Commission carefully considered what was necessary to ensure a level competitive playing field when the utilities were offering retail services that could be provided by competitive entities. In Decision ("D.") 97-12-088, the Commission took steps to ensure that when and where the utilities wanted to offer competitive services, they would do so through an affiliate, so that the utility provision of such services would not interfere with the development of competitive markets:

> We do not wish to adopt a mechanism by which the utility can ***circumvent the rules*** we adopt today by offering the products or services itself instead of through an affiliate, especially when the utility's offering is for a competitive or potentially competitive service and might interfere with the development of a competitive market. (emphasis added)[3]

Quite simply, PG&E's proposal is exactly the type of competitive offering the Commission planned to restrict when implementing the Affiliate Rules. The Commission's adopted utility affiliate transaction rules explicitly provide in Section VII. Utility Products and Services, as follows:

> A. General Rule: Except as provided for in these Rules, new products and services shall be offered through affiliates.[4]

The Green Option is clearly a new product and thus should not be offered by the utility directly as a tariffed product.

Q: Have the products and services offered by California's investor-owned utilities changed since the Commission established this affiliate rule?

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[3] D.97-12-088, Finding of Fact 40, p. 95.

[4] Affiliate Rules, at p. 17. Available at: http://www.cpuc.ca.gov/PUC/energy/Retail+Electric+Markets+and+Finance/Electric+Markets/affiliate.htm

A: Yes. The Commission has authorized the utilities to offer all manner of products and services under traditional rate regulation, including energy, demand response services, energy efficiency services, not to mention direct ownership of generating assets within its vertically integrated structure.

Q: What has been the effect on California's competitive retail market?

A: The competitive landscape for retail electricity supply in California is unlike many other jurisdictions in that the incumbent utilities enjoy significant competitive advantages. These advantages stem primarily from the regulatory cost recovery protections that their programs enjoy, which insulate the utility from business risks that competitive entities must actively manage. **AReM, DACC, and 3 Phases Renewables** are concerned that the Green Option tariff is one more such program that will provide PG&E an advantage in yet another competitive arena. Further, as discussed below, there is no compelling policy reason for the Commission to approve PG&E's program as an exception to the Commission's own affiliate rules, given that the product that they are offering, Green-e RECs, is a product that the competitive markets can and do offer today.

Q: Has the Commission recognized and responded to these competitive impacts wth respect to any other utility programs?

A: Yes. The Commission recently recognized in the demand response arena that it is time to end the utility domination of demand response programs and move customer participation in demand response programs to the competitive markets. Specifically, the Commission has stated:

> Historically, California has employed a utility-centric model of DR procurement that allows only a limited role for third party aggregators. However, this model is changing. The CAISO's market upgrades and regulatory changes now underway at this Commission will soon make it possible for aggregators to play a much larger role in the procurement of DR at both the retail and wholesale levels. We think that third party aggregators can provide additional innovation and services to the market, yielding additional uncaptured potential benefits to DR in California. We intend to take up this question in a new DR policy guidance rulemaking to be opened later this year.[5]

In addition, the Commission recently considered how to encourage competitive markets for plug-in electric vehicles ("PEVs") and decided in D. 11-07-029 to implement rules to avoid providing an unfair competitive advantage to the investor-owned utilities and to ensure the success of that nascent market:

> Although the utilities could benefit from economies of scale by purchasing electric vehicle service equipment in large numbers, the utilities are not the only entities that could make large scale purchases. Furthermore, the potential costs savings of a "single buyer" approach would, in all likelihood, limit customer choice and, perhaps, even dampen the competition that may yield cost reducing innovation. As such, we do not find that the benefits of utility ownership of electric vehicle service equipment outweigh the potential for competitive limitations resulting from utility ownership.[6]

Thus, the Commission has recently recognized that utility offerings can and should be limited, so that the negative impact on competitive markets is minimized.

Q: PG&E suggests that voluntary green rates are commonplace, citing a National Renewable Energy Laboratory ("NREL") report that says that more than half of the U.S. electricity consumers have an option to purchase some type of green power

[5] D.12-04-045, p. 16.
[6] D.11-07-029, p. 49.

product directly from a retail electricity provider.[7] **Does this total include both utility and competitive market retail customers?**

A: Yes. However, NREL clearly distinguishes between utility retail sales, competitive market retail sales, and total retail sales in its report.[8] NREL notes that "more than a dozen states that have opened their markets to retail competition have experienced some green power marketing activity."[9]

Q: PG&E states that NREL estimates utility voluntary green pricing program sales totaled 5.4 million MWh in 2010, a 5% increase from 2009. How does this compare with NREL's estimated green pricing program voluntary sales for <u>competitive markets</u>?

A: PG&E's note regarding utility program voluntary sales does not tell the full story. The NREL report cited by PG&E estimated that total competitive market green pricing program voluntary sales were 10.4 million MWh in 2010, a 25% increase from 2009 and nearly twice the total voluntary utility sales.[10] Furthermore, the annual increase in competitive sales on a percentage basis has been consistently much larger than that of utility sales.[11] NREL further acknowledges that its 2010 competitive market estimates may even be low due to potentially underestimated sales in Texas, a competitive market.[12] The 9,400 MW capacity equivalent of 2010 green power market voluntary

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[7] PG&E Testimony, pp. 1-2 - 1-3.
[8] NREL. *Status and Trends in U.S. Compliance and Voluntary Renewable Energy Certificate Markets*. NREL/TP-6A20-52925. October 2011. pp. 1-2. (NREL REC Markets Report)
[9] NREL REC Markets Report, p. 2.
[10] NREL REC Markets Report, p. 21.
[11] NREL REC Markets Report, p. 21.
[12] NREL REC Markets Report, pp. 21 and 23.

sales for competitive markets and unbundled RECs simply dwarfs the utility program capacity equivalent of 1,700 MW.[13]

Q: What do you conclude from this data?

A: While utility green pricing programs may be widely available, it is far more commonplace for customers to participate in competitive market green pricing programs. If the reasonableness of PG&E's Green Tariff Option is predicated on it being commonplace in the market, it would be far more reasonable to ensure that green pricing programs are made available through competitive providers and not dominated by the regulated utility.

Q: Do competitive providers in California already offer green pricing programs?

A: Yes. For example, 3 Phases Renewables offers direct access service with a variety of energy mixes up to 100% renewable energy.[14] Constellation, Direct Energy and Noble Americas Energy Solutions all offer a green product based on certified RECs. [15]

Q: PG&E points to the Sacramento Utility District, Silicon Valley Power, and the City of Palo Alto as examples of neighboring utilities with green pricing programs.[16] Are these comparisons germane?

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[13] NREL REC Markets Report, p. 25.

[14] See 3 Phases Renewables website (accessed on October 16, 2012): http://www.3phasesrenewables.com/services_da.htm

[15] See websites accessed on October 17, 2012):
http://www.constellation.com/business-energy/renewable-energy/pages/recs.aspx
http://noblesolutions.com/products-and-services/commodity-products/green-energy/index.html
http://business.directenergy.com/large-business/energy-products-and-services/electricity-products

A: They are certainly germane to the extent they provide comparative pricing points against which to compare a rate regulated program for a CPUC jurisdictional company. However, the fact that they offer such programs is not particularly relevant or necessarily supportive of PG&E's application because the regulatory framework within which these publicly-owned utilities operate is completely different than the CPUC regulatory framework, where statute and policy have established competitive retail markets.

Q: Doesn't the capped DA market thwart customers who might want to purchase Green-e RECs with their power?

A: The capped DA market does indeed make it more difficult for customers to select innovative power products such as having RECs bundled with their power purchases. However, with respect to providing Green-e certified RECs, there is no statutory limitation that prohibits any customers from purchasing them through other channels. The NREL report cited by PG&E specifically states that "[r]egardless of whether customers have access to a green power product from their retail power provider, they can purchase green power through unbundled RECs. More than 25 companies offer unbundled RECs to retail customers via the Internet, and a number of other companies market RECs solely to commercial and wholesale customers."[17]

Q: Is it common for customers to purchase Green-e RECs in such a manner?

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[16] PG&E Testimony, p.1-3, 1-4 and 2-22.
[17] NREL REC Markets Report, p. 2.

A: According to NREL, unbundled REC voluntary sales totaled 19.8 million MWh in 2010, or more than half of the total voluntary retail sales estimated by NREL for 2010.[18] Unbundled REC voluntary sales were strong in previous years as well, totaling more than 10 million MWh in each year from 2007-2010.[19]

Q: Do these unbundled REC providers offer products in California?

A: Yes. For example, 3 Phases Renewables, 3Degrees, TerraPass, Constellation, Direct Energy and Noble Americas Energy Solutions, among others, sell unbundled RECs in California.[20]

Q: What is the likely result of the Commission's approval of PG&E's Green Option?

A: PG&E's Green Option is just the latest example of a utility foray into a realm where competitive offerings exist – and where its provision of service through a rate regulated tariff will potentially chill competitive offerings. To allow PG&E to offer the Green Option – a rate regulated service offering that will trade on its incumbent utility status and name recognition – will hamper the competitive market for these services, potentially increasing costs to the customers who want this service. These are the very same concerns the Commission voiced in establishing its affiliate rules in 1997 and requiring that utility affiliates offer competitive product offerings.

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[18] NREL REC Markets Report, p. 21.
[19] NREL REC Markets Report, p. 21.
[20] See citations in footnote 15 and the following (accessed on October 16, 2012):
http://www.3phasesrenewables.com/services_rec.htm
http://www.3degreesinc.com/products/recs/USgreenpowerRECs
http://www.terrapass.com/businesses/recs/

Q: How else will PG&E's Green Option be anti-competitive?

A: PG&E's Application demonstrates the advantage that its status as a regulated utility provides. PG&E clearly plans to leverage regulated utility assets, such as its web site, call center, and marketing and billing infrastructure, to provide this competitive service.[21] Without the billing system, built and maintained with regulated ratepayer money, there would be no bills into which PG&E could cheaply insert Green Option flyers. Without an existing ratepayer-funded call center, PG&E could not simply allocate a fraction of a full-time equivalent worker to answer the (ratepayer-paid for) telephone to respond to questions concerning the Green Option rate. Without an extensive ratepayer-funded billing and collection system, PG&E could not simply add a line to an existing customer bill for the Green Option. Last but not least, without the brand recognition of "PG&E," significantly more advertising would have to be performed to not only inform customers of what is being offered, but who is offering it.

Q: What is your recommendation regarding PG&E's proposed Green Option?

A: The Commission should reinforce its commitment to competition and to the affiliate rules by denying PG&E's application and restating that services (such as this) that are available in the competitive marketplace should not be provided by a regulated utility. If PG&E would like to provide this sort of voluntary competitive product, it should comply with the affiliate rules and form a competitive market affiliate for that purpose. Until the retail market is fully reopened and all customers have the ability to choose the products and services they want, the utility provision of such competitive services should be

[21] PG&E Testimony, pp. 2-17 – 2-18.

limited and should only be offered through a competitive affiliate that participates in those service offerings on the same basis as any other competitive supplier.

3. If the Commission does not reject the Application, it must ensure that all program costs are collected solely within the Green Option tariff component

Q: How has PG&E proposed to ensure that both costs and activities associated with its proposed Green Option are not subsidized by non-participating ratepayers?

A: PG&E has stated that it will track "the incremental costs for all activities associated with the Green Option, including but not limited to the costs and activities associated with the use of PG&E's website platforms, use of PG&E customer service resources, and PG&E's proposed modifications to its internal billing system" in its Green Option Memorandum Account (GOMA).[22]

Q: Does PG&E provide more details on these costs?

A: To some extent, yes. First, PG&E shows historical voluntary REC prices for different locations and technologies and notes that its expected RECs would range from about $2 to $10 per megawatt-hour (0.2-1.0¢/kWh).[23] Second, PG&E's testimony also provides estimates of its internal administrative and marketing costs for the first five years of the program. The largest internal startup cost is $943,000 for "IT/Billing enhancements," while the largest ongoing cost is for program management and internal marketing (up to

[22] PG&E response to CCSF DR-01 Q22.
[23] PG&E Testimony, p. 2-15.

$238,703 per year, occurring in Year 3.)[24] The total internal startup cost is estimated to be $1.19 million, with a total five-year internal administration cost of $2.47 million.[25]

Q: What does PG&E identify as the costs driver for the marketing services?

A: PG&E says that "…the cost of RECs and marketing services are directly variable with enrollment. When enrollment is low, these costs are low. When enrollment is higher, these costs are higher."[26] While it is clear why the costs of RECs would be a function of the number of RECs acquired (and their per-unit cost), it is not so clear why the marketing costs would be a function of enrollment. It is likely more accurate to say that enrollment would likely be roughly proportional to marketing expenditures, not the other way around.

Q: What protocols should be in place to ensure that PG&E's internal costs are properly accounted for in the GOMA?

A: First, appropriate labor codes must be in place for Management and IT employees to charge their time against while performing activities related to the Green Option program, as well as protocols for these employees to follow to ensure that all appropriate time is correctly billed. Second, the time billed must be multiplied by <u>fully loaded</u> labor rates, which must include adders for pensions and benefits and <u>all</u> overhead and management costs.

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[24] PG&E Testimony, p. 2-20.
[25] Calculated from PG&E Testimony, page 2-22, Table 2-2.
[26] PG&E Testimony, p. 2-21.

Additional safeguards should be in place with respect to the customer service representatives ("CSRs") handling calls related to the program to ensure that their activities are not subsidized. Specifically, PG&E should develop a protocol that would specify when a CSR would charge his or her time on a call to this program. Such a protocol was developed in the DA/CCA Service Fee Settlement.[27] In that proceeding, the issue was identifying which specific CSR activities should be charged against specific CCA and DA service fees and which should be charged against accounts collected through the general distribution revenue requirement. The negotiated solution was a set of "Timekeeping Guidelines" that "PG&E employees engaged in the provision of services for which DA and CCA service fees are charged shall record their incremental time associated with the ongoing and regular provision of such services in a separate tracking account."[28]

A parallel CSR protocol document for the Green Option tariff should be presented in testimony in this proceeding or via a Tier 3 (effective after Commission approval) advice letter before the program is allowed to proceed. This would provide interested parties the opportunity to evaluate and challenge (if necessary) the protocols before they are afforded explicit Commission approval.

Q: How does PG&E plan on ensuring that it does not target its Green Option marketing to existing CCA and DA customers?

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[27] A.11-12-009, Motion Of Pacific Gas And Electric Company, Alliance For Retail Energy Markets, California Large Energy Consumers Association, Direct Access Customer Coalition, And Marin Energy Authority For Adoption Of Settlement Agreement, July 31, 2012. Attachment 1, p. 8.
[28] Ibid.

A: It has no such plans. When asked in discovery to describe the procedures and controls it will use, it responded that it "will implement procedures and controls" without providing any description of what those might look like.[29] The Commission should require clearly articulated and intervenor-reviewed plans to address how (or even if) PG&E may market this program to existing DA and CCA customers.

Q: Even if these protocols are strictly followed, do you have any concerns?

Yes. As noted above, PG&E's incremental costs of the program are built upon the backbone of its existing systems, which have been paid for by all ratepayers. Without bills in which to place inserts, without an existing website, without an existing call center, without existing customer relationships and brand recognition—assets that competitive providers do not necessarily enjoy, the program could not likely move forward on the proposed budget. The only fair way to account for the true cost of developing this product is to allocate a fixed portion of these structural systems to this product and then track and charge directly the added incremental cost. Simply tracking the incremental costs in a memorandum account is not an adequate means of fully capturing ratepayer subsidies to this program.

Q: Has PG&E provided any cost guarantees for its Green Option program?

A: Yes. In the testimony that accompanied the Application, PG&E provides an overview of the typical pricing for Green-e RECs. The testimony states a potential for California

[29] PG&E response to CCSF DR-01 Q23 and Q24.

Green-e RECs to be as high as $10/MWh.[30] PG&E states that it will not charge customers more than $20/MWh for its product, and that any costs above this would be paid for by PG&E shareholders.[31] However, even at its high REC price estimate, this retail ceiling price allows for a management, marketing and overhead charge of 100% on top of the estimated REC cost. Given the wide margin that PG&E proposes to give itself between its Green-e REC cost and the price it may charge, the likelihood that there would ever be any shareholder burden as a result of the program seems minimal.[32]

Such a wide gap between the estimated underlying cost of the product and the price that can be charged seems to beg for some sort of competitive test to ensure that PG&E is not using its regulated utility assets to undercut and undermine the competitive market for such offerings.

Q: How do you recommend the Commission address these issues?

A: Requiring PG&E to form a competitive affiliate to sell Green-e RECs to customers, as recommended earlier, is the best way to ensure that the costs of the program will be paid for by customers who desire the service, and will not be subsidized by customers who do not want the service or choose to purchase the service from someone else. In the event the Commission allows the program to move forward, then it must make sure that all protocols are in place to ensure that there is no element of cross subsidy, that non-participating customers bear no share whatsoever of the program's associated costs, and that regulated utility assets are not being used to undermine the competitive market.

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[30] PG&E Testimony, p. 2-15.

[31] PG&E Testimony, p. 2-22, 3-2.

[32] AReM acknowledges that REC costs could go higher than $10/MWh, but believes that PG&E can address such a possibility through appropriate hedging strategies.

Q: Does this conclude your testimony?

A: Yes.

Table of Attachments

Attachment A - Resume of Mark. E. Fulmer

MARK E. FULMER

PROFESSIONAL EXPERIENCE

Principal
MRW & Associates, LLC
(1999 - Present)
Conducts economic and technical studies in support of clients involved in regulatory and legislative proceedings, power project development and end-user energy option assessment. Work includes review of air emissions regulations and their impact on power costs; pro forma analysis of cogeneration and distributed generation facilities; economic analysis of end-use energy-efficiency projects.

Project Engineer
Daniel, Mann, Johnson & Mendenhall
(1996 - 1999)
Acted as project manager and technical advisor on energy efficiency projects. Work included management of PG&E program to promote innovative energy efficient technologies for large electricity users. Coordinated the implementation of an intranet-based energy efficiency library. Directed technical and market analyses of small commercial and residential emerging technologies.

Associate
Tellus Institute
(1990-1996)
Advised public utility commissions in five states on electric and gas industry deregulation issues. Submitted testimony on the rate design of a natural gas utility to the Pennsylvania Public Utilities Commission. Testified before the Hawaii PUC on behalf of a gas distribution utility concerning a competing electric utility's demand-side management plan. Analyzed national energy policies for a set of non-governmental agencies, including critiquing the DOE's national energy forecasting model. Developed model to track transportation energy use and emissions and used the model to evaluate state-level transportation policies. Developed model to track greenhouse gas emission reductions resulting from state-level carbon taxes.

Research Assistant
Center for Energy and Environmental Studies, Princeton University
(1988-1990)
Researched the technical and economic viability of gas turbine cogeneration using biomass in the cane sugar and alcohol industries. First researcher to apply "pinch" analysis and a mixed-integer linear programming model to minimize energy use in cane sugar refineries and alcohol distilleries.

EDUCATION M.S.E., Mechanical and Aerospace Engineering, Princeton University, 1991
B.S., Mechanical Engineering, University of California, Irvine, 1986

Selected Publications

1. A Technical and Economic Assessment of the Co-Production of Electricity and Alcohol From Sugar Cane. Presented at the *International Engineering Conference on Energy Conversion (IECEC-90)*. American Institute of Chemical Engineers. New York, NY. August 1990. Principal author and presenter.

2. Cogeneration Applications of Biomass Gasifier/Gas Turbine Technologies in the Cane Sugar and Alcohol Industries. Proceedings, *Energy and Environment in the 21st Century*, MIT Press. Cambridge, Massachusetts. 1991. Co-author.

3. The Environmental Impacts of Demand-Side Management. Electric Power Research Institute report TR-101673. 1992. Co-author.

4. The Role of Gas Heat Pumps in Electric DSM. Presented at the 6th National Demand-Side Management Conference. Miami Beach, Florida. March 1993. Principal author and presenter.

5. Applying an Integrated Energy/Environmental Framework to the Analysis of Alternative Transportation Fuels. Invited paper at the European Council for an Energy Efficient Economy (ECEEE) 1993 Summer Study. Principal author.

6. Mistakes, Misconceptions, and Misnomers in DSM Cost-Effectiveness Analysis. Peer reviewed paper at the ACEEE 1994 Summer Study. Principal author and presenter.

7. A Social Cost Analysis of Alternative Fuels for Light Vehicles. *Energy Strategies for a Sustainable Transportation System*, ACEEE. Washington, DC. 1995.

8. Strategies for Reducing Energy Consumption in the Texas Transportation Sector. Project for the Texas Sustainable Energy Development Council. Austin, Texas. June 1995. Co-author.

9. Evaluation of Food Processing Effluent Treatment Alternatives. Paper presented at the American Chemical Society meeting, Las Vegas, Nevada. December 1997. Co-Author.

10. Market Transformation Effect Indicators for Government, Utilities, Retailers and Manufacturers. Invited panelist in a roundtable discussion at the American Council for an Energy Efficient Economy (ACEEE) 1998 Summer Study.

11. California: Crisis Over? Project Finance NewsWire, Chadbourne & Parke. October 2001. Co-author.

12. California: Back to Basics or Déjà Vu? Natural Gas & Electricity, Volume 20, Number 12. July 2004. Co-author.

13. Nuclear Fuel Reprocessing: Issues and Future Prospects. Report for the California Energy Commission. (Final Draft). March 2006. Co-author.

14. AB 1632 Assessment of California's Operating Nuclear Plants. California Energy Commission, CEC-100-2008-005-F. October 2008. Co-author.

15. Framework for Evaluating Greenhouse Gas Implications of Natural Gas-fired Power Plants in California. California Energy Commission, CEC-700-2009-009-F. May 2009. Co-author.

Prepared Testimony

1. Rhode Island Public Utilities Commission No. 2025
   Prepared Testimony on Behalf of Rhode Island Department of Public Utilities and Carriers (Commission Staff). Testimony addressed the costs, savings, and cost-effectiveness of the proposed demand-side management programs of Providence Gas Company. April 1993.

2. Pennsylvania Public Utility Commission R-943029
   Prepared Testimony on Behalf of the Pennsylvania Office of Consumer Advocate. Testimony reviewed 1307(f) filing of Columbia Gas of Pennsylvania, particularly the impact of the proposed gas cost recovery mechanism on residential customers. May 1994.

3. Public Utilities Commission of the State of Hawaii No. 94-0206
   Prepared Testimony on Behalf of the Gas Company of Hawaii (Gasco). Testimony identification of Gasco's concerns regarding HECO's proposed DSM programs for competitive energy end-use markets. December 1994.

4. FERC Docket Nos. EL00-95-075 and EL00-98-063
   Affidavit on Behalf of Duke Energy Trading and Marketing LLC. March 20, 2003.

5. CPUC Rulemaking 01-10-024 Prepared
   Testimony on Behalf of the Alliance for Retail Energy Markets. Testimony addressed the utility procurement plans with respect to resource adequacy. June 23, 2003.

6. CPUC Rulemaking 01-10-024
   Rebuttal Testimony on Behalf of the Alliance for Retail Energy Markets. July 14, 2003.

7. Arizona Corporation Commission No. E-00000A-02-0051, E-01345A-01-0822, E-00000A-01-0630. E01933A-02-0069, E-01933A-98-0471
   Rebuttal Testimony on Behalf of Constellation NewEnergy, Inc. and Strategic Energy, L.L.C. Testimony addressed the future of the Arizona Independent System Administrator. July 28, 2003.

8. Arizona Corporation Commission No. E-00000A-02-0051
Reply Testimony on Behalf of Constellation NewEnergy, Inc. and Strategic Energy L.L.C. August 29, 2003.

9. Arizona Corporation Commission No. E-01345A-03-0437
Direct Testimony on Behalf of Constellation NewEnergy and Strategic Energy, Inc. February 3, 2004.

10. Arizona Corporation Commission No. E-01345A-03-0437
Cross Rebuttal Testimony of Mark E. Fulmer on Behalf of Constellation NewEnergy and Strategic Energy, Inc. March 30, 2004.

11. CPUC Rulemaking 03-10-003
Direct Testimony of Mark E. Fulmer on Behalf of The City and County of San Francisco on Community Choice Aggregation Transaction Costs. April 15, 2004.

12. CPUC Rulemaking 03-10-003
Reply Testimony of Mark E. Fulmer on Behalf of The City and County of San Francisco on Cost Responsibility Surcharge for Community Choice Aggregation. May 7, 2004.

13. CPUC Rulemaking 03-10-003
Rebuttal Testimony of Mark E. Fulmer on Behalf of The City and County of San Francisco on Cost Responsibility Surcharge for Community Choice Aggregation. May 20, 2004.

14. CPUC Rulemaking 04-04-003
Testimony of Mark Fulmer on Behalf of Strategic Energy LLC and Constellation NewEnergy concerning the Long Term Procurement Plans of PG&E, SCE and SDG&E. August 6, 2004.

15. CPUC Rulemaking 04-04-003
Rebuttal Testimony of Mark Fulmer on Behalf of Strategic Energy LLC and Constellation NewEnergy concerning the Long Term Procurement Plans of PG&E, SCE and SDG&E. August 20, 2004.

16. CPUC Rulemaking 03-10-003
Opening Testimony of Mark E. Fulmer on Behalf of the City and County of San Francisco on Allocation of Costs for Community Choice Aggregation Phase 2. April 28, 2005.

17. CPUC Rulemaking 04-12-014
Testimony of Mark E. Fulmer on Behalf of the Alliance for Retail Energy Markets Concerning Southern California Edison's Test Year 2006 General Rate Case Application. May 6, 2005.

18. CPUC Rulemaking 03-10-003
Rebuttal Testimony of Mark E. Fulmer on Behalf of the City and County of San Francisco on Allocation of Costs for Community Choice Aggregation Phase 2. May 16, 2005.

19. CPUC Rulemaking 04-12-014
Testimony of Mark E. Fulmer on Behalf of the Alliance for Retail Energy Markets Concerning Southern California Edison's Test Year 2006 General Rate Case Application. May 25, 2005.

20. CPUC Application 06-03-005
Testimony of Mark E. Fulmer on Behalf of the Direct Access Customer Coalition Concerning Phase 2 of the Pacific Gas and Electric Co. 2007 General Rate Case Marginal Cost, Revenue Allocation and Rate Design. October 27, 2006.

21. CPUC Application 07-01-045
Testimony of Mark E. Fulmer on Behalf of The Alliance for Retail Energy Markets and The California Manufacturers and Technology Association Concerning Southern California Edison's Application to Update is Direct Access and Other Service Fees. June 22, 2007.

22. CPUC Rulemaking 08-03-002
Testimony of Mark Fulmer Behalf of Debenham Energy, LLC. Concerning Tariffs Supportive of Green Distributed Generation. October 31, 2008.

23. CPUC Application 09-02-022
Testimony of Mark E. Fulmer on Behalf of The Direct Access Customer Coalition Concerning Pacific Gas & Electric's 2009 Rate Design Window Application. July 31, 2009.

24. CPUC Application 09-02-019
Testimony of Mark E. Fulmer on Behalf of the Direct Access Customer Coalition Concerning the Cost Recovery Proposed By PG&E in its Application to Implement a Photovoltaic Program. August 14, 2009.

25. Superior Court of San Francisco
Deposition of Mark E. Fulmer on Behalf of the City and County of San Francisco in PG&E v. CCSF. (Verbal deposition only.) September 2, 2009.

26. California Superior Court of San Francisco Court Case No. CGC-07-470086 Testimony of Mark E. Fulmer on Behalf of the City and County of San Francisco in Pacific Gas & Electric Company v. City and County of San Francisco. (Trial exhibits only in electronic file.) September 25, 2009.

27. CPUC Application 09-12-020
Testimony of Mark E. Fulmer on Behalf of The Direct Access Customer Coalition Concerning Phase 1 of Pacific Gas & Electric Company's Test Year 2011 General Rate Case. May 19, 2010.

28. CPUC Application 10-03-014
Testimony of Mark E. Fulmer on Behalf of the Direct Access Customer Coalition

Concerning Phase 2 of Pacific Gas & Electric's Test Year 2011 General Rate Case Application. October 6, 2010.

29. CPUC Rulemaking 07-05-025
Testimony of John P. Dalessi, Mark E. Fulmer, Margaret A. Meal on Behalf of the Joint Parties on a Fair and Reasonable Methodology to Determine the Power Charge Indifference Adjustment (PCIA) and the Competition Transition Charge (CTC). January 21, 2011.

30. CPUC Rulemaking 07-05-025
Testimony of Mark E. Fulmer on Behalf of the Direct Access Parties Concerning the Transitional Bundled Service Rate, Direct Access Switching Rules, Minimum Stay Provisions, and Energy Service Provider Financial Security Requirements. January 31, 2011.

31. CPUC Rulemaking 07-05-025
Rebuttal Testimony of Mark E. Fulmer on Behalf of The Direct Access Parties Concerning the Transitional Bundled Service Rate, Direct Access Switching Rules, Minimum Stay Provisions, and Energy Service Provider Financial Security Requirements. February 25, 2011.

32. CPUC Rulemaking 07-05-025
Rebuttal Testimony of John P. Dalessi, Mark E. Fulmer, Margaret A. Meal on Behalf of The Joint Parties on a Fair And Reasonable Methodology to Determine the Power Charge Indifference Adjustment (PCIA) and the Competition Transition Charge (CTC). February 25, 2011.

33. CPUC Rulemaking 07-05-025
Testimony of Mark E. Fulmer on Behalf of the Direct Access Parties Concerning the Transitional Bundled Service Rate, Direct Access Switching Rules, Minimum Stay Provisions, and Energy Service Provider financial Security Requirements. March 28, 2011.

34. CPUC Rulemaking 07-05-025
Reply Testimony of Mark E. Fulmer on Behalf of the Direct Access Parties Concerning the Transitional Bundled Service Rate, Direct Access Switching Rules, Minimum Stay Provisions, and Energy Service Provider financial Security Requirements. March 28, 2011.

35. CPUC Application A.11-03-001, 11-03-002, 11-03-003
Testimony of Mark E. Fulmer on Behalf of The Direct Access Customer Coalition and The Alliance for Retail Energy Markets Concerning Competitive Issues in the 2012-2014 Demand Response Program Proposals. June 15, 2011.

36. CPUC Application 11-06-004
Testimony of Mark E. Fulmer on Behalf of the Direct Access Customer Coalition and the Alliance for Retail Energy Markets concerning PG&E's 2012 Energy Resource Recovery Account (ERRA) and 2012 Generation Non-bypassable Charges Forecast. August 26, 2011.

37. CPUC Application 11-05-023
Testimony of Mark Fulmer on Behalf of the Direct Access Customer Coalition, the Alliance for Retail Energy Markets and the Western Power Trading Forum concerning the Application of San Diego Gas & Electric for Authority to Enter into Purchase power Tolling Agreements with Escondido Energy Center, Pio Pico Energy Center, and Quail Brush Power. September 22, 2011.

38. CPUC Application 11-06-007
Testimony of Mark Fulmer on Behalf of the Direct Access Customer Coalition Concerning Phase 2 of Southern California Edison's Test Year 2012 General Rate Case Application. February 6, 2012.

39. CPUC Application 11-12-009
Testimony of Mark E. Fulmer on Behalf of the Direct Access Customer Coalition, the Alliance for Retails Energy Markets and the City and County of San Francisco Concerning Pacific gas & Electric Company's Application to Revise Direct Access and Community choice Aggregation Service Fees. May 14, 2012.

40. CPUC Rulemaking 12-03-014
Testimony on Behalf of the Alliance for Retail Markets, Direct Access Customer Coalition, and Marin Energy Authority. With Sue Mara. June 25, 2012.

41. CPUC Rulemaking 12-03-014
Reply Testimony on Behalf of the Alliance for Retail Energy Markets, Direct Access Customer Coalition, and Marin Energy Authority. With Sue Mara. July 23, 2012.

Attachment B – PG&E Responses to Selected Questions from CCSF DR-01

PACIFIC GAS AND ELECTRIC COMPANY
Green Option Program
Application 12-04-020
Data Response

PG&E Data Request No.:	CCSF_001-22		
PG&E File Name:	GreenOptionProgram_DR_CCSF_001-Q22		
Request Date:	July 20, 2012	Requester DR No.:	001
Date Sent:	July 30, 2012	Requesting Party:	City and County of San Francisco
PG&E Witness:	Molly Hoyt	Requester:	Margarita Gutierrez

QUESTION 22

Referencing Application p. 3, Testimony p. 2-10, 14-27, please describe the mechanisms that PG&E proposes to implement to ensure that both costs and activities associated with the Green Tariff Option are not subsidized by non-participant ratepayers, including but not limited to, for example, the costs and activities associated with use of PG&E's website platforms, use of PG&E customer service resources, and PG&E's proposed modifications to its internal billing system (activities referenced at Testimony p. 2-16, 27-30; p. 2-17; 2-18 1-18).

ANSWER 22

As described in Testimony p. 3-2, PG&E proposes to establish the Green Option Memorandum Account (GOMA) to track and record the actual costs and revenues associated with the Green Option program. As such, the incremental costs for all activities associated with the Green Option, including but not limited to the costs and activities associated with use of PG&E's website platforms, use of PG&E customer service resources, and PG&E's proposed modifications to its internal billing system will be tracked in the GOMA by means of an appropriate order number or numbers.

PACIFIC GAS AND ELECTRIC COMPANY
Green Option Program
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Data Response

PG&E Data Request No.:	CCSF_001-23		
PG&E File Name:	GreenOptionProgram_DR_CCSF_001-Q23		
Request Date:	July 20, 2012	Requester DR No.:	001
Date Sent:	July 30, 2012	Requesting Party:	City and County of San Francisco
PG&E Witness:	Molly Hoyt	Requester:	Margarita Gutierrez

QUESTION 23

Referencing Testimony p. 2-10, 28-31, p. 2-11, 1-5, please describe procedures and controls that PG&E proposes to implement to ensure that PG&E does not use the described “targeted enrollment tactics” to target marketing its program to ESP and CCA customers, or to otherwise obtain an unfair advantage in attracting PG&E’s bundled customers that are eligible for service from ESP and CCA providers to this program.

ANSWER 23

PG&E will implement procedures and controls to ensure that it does not target its Green Option marketing to existing CCA and DA customers, as they would be ineligible for the proposed Green Option. PG&E will also comply with all CPUC and other legal requirements regarding marketing and outreach to CCA and DA customers generally.

PACIFIC GAS AND ELECTRIC COMPANY
Green Option Program
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PG&E Data Request No.:	CCSF_001-24		
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Request Date:	July 20, 2012	Requester DR No.:	001
Date Sent:	July 30, 2012	Requesting Party:	City and County of San Francisco
PG&E Witness:	Molly Hoyt	Requester:	Margarita Gutierrez

QUESTION 24

Referencing Testimony p. 2-10, 28-31, p. 2-11, 1-5, please describe procedures and controls that PG&E proposes to implement to ensure that PG&E does not use PG&E's access to customer data and billing information to target marketing its program to ESP and CCA customers, or to otherwise obtain an unfair advantage in attracting its bundled customers to this program.

ANSWER 24

Please see the answer to Question 23.