

SB 695 Report
To California Public Utility Commission (CPUC) *Energy Division*
San Diego Gas and Electric Company
2016

Part II: Section 913.1(b) Utility Study and Report

San Diego Gas & Electric Company (SDG&E) appreciates the opportunity to provide input to the California Public Utilities Commission (“CPUC” or “Commission”) in response to Senate Bill (SB) 695-enacted changes to Public Utilities Code (PUC) Section 913.1. This report addresses PUC Section 913.1(b). SDG&E’s response addressing PUC Section 913.1(a), which provided data related to both gas and electric revenue requirements, was submitted separately.

SDG&E’s objective in this response is to provide information that the CPUC may find useful as it prepares its annual report for the Governor and Legislature. Accordingly, SDG&E’s report provides data related to both gas and electric revenue requirements and rates. With respect to overall presentation, SDG&E’s report is structured as per the Energy Division’s request under the following headings:

- Overall Rate Policy
- Management Control of Rate Components
- Utility Policies and Recommendations for Limiting Costs and Rate Increases While Meeting State’s Energy and Environment Goals for Reducing Greenhouse Gases.

1. Recommendations to the CPUC and Legislature

A. Opening Comments

California is the most populous state in the nation and the 8th largest economy¹ in the world. California continues to be a leader in shaping national energy policy, in particular with its adoption of a set of comprehensive policies and initiatives aimed at significantly reducing Greenhouse Gases (GHG). The achievement of these goals has not

¹ <http://www.lao.ca.gov/Publications/Detail/3154>

been blind to the potential rate and cost shift implications that these programs would have for electric utility customers. For instance, Renewables Portfolio Standards (“RPS”) goals of 33% by 2020 include a cost limitation provision “...set at a level that prevents disproportionate rate impacts.”² Assembly Bill (AB) 327 requires that Net Energy Metering (NEM) moves forward in a manner that (i) is “based on the costs and benefits of the renewable electrical generation facility;”³ (ii) ensures “total benefits of the standard contract or tariff to all customers and the electrical system are approximately equal to total costs;”⁴ and (iii) ensures “sustainable growth.”⁵

Achieving these goals in a sustainable manner will require rates that reflect accurate prices and transparent incentives. A recent Rocky Mountain Institute (RMI) report, *Net Energy Metering, Zero Net Energy and the Distributed Energy Resource Future* (Report), observes that “California’s electricity system stands at the forefront of changes that are transforming the electricity industry globally. These changes include integration of increasing amounts of renewable electricity supplies, creation and execution of programs to improve customers’ energy efficiency, and implementation of new smart grid technologies for better coordination, control, and communication in managing the electricity grid.”⁶ Indeed, there is consensus that the utility power grid “is evolving from a one-way centralized power delivery system to a more open, flexible, multipoint digitized network (or platform) with a collection of technologies and assets, some controlled by the utility and some not.”⁷ This concept of the grid as a “plug-and-play platform” for integration of new services and technologies is relatively recent, but it is undeniably the shape of things to come. The Report points out that the transformed role of the consumer – from passive recipient of service to an active participant in an interconnected grid – brings a new dimension to the electric utility business environment. It notes that “the electricity system of the future is likely to encompass an increasingly diverse and interconnected set of actors,

² California Public Utilities Code Section 399.15 (d)(1).

³ PUC Section 2827.1(b)(3).

⁴ PUC Section 2827.1(b)(4).

⁵ PUC Section 2827.1(b)(1).

⁶ Rocky Mountain Institute (“RMI”), *Net Energy Metering, Net Zero Energy and the Distributed Energy Resource Future*, p. 2. Available at: http://www.rmi.org/rmi_pge_adapting_utility_business_models.

⁷ The Edison Foundation Institute for Electric Innovation, *Innovations Across the Grid*, Vol.2, December, 2014, p. 3.

Available at: http://www.edisonfoundation.net/iei/Documents/IEI_InnovationsGrid_volII_final_LowRes.pdf

with widely varying assets, behaviors, and motivations.”⁸ The Report observes further that “the effectiveness of a utility’s role in conducting the orchestra of distributed energy resources that interact with its system will be a critical factor in achieving favorable outcomes for all stakeholders. *And the long-term health and stability of the electricity grid will be essential to making such a system work.* (emphasis added)”⁹ In other words, significant investment in upgrading the grid will be necessary in order to successfully manage the evolution of the electric grid to a “grid of things” that seamlessly integrates new energy resources and technologies.

Given the future challenges and opportunities faced by California investor-owned utilities (IOUs), some of which are described herein, the importance of establishing the “right” rate design now cannot be overstated. There will be more change within the electric industry in the next ten years than in the past 100 years – California must anticipate and prepare for this change and implement a well-conceived rate design that furthers rather than impedes advancement. It is critical that as the State moves forward into the next decade, its rate design policies be carefully crafted to maintain the current momentum toward realization of a sustainable energy future that incorporates increasing amounts of distributed energy resources (DERs) through reliance on an advanced electric grid, while minimizing cost impacts on utility customers.

SDG&E has fully embraced the State’s vision of increased DER integration. For example, as of the end of 2015, SDG&E had approximately 500 MW of customer sited solar and wind generation from nearly 75,000 customers. SDG&E customers have adopted over 19,000 electric vehicles within its service territory, and has recently received a final decision in its Vehicle Grid Integration (VGI) Pilot application, where the role rate design plays in promoting grid integration was recognized.¹⁰ In addition, the procurement plan set forth in Decision (D.) 13-10-040 in Rulemaking 10-12-007 *Order Instituting Rulemaking Pursuant to Assembly Bill 2514 to Consider the Adoption of Procurement Targets for Viable and Cost-Effective Energy Storage Systems* contemplates that SDG&E will have 165 MW of energy storage by 2020. Given this rapid progress toward significant increases in

⁸ Rocky Mountain Institute (“RMI”), Net Energy Metering, Net Zero Energy and the Distributed Energy Resource Future, p. 2. Available at: http://www.rmi.org/rmi_pge_adapting_utility_business_models.

⁹ *Ibid.*

¹⁰ CONFIRM CITE D.16-01-045, issued January 28, 2016 (Application 14-04-014).

DER now and continuing into the future, SDG&E submits that movement toward a more forward-thinking rate design, with more cost-based rates that provide customers with accurate price signals, is critical.

As we evolve from a world where all customers receive “full service” from the utility, to one in which there is an abundance of choices available to customers for the various elements of service previously solely provided by the utility (i.e., rooftop solar for a portion of their energy needs, batteries for “banking”), the need for accurate price signals that truly reflect the cost of the variety of services provided is critical. Achieving the State’s energy policy goals in a sustainable manner requires growth not be dependent upon flawed rate design which creates cost shifts and results in indirect and at times unintended subsidies. RMI’s report, *Net Energy Metering, Net Zero Energy and the Distributed Energy Resource Future*, identifies the critical role that unbundling of rate design will play in achieving a 21st century utility business model. A rate structure that ensures that the prices customers see accurately reflect the cost of services provided, will “unleash new investments and innovations in DERs,” and will help to ensure that deployment of DER resources occurs in a manner that benefits the system as a whole.^{16/} Current rate design is only part of the way there. It is only with this kind of rate design can we also meet all ten of the Commission’s rate design principles. A rate structure that is cost-based and has transparency on the services customers are paying for is critical to provide customers with the ability to tie the prices customers see to the services they receive. Accurate prices are necessary for customers to understand the costs of a lower carbon energy supply and for economically efficient decision-making. Such rate design changes will limit cost shifts to other customers and ensure that the benefits from incentives are maximized.

Ratemaking is complex. There’s no question about that. This makes the partnership with innovative and effective customer education, and simple bill presentations critical to ensure that customers understand the price signals provided. For instance, many residential solar customers believe that the installation of solar on their roofs means they are completely disconnected from the grid, failing to recognize the reliability, standby, and energy bank services that continue to be provided by the utility grid to ensure that their lights still come on when the sun is no longer shining.

Only with the combination of cost-based rates, transparency, effective customer education and bills can SDG&E be an effective platform for ensuring customers have full access to competitive customer choices in a manner that is economically efficient and beneficial to all customers.

B. Overall Rate Policy

In October 2013, AB 327 was signed into law. AB 327 provided among other things (1) removal of constraints to rate design previously legislated by AB 1X and SB 695 to allow changes to residential rate structures, and (2) legislative requirements for the NEM successor tariff. Since the signing of AB 327 progress has been made to move towards rates that better reflect the cost of services provided but there continues to be work needed.

In the Residential Rates Order Instituting Rulemaking (RROIR), R.12-06-013, the Commission adopted the following ten Rate Design Principles (RDP) for rate design. While the RROIR was limited to residential rate design, SDG&E believes these principles should guide the rate design for all customers. Table 1 below presents the RDPs in the four categories consistent with D.15-07-001: cost of service, affordable electricity, conservation and customer acceptance.

Table 1: Rate Design Principles

Cost Of Service RDP	Affordable Electricity RDP	Conservation RDP	Customer Acceptance RDP
(2) Rates should be based on marginal cost; (3) Rates should be based on cost-causation principles; (7) Rates should generally avoid cross-subsidies, unless the cross-subsidies appropriately support explicit state policy goals; (8) Incentives should be explicit and transparent; (9) Rates should encourage economically efficient decision-making.	(1) Low-income and medical baseline customers should have access to enough electricity to ensure basic needs (such as health and comfort) are met at an affordable cost.	(4) Rates should encourage conservation and energy efficiency; (5) Rates should encourage reduction of both coincident and non-coincident peak demand.	(6) Rates should be stable and understandable and provide customer choice; (10) Transitions to new rate structures should emphasize customer education and outreach that enhances customer understanding and acceptance of new rates, and minimizes and appropriately considers the bill impacts associated with such transitions.

While there may appear to be tension between the individual RDP when examined individually, as stated in the RROIR, SDG&E believes that all of the ten RDP can be met with a rate design that meets the following guidance:

- Utilities charge for the services they provide;
- Rates are designed to recover costs on the same basis as they are incurred; and,
- Incentives or subsidies that have been deemed necessary to further public policy objectives are separately and transparently identified.¹¹

When rates are designed such that (1) utilities charge for the services they provide; (2) rates recover costs on the same basis as they are incurred; and (3) incentives or subsidies that have been deemed necessary to further public policy objectives are separately and transparently identified, rather than buried in rate design, then the Cost of Service Rate Design Principles (RDP 2, 3, 7, 8, 9) will be satisfied. Only when incentives are explicit and transparent can we simultaneously encourage conservation and energy efficiency (RDP 4), encourage reductions in both coincident and non-coincident peak demand (RDP 5), and maintain affordability (RDP 1) for all customers. When all customers see the correct price signals to ensure economically-efficient decision making by all (RDP 9), then customers receive bill benefits for behavior that lowers the cost of service for all customers rather than for behavior that increases cost shifts to other customers.

Ensuring that these changes are partnered with outreach and education is necessary to ensure that the Customer Acceptance RDPs are satisfied.

The Commission approved in RROIR among other things (1) the glidepath for tier consolidation to a two-tiered rate with a tier differential of 25% by 2019¹²; (2) the glidepath for the average CARE effective to reach legislative compliance levels of 35% in 2020 which included the restructuring of the CARE discount to move the rate subsidies into a single line item discount for greater transparency; and (3) default TOU for residential should begin in 2019.¹³ Optional TOU pilots for residential customers are currently pending before the Commission and anticipated to start June 2016. The default of

¹¹ R.12-06-013, Prepared Rebuttal Testimony of Caroline A. Winn (Chapter 1), p. CAW-3.

¹² This includes the introduction of a Super-User Electric (SUE) Surcharge for usage above 400% of baseline in 2017.

¹³ Page 172. This is conditional upon the findings required by Section 745 (d).

residential customers to TOU rates in 2019 is to be addressed in residential rate design window applications to be filed no later than January 1, 2018 (2018 Residential RDW) with the goal of review and approval no later than December 1, 2018.¹⁴ The IOU's 2018 Residential RDW is also to address fixed charges for residential customers no sooner than 2020,¹⁵ contingent upon the development of consistency in fixed charge calculation methodologies across the IOUs prior to the 2018 Residential RDWs.

SDG&E further explained its guiding principles in the NEM 2.0 Successor Tariff proceeding (R.14-07-002):

1. Fairness: Cost-based/transparent/reduce cross-subsidies.
2. Grid Enhancing: Rate Structure optimizes grid benefits.
3. Choice: Provides customers options.
4. Policy Goals: Aligns with State's goals and supports continued growth of DER adoption.¹⁶

The Commission in NEM 2.0 maintained the basic features of the current NEM program, making only minimal changes, and identifies 2019 as the appropriate time to review the NEM successor tariff.

While RROIR focused on the rate design for residential customers, in NEM 2.0, the emphasis included considerations for sustainable DER growth. However, the rate design needed to meet those objectives follows the same guidance as is needed to meet the policy objectives in RROIR – both require a rate design that reflects accurate prices and, where incentives are needed, they are direct and transparent. Only with a rate design that reflects accurate prices and direct, transparent incentives can there be a path for sustainable growth for all DER technologies in a manner that minimizes cost shifts to non-participating customers. A rate design that reflects accurate prices and transparent incentives is necessary to provide a platform for utility customers to make economically efficient decisions in their investments in energy resources; that is, choices for investments in energy efficiency (“EE”), demand response (“DR”), and DER are done so with proper information (i.e., based on accurate price signals).

¹⁴ Page 173.

¹⁵ Fixed charges can be implemented with an effective date at least one year after the start of default TOU. Page 193.

¹⁶ R.14-07-002, SDG&E's Proposal for Successor New Energy Metering Tariff, p. 12.

C. Management Control of Rate Components (Utility Management’s Policy to Control Costs and Control Rate Increases for Customers)

SDG&E’s rate components can be broken down into the following broad categories of services that they provide:

- Generation service: provision of energy service, including reliability and ancillary services. The costs associated with generation services are in addition to the costs of providing energy services to meet customer load are heavily compliance driven - both legislative compliance (i.e., RPS) and regulatory compliance from various regulatory agencies (i.e., GHG under ARB).
- Transmission service: provision of system delivery and reliability. These costs are addressed at the Federal Energy Regulatory Commission (FERC).
- Distribution services: provision of local delivery and reliability and customer services.
- Public Policy programs.

Additionally power quality requires the coordination of distribution, transmission and generation resources.

Being a regulated utility, all changes to revenues recovered through rates or the recovery structure through which revenues are collected is subject to the authority of the CPUC or the Federal Energy Regulatory Commission (FERC).

Prior to 2015, SDG&E customers typically had three electric rate changes a year: (1) January 1st for implementation of its Consolidated rates for electric, (2) a mid-year change for implementation of its annual Energy Resource Recovery Account (ERRA) Forecast, and (3) September 1st Transmission rate change for the implementation of its base transmission revenue requirements. Because of the impact to our customers, SDG&E requested and received approval at the CPUC and FERC to change the filing and implementation schedule for both its ERRA Forecast and base transmission revenue requirements to provide customers with greater rate stability. Beginning 2015, SDG&E’s base transmission revenue requirements are now implemented on January 1st of each year. SDG&E continues to make progress on this goal. On January 1, 2016, SDG&E

implemented its 2016 ERRA Forecast, resulting in the first year that its scheduled revenue requirement changes (Consolidated rates, ERRA Forecast, and base transmission revenue requirements) were all implemented on January 1. SDG&E's 2016 GRC Phase 1 (A.14-11-003) and 2014 Nuclear Decommissioning Cost Estimates application (A.14-12-007) both for revenue requirements effective January 1, 2016 are still pending before the Commission and is expected to implement in 2016. For 2016 only, the implementation of the 2016 residential tier glidepath pursuant to D.15-07-001 will occur between March and May of 2016.

In SDG&E 2015 response, SDG&E discussed the impact regulatory balances had on potential rate volatility, noting in particular balances associated with SDG&E's ERRA as well as SDG&E's 2012 GRC Phase 1 due to the impact of delayed regulatory decisions (A.10-12-005 adopted in D.13-05-010). Both these balances had rolled off rates as of January 1, 2016, resulting in an overall decrease in rates compared to the prior year. In addition, SDG&E has included in its 2016 GRC Phase 2 (A.15-04-012) a proposal to update sales annually to better address regulatory balances related to annual changes in sales.

D. Utility's Policies and Recommendations For Limiting Costs and Rate Increases While Meeting State's Energy and Environment Goals for Reducing Greenhouse Gases

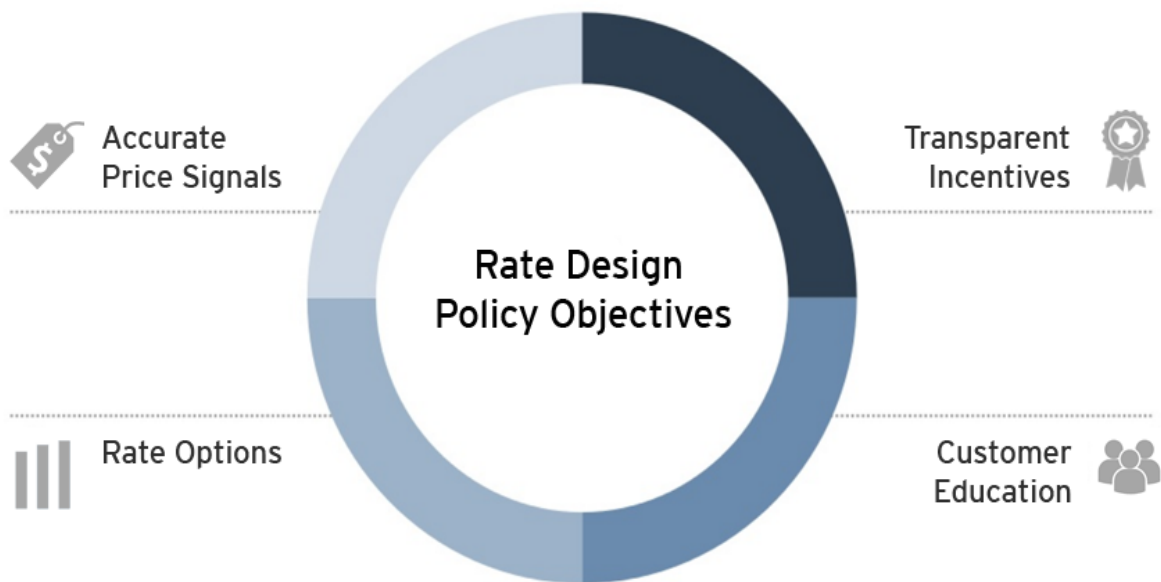
1. List the Policies the Utility is Advocating

SDG&E recommends the following policies for limiting costs and rate increases while meeting the State's energy and environment goals for reducing greenhouse gases:

1. **Accurate price signals:** Providing customers with accurate price signals means that utilities charge for the services they provide and rates are designed to cover costs on the same basis as they are incurred. By sending customers clear price signals regarding the cost of electricity and the cost of using the electric grid for the services they receive, SDG&E aims to give customers the best possible opportunity to make wise decisions about their energy use and to mitigate cost shifts between customers. Cost-shifting is exacerbated with incentives that are buried in rates and not transparently identified.
2. **Transparent incentives:** Incentives or subsidies that have been deemed necessary to further public policy objectives are separately and transparently identified. Building upon the foundation of accurate price signals, subsidies that advance state policy goals should be transparently identified in utility bills, separate from the charges for services provided to or from the customer.

3. **Customer options:** SDG&E believes that a critical aspect of SDG&E’s policy framework is to balance the needs of customers while still providing a cost-based rate structure. SDG&E recognizes the importance of continuing to offer customers new cost-based rate options that best meet their needs.
4. **Transition paths to minimize impacts and inform customers:** SDG&E is committed to proactively providing customers with clear and timely information to help customers prepare for any rate change. SDG&E believes that implementing rate design changes in transitional phases: (i) helps to minimize customer impacts and (ii) provides the best opportunity for customers to progressively become more engaged and informed about the choices that are available to them.

SDG&E’s four policy objectives are summarized in the diagram below



2. Provide recommendations for the CPUC and Legislature to help minimize rate increases in the future

In 2015, SDG&E made the following recommendations for minimizing rate increases into the future:

1. Rate Reform with Expeditious Implementation
2. Cost Analysis of State Mandated Programs Needed Before Adoption
3. Reduce Cross Subsidies

In July of 2015, the Commission unanimously approved D.15-07-001 in R.12-06-013 and on September 1, 2015 SDG&E implemented the first step in the glidepath for residential tier reform permissible under AB 327.

To help minimize rate increases in the future, SDG&E continues to recommend to the CPUC and Legislature the following.

1. Cost Analysis of State Mandated Programs Needed Before Adoption
2. Reduce Cross Subsidies

Under AB 327, the Legislature has made significant strides in providing a framework that provides the guidance and direction for a rate design structure for the future that meets the state's energy and environmental goals while minimizing rate increases in the future addressing among other things residential rate structures, NEM reform, and introducing distribution level resource planning. SDG&E recommends that the Commission take this opportunity to continue the effort already taken by the Legislature to continue to move forward with a cost-based rate structure and transparent incentives that allows for customers to accurately assess alternative energy services on a competitive basis. In addition, only with cost-based rate structure and transparent incentives can a clean energy future be supported without artificially inflating customer rates resulting from subsidies buried in rate design.

AB 327 permitted the reform of residential rate structures to reduce tier differentials and allow for the consideration of residential fixed charges, and under the direction of the Commission progress is under way. On September 1, 2015, SDG&E implemented the first step of the Commission's approved glidepath for residential rates pursuant to D.15-07-001 that begins the path to a two-tiered rate with a 25% tier differential and will implement its second step March to May of 2016, moving to a 2-tiered residential rate. In 2016, all three IOUs will implement optional residential TOU pilots intended to inform residential default to TOU rates.

SDG&E fully supports the State's pursuit for a clean energy future. SDG&E simply cautions the Legislature and the Commission to ensure that the pursuit of this clean energy future is done in a thoughtful manner that always takes into consideration the rate and bill implications to utility customers before adopted.

Currently in pursuit of the State’s clean energy goals, SDG&E has a multitude of goals and objectives, such as RPS standard, EE and DR goals, and Energy Storage targets. The greater flexibility the Commission provides the IOUs in the manner in which these tools are used to reach the State’s objectives and meet the unique characteristics of each service territory, the greater the ability the IOUs will have to meet these goals in a least cost manner. A UC Berkeley study “Solar Adoption and Energy Consumption in the Residential Sector”¹⁷ offers the following policy considerations:

Knowing more about consumer choices in the residential sector helps policymakers design and market programs to achieve savings from efficiency and encourage installation of optimally designed solar systems. Where government subsidies are available for solar systems, those resources could be most effectively allocated by encouraging that less-expensive efficiency improvements be realized prior to or in conjunction with appropriately- sized solar systems. Larger system size, if correlated with absence of observed energy consumption reductions, may indicate the existence of an inefficient subsidy, or of relative barriers that disfavor energy efficiency and conservation. As a policy matter, for a number of complementary reasons we are interested in how policy can be designed to encourage all residences, including those that install solar systems, to move in the direction of consuming less energy rather than more.¹⁸

While the study speaks specifically of solar systems, SDG&E believes these considerations are important when we consider the subsidization of all new technologies. SDG&E recommend that the Legislature and the Commission continue to move forward in a direction that provides the utilities the ability to meet the States clean energy goals in a least cost manner.

In addition, SDG&E recommends that the Legislature and the Commission ensure that the costs of these programs are paid equitably by all customers and limit the ability for customers to bypass paying for their fair share of these programs.

While AB 327 recognized the importance in addressing potential rate and cost shift implications of NEM by including requirements that it move forward in a manner that (i) is “based on the costs and benefits of the renewable electrical generation facility;”¹⁹ (ii) ensures “total benefits of the standard contract or tariff to all customers and the electrical

¹⁷ McAllister, Joseph Andrew. (2012). *Solar Adoption and Energy Consumption in the Residential Sector*. UC Berkeley: Energy & Resources. Available at: <https://escholarship.org/uc/item/8tz503nh>.

¹⁸ *Id.* at p. 1.

¹⁹ PUC Section 2827.1(b)(3).

system are approximately equal to total costs,²⁰ and (iii) ensures “sustainable growth.”²¹ , in D.16-01-044, the Commission chose to defer the question of addressing the cost shift that currently exists under NEM until the resolution of other proceedings pending before the Commission including Distribution Resources Plan (DRP). SDG&E stated in its August 2015 NEM proposal that the estimated annual cost shift from NEM was \$131 million based on end of June 2015 NEM installations and estimated to increase to over \$500 M in 2025 if no change occurs.²² As of the end of January 2016, 7 months later, the estimated annual cost shift has increased to \$170 M, an increase of 30%. This represents the cost shift associated with approximately 77,000 NEM customers, resulting in a per customer subsidy of almost \$2,200. The CARE programs which supports low income customers currently has annual funding of only \$125 million, serving over 250, 000 customers, and a per customer subsidy of less than \$500, less than one-fourth that of the per customer subsidy under NEM. The cost of the CARE program is identified as a transparent line item on customers’ bill while NEM continues to be a subsidy buried in rates. The cost shift associated with NEM customers of today will continue. The cost shift associated with NEM 2.0 applicable to NEM customers once the cap has been reached will be incremental above that of the current NEM program. The cost shift associated with the same MW adoption under NEM 2.0 will only be 5% less than the same MW under the current NEM program.²³

As the Commission continues to move forward, the question of cost shift to non-participating customers must be addressed.

²⁰ PUC Section 2827.1(b)(4).

²¹ PUC Section 2827.1(b)(1).

²² SAN DIEGO GAS & ELECTRIC COMPANY (U 902 E) PROPOSAL FOR SUCCESSOR NET ENERGY METERING TARIFF, filed August 3, 2015, p. A-60.

²³ Based on 1/1/2016 effective rates per SDG&E Advice Letter 2840-E approved by Energy Division letter dated January 27, 2016. Assumes 60% of residential PV generation is exported and 20% of non-residential PV generation is exported.