BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on the Commission's Own Motion to Conduct a Comprehensive Examination of Investor Owned Electric Utilities' Residential Rate Structures, the Transition to Time Varying and Dynamic Rates, and Other Statutory Obligations.	Rulemaking 12-06-013 (Filed June 21, 2012)

RESIDENTIAL RATE DESIGN PROPOSAL OF SAN DIEGO GAS & ELECTRIC COMPANY (U902M) IN RESPONSE TO THE RULING OF ADMINISTRATIVE LAW JUDGE ("ALJ") MCKINNEY AND SCOPING MEMO AND RULING OF ASSIGNED COMMISSIONER

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San Diego Gas & Electric Company ("SDG&E") respectfully submits its Residential Rate Design Proposal pursuant to the Ruling of Administrative Law Judge ("ALJ") McKinney and the November 26, 2012 Scoping Memo and Ruling of Assigned Commissioner ("Scoping Memo"). As is explained in greater detail below, SDG&E's proposal is designed to pursue the California Public Utilities Commission's ("Commission" or "CPUC") Principles for Rate Design, identified in Attachment A of the March 19, 2013 Ruling and presented in Section II, in a manner that balances the need to move towards more accurate price signals that are understandable and fair to customers against the need to ensure a smooth transition from the currently existing rate design framework that avoids significant adverse bill impacts to customers.

I. EXECUTIVE SUMMARY

Optimal Rate Design is a long-term objective that will ultimately be achieved in order to support California's goals of promoting energy conservation and long-term growth in markets for new distributed and emission reducing technologies, while providing reasonable rates and safe, reliable service to the California ratepayers. By identifying the state's long-term rate design goals today, the Commission will have an opportunity to lead California into the rate design of the future.

SDG&E believes that an Optimal Residential Rate Design is one that meets the following criteria:

- 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.

Currently, costs of utility services are recovered through an "all-in" energy rate for residential customers. Implementing this Optimal Rate Design can only be accomplished through unbundling utility rates, that is, providing customers with a rate structure that more accurately reflects the services utilities provide. Unbundling rates for residential customers will transform rate design from the "all-in" rate structure currently in place to a transparent and understandable rate design that promotes and supports customer choice in new emission-reducing technologies without unduly shifting costs to other customers. The unbundled rate structure envisioned under SDG&E's Optimal Rate Design will provide accurate price signals, and create the market structure necessary to support and promote California's public policy objectives in the long-term.

SDG&E's Optimal Rate Design will allow customers to optimize the ways in which electricity is produced and consumed that are specifically tailored to meet their individual needs, and in a manner that is sustainable and fair to all customers, while confirming that tools exist to ensure the continued ability to more effectively promote short and long-term policy objectives through transparent incentives that are more effectively designed to fulfill policy goals. SDG&E

is committed to performing outreach activities to educate its ratepayers so that customers have the necessary information to make informed decisions about rate choices.

Implementation of SDG&E's proposed Optimal Rate Design will require a well-designed transition to minimize adverse bill impacts while ensuring that customers are well informed and empowered to respond to the price signals that will be created under an optimal rate design structure. This transition should phase in gradual rate structure changes over time, in a manner designed to mitigate bill impacts on customers, while ensuring that they are fully informed of and empowered by the changes that are implemented.

II. BACKGROUND

The innovative nature of this Rulemaking is a product of the currently broken California rate design system.

A. Legislative History of Residential Rate Design

California State Assembly Bill ("AB") 1X was enacted on February 1, 2001 in response to the energy crisis of 2000-2001. The bill authorized the California Department of Water Resources ("DWR") to enter into contracts to procure energy on behalf of California's investor-owned utilities ("IOUs") and their customers, and to issue revenue bonds necessary to carry out its energy procurement responsibilities. The bill also suspended direct access and capped residential rates for usage up to 130% of the baseline quantities (also referred to as Tier 1 and Tier 2 rates) at the levels in effect on February 1, 2001. The rate caps were to remain in place until DWR recovered the costs it incurred to procure power on behalf of the state's electricity consumers. As a result of the AB 1X restrictions, with one exception[1] revenue requirement increases allocated to the residential rate class are recovered solely by increasing the rates that

[1] Senate Bill ("SB") 1, which established the California Solar Initiative ("CSI") program, specifically allowed costs to be allocated to non-California Alternate Rates for Energy ("non-CARE") Residential customers' Tier 1 and Tier 2 usage. See Public Utilities ("PU") Code Section 2851(d)(2).

apply to usage above 130% of baseline allowances (also referred to as Tier 3 and Tier 4 rates), which account for only about 30% of total residential usage. The AB 1X restrictions have resulted in Tiers 1 and 2 rates remaining at February 1, 2001 levels while Tiers 3 and 4 rates have increased significantly, which have resulted in substantial bill increases for high usage customers.

SB 695, passed by the Legislature in 2009, modified various sections of the Public Utilities ("PU") Code and Water Code § 80110 that had capped rates for Tier 1 and 2 usage at 2001 levels and permitted these rates to increase in accordance with specified formulas. For SDG&E's non-California Alternate Rates for Energy ("non-CARE") residential rate schedules, the Commission is authorized to increase Tier 1 and Tier 2 rates by the annual percentage change in the Consumer Price Index ("CPI") for the prior year, plus one percent, but not less than three percent and not more than five percent. For CARE rate schedules, the code specified that the Commission may increase rates by the annual percentage increase in benefits provided under the CalWORKs program for the fiscal year in which the rate increase would take effect, but not to exceed three percent per year.[2]

In addition, SB 695 set a schedule for when the Commission can default residential customers onto time-variant rates. Specifically, residential customers may, "in a manner consistent with the other provisions of this part,"[3] be transitioned to:

- Mandatory or default time-variant pricing, with 1 year of bill protection, no sooner than 2013;
- Mandatory or default time-variant pricing without bill protection, no sooner than 2014; and

[2] The CalWORKs program is subject to an annual cost of living adjustment, effective July 1st of each year, as provided under Section 11453 (a) of the Welfare and Institutions (W&I) Code. However, the cost of living benefit adjustment for the CalWORKs program has been suspended since the since the implementation of SB695 and as a result no increases to CARE Tier 1 and Tier 2 rates have been made date from this provision.
[3] PU Code § 745(d).

- Mandatory or default real-time pricing without bill protection, no sooner than 2020.[4]

Finally, SB 695 preserves the ability of a customer to opt-out of a default time-variant rate upon expiration of their bill protection period.

At the same time, over the past several years, state policy has increasingly embraced various new technologies with the goal of reducing emissions, and empowering customers to more effectively control how and when they consume electricity. This has led to tremendous growth in renewables, investments in after-meter demand automation technology that takes advantage of the Home Area Network created by smart meters, investments in plug-in electric vehicles, and interest in electricity storage services. Because they empower customers to self-provide various electricity services, these developments in behind-the-meter technologies have effectively unbundled the services utilities provide (for example, because electricity commodity services can be self-provided by a customer behind the meter when the sun shines, but not necessarily when the customer uses electricity, a customer with distributed generation is able to provide their own commodity services, even as they continue to receive reliability services from their utility). As a result, these developments have increased the importance of providing meaningful and accurate price signals to customers so they can make well informed investment decisions and respond effectively to price signals in ways that reduce emissions and reduce their energy bills.

B. SDG&E's Current Rate Design

Under the current tiered rate structure, residential customers do not receive an accurate price signal. For SDG&E, approximately two thirds of residential usage (Tier 1 and Tier 2 usage) is priced at a discount resulting in the remaining one-third (Tier 3 and Tier 4 usage) to be priced at levels substantially above cost. This means that customers would not be willing to

[4] The bill protection schedule is based on the customer having at least one year of advanced meter data.

spend what it is actually worth to reduce usage for two thirds of SDG&E's residential electricity usage. In addition, this tiered rate structure is a bundled rate design that fails to distinguish between reliability or standby services and electric commodity services. As a result, while it may have worked in a bundled energy world without meaningful penetration of distributed energy resources and without public policy support for emission reducing actions by customers through the use of behind the meter technologies, this rate design is antiquated today and results in unintended consequences that will not support the state's public policy objectives in the long-term.

On June 21, 2012, the Commission instituted this rulemaking on its own motion to examine current residential electric rate design, including the tier structure in effect for residential customers, the state of time variant and dynamic pricing, potential pathways from tiers to time variant and dynamic pricing, and preferable residential rate design to be implemented when statutory restrictions are lifted. Shortly thereafter, a Ruling, issued on the November 11, 2012, setting forth following ten Principles for evaluating Optimal Rate Design:

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;

2. Rates should be based on marginal cost;

3. Rates should be based on cost-causation principles;

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;

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; and

10. Transitions to the 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.

The November 11, 2012 Ruling also identified nine questions to be addressed with each rate design proposal. Through a Ruling issued March 19, 2013, ALJ McKinney requested that parties respond to an additional question when they submit their rate design proposals in this proceeding. Pursuant to these Orders, SDG&E responds to the following ten questions herein:

1. Please describe in detail an optimal residential rate design structure based on the principles listed above and the additional principles, if any, that you recommend. For purposes of this exercise, you may assume that there are no legislative restrictions. Support your proposal with evidence citing research conducted in California or other jurisdictions.

2. Explain how your proposed rate design meets each goal and compare the performance of your rate design in meeting each goal to current rate design. Please discuss any cross-subsidies potentially resulting from the proposed rate design, including cross-subsidies due to geographic location (such as among climate zones), income, and load profile. Are any such cross-subsidies appropriate based on policy principles? Where trade-offs were made among the principles, explain how you prioritized the principles.

3. How would your proposed rate design affect the value of net energy metered facilities for participants and non-participants compared to current rates?

4. How would your proposed rate design structure meet basic electricity needs of low-income customers and customers with medical needs?

5. What unintended consequences may arise as a result of your proposed rate structure and how could the risk of those unintended consequences be minimized?

6. For your proposed rate structure, what types of innovative technologies and services are available that can help customers reduce consumption or shift consumption to a lower cost time period? What are the costs and benefits of these technologies and services?

7. Describe how you would transition to this rate structure in a manner that promotes customer acceptance, including plans for outreach and education. Should customers be able to opt to another rate design other than the optimal rate design you propose? If so, briefly describe the other rate or rates that should be available. Discuss whether the other rate(s) would enable customers opting out to benefit from a cross-subsidy they would not enjoy under the optimal rate.

8. Are there any legal barriers that would hinder the implementation of your proposed rate design? If there are legal barriers, provide specific suggested edits to the pertinent sections of the Public Utilities Code. If there are legal barriers, describe how the transition to your proposed rate design would work in light of the need to obtain legislative and or other regulatory changes and upcoming general rate cases.

9. How would your proposed rate design adapt over time to changing load shapes, changing marginal electricity costs, and to changing customer response?

10. How would your proposed rate design structure impact the safety of electric patrons, employees, and the public?

Consistent with Commission directives, SDG&E hereby submits its Rate Design Proposal for the Commission's consideration.

III. RESPONSE TO QUESTIONS FOR RESIDENTIAL RATE DESIGN PROPOSAL

SDG&E's responses to the ten questions are set forth below.

A. ***Question 1:*** *Please describe in detail an optimal residential rate design structure based on the principles listed above and the additional principles, if any, that you recommend. For purposes of this exercise, you may assume that there are no legislative restrictions. Support your proposal with evidence citing research conducted in California or other jurisdictions.*

An Optimal Residential Rate Design is one that meets the following criteria:

- 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 and charged to customers in a fair manner.

A rate design that achieves the forgoing would meet all of the Commission's Rate Design Principles, and do so in a manner that supports energy conservation and long-term growth in new emission-reducing distributed technologies, provides accurate information to customers, and empowers regulators with tools they can use to achieve public policy objectives.

1. An Optimal Rate Design Must Accomplish A Number of Objectives

An Optimal Rate Design must accomplish multiple objectives, ranging from the structural goal of reflecting accurate price signals in order to promote economic efficiency to ensuring that state policy goals can be attained in the long-term. The ten Rate Design Principles outlined in the November 11, 2012 Ruling generally fall into the following broad categories:

- Accurate Price Signals,
- Support of Public Policy,
- Economic Efficiency, and
- Transition Plan.

The Rate Design Principles are discussed in the context of the policy categories as well as SDG&E's proposed Optimal Rate Design below.

a. Accurate Price Signals

The Rate Design Principles recognize that optimal rate design should provide accurate price signals, specifically in Rate Design Principles 2 and 3, which provide, "Rates should be based on marginal costs," and "Rates should be based on cost-causation principles." Marginal cost pricing produces economic efficiency, or the efficient allocation of resources, by providing customers with accurate information regarding the costs associated with their energy consumption decisions.[5]

[5] Marginal cost is defined by the Commission in Attachment C of the March 19, 2013 Ruling as the cost of providing one additional unit of a good or service.

Alfred E. Kahn has described the "Marginal Cost Pricing Doctrine," as follows:

> "[U]nder pure competition, price will be set at marginal cost" (the price will equal the marginal cost of production), and this results in "the use of society's limited resources in such a way as to maximize consumer satisfactions." [6]

The concept of "maximizing consumer satisfactions" is synonymous with the concept of maximizing economic efficiency. Principles 2 and 3 support the proposition that rates should be based on the costs a utility incurs to provide services to a customer, with those costs reflected through rates in the same manner in which they are incurred to provide those services. With accurate price signals, customers would have accurate information on which to make decisions regarding how their energy is produced and consumed.

Accurate price signals are necessary in a world in which customers are considering alternatives to traditional utility services and are needed to allow consumers to respond to high prices and/or to shift their demand to reduce carbon emissions and unnecessary infrastructure. In the absence of accurate price signals, consumers that are considering alternatives to individual utility services have no way to evaluate the economics of their available alternatives; hidden, as opposed to transparent, subsidies create unintended outcomes and cannot be managed in a meaningful way over time, and growth in new technology markets is unnecessarily stifled. Accurate price signals would create environmental indicators that allow customers to save money by altering their electricity demand in ways that reduce environmental impacts of infrastructure construction as well as generation use.

The Commission's Policy and Planning Division ("PPD") recently issued a thought-provoking whitepaper, "Customers as Grid Participants: A Fundamentally New Role for Customers." In this whitepaper, PPD points out the importance of customer participation in markets to achievement of the state's policy goals:

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[6] "The Economics of Regulation," (1970 and 1971), pp. 16-17.

> "The California Public Utilities Commission (CPUC), along with its sister agencies under the leadership from the Governor and the legislature, have laid out a number of policy initiatives and programs to reduce greenhouse gases. These strategies include increasing the deployment of renewable powered distributed generation, promulgating electric cars, deploying smart meters, increasing the penetration of both commercial and residential energy efficiency and defining the market for Zero Net Energy homes.
> Each of the above strategies is dependent on customer action. Customer participation, more than the actions of the utilities or of the regulators, is critical to meet California's greenhouse gas emission goals in a cost-effective manner.
> Regardless of the underlying motivation, the customer's participation is critical to achieve these emissions reductions goals. Customer participation is the key; they have become an integral part of the power supply chain and of the grid itself. This is a paradigm shift from the historical view of utility consumers as merely ratepayers and passive recipients of electricity services to active participants in the power grid. In fact, this energy future represents a fundamental change in the relationship between the utility and the customer, increasing the onus on both to become partners.
> Customer engagement is crucial to successful navigation of the paradigm shift. Getting customers engaged should be one of the primary goals of the utilities and the regulators. Engagement with the utilities and the third party service providers will expose customers to opportunities and tools to help them manage their energy usage for their optimal comfort and finances."[7]

SDG&E agrees with the importance of customer participation to achieve the state's policy goals, which are far broader than promotion of any one technology. As PPD points out, California's long-term goals include a wide array of customer-empowering and emission reducing technologies, ranging from increased deployment of renewable powered distributed generation and electric vehicles, to fully realizing the promise of smart meters through after-meter demand automation, increased penetration of both commercial and residential energy efficiency equipment and creating a market for Zero Net Energy homes and buildings. In this proceeding, the Commission is confronted with an opportunity to analyze whether a rate design that was created to support the needs of the dirtier central station dominated market of the past can support the public policy initiatives California has identified for the future, which increasingly depends on distributed energy resources, supported by new kinds of services

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[7] See, "Customers as Grid Participants: A Fundamentally New Role for Customers," CPUC Policy and Planning Division, http://www.cpuc.ca.gov/NR/rdonlyres/A0A816A2-9F1C-4F34-90DB-C23551F09738/0/PPDCustomerRoleMay15th.pdf.

provided by utilities or new distributed energy technologies. Done correctly, the Commission will be able to create a foundation for achievement of the state's long-term policy objectives in this proceeding.

Likewise, the Rocky Mountain Institute recently issued a whitepaper regarding work by its ELab to identify what will be necessary to achieve the vision that has been outlined by PPD as well as California policymakers and others. The whitepaper makes a number of points:

> "The electricity industry is evolving from a traditional value chain to a highly participatory network or constellation of interconnected business models at the distribution edge, where retail customers interface with the distribution grid. Ultimately, customers that are playing a larger role in producing and managing their energy may also help to provide electricity services to the grid to enable better economic optimization of resource use across the entire system.
>
> Existing electric utility business models, however, are poorly adapted to tap the potential value of distributed resources to meet societal demands for cleaner, more resilient, and more reliable electricity supply. Achieving optimal integration of distributed energy resources will require a versatile and flexible foundation for value-based transactions with and among the many parties. With increased options come increased complexity—and a growing need for better coordination. The regulated distribution utility of the future can be an important partner in helping to coordinate the deployment and integration of distributed resources — investing in grid infrastructure to support this new and more dynamic system, conveying signals about system conditions, and integrating disparate resources to harvest the benefits of diversity for all stakeholders.
>
> Achieving this transition may require transformative, rather than incremental, changes in utility business models. Existing regulatory paradigms and pricing structures can be adapted to provide appropriate incentives for distributed resource deployment, operation, and integration. But they do so by layering new remedies on existing models, adding complexity. At some point, shifting to a new, more customer-centric system may provide a better, simpler, and more elegant solution." [8]

The Rocky Mountain Institute ELab paper goes on to recognize how technology is driving the need to re-examine the utility business model and rate design structure:

> "As technological innovation has fundamentally shifted the ability to meet and provide electricity-enabled energy services, so, too, is the penetration of these technologies creating new business model opportunities or presenting threats to the existing

[8] See, "New Business Models for the Distribution Edge, The transition from Value Chain to Value Constellation," Rocky Mountain Institute ELab, at p. 3, http://www.rmi.org/PDF (2013).

institutional framework that forms the business model ecosystem. First, beyond the purview of the utility, entrepreneurial companies or customers can own and provide distributed resources on the customer side of the meter. Second, operationally, distributed energy resources behave differently from conventional, centralized resources; they require new operational strategies for grid operators because they are smaller in size, located closer to load, have traditionally not been set up to enable centralized dispatchability, and to the extent they are powered by variable sources such as solar and wind, their output fluctuates. Finally, distributed energy resources reduce the amount of energy that a customer would otherwise demand from the grid.

However, the conventional approach for pricing the electricity service a customer receives is to bundle all of the costs — fixed and variable — into a relatively simple cost per kilowatt hour or only a slightly more sophisticated approach. In that case, reducing the number of kilowatt hours purchased from the grid may also reduce necessary recovery of fixed costs. Similarly, innovation in distributed technologies can be stifled when utility prices fail to provide customers with an economic benefit when they are able to self-provide a service such as storage or power quality services.

In an industry where new investment and service opportunities are rapidly proliferating at the distribution edge, new regulatory and business structures will be required to better align incentives for utilities, customers, and distributed resource developers. This will require: 1) greater transparency with respect to the services provided to and by distributed resources and the ability to fairly and objectively quantify their respective value, 2) pricing models or incentives that more accurately reflect the operational needs of the system, possibly including timing and location, and 3) new utility business models adapted to create and sustain value through integration of economically deployed distributed resources."[9]

Currently, SDG&E's residential rate structure consists of an "all-in" (or bundled) energy rate, in which all components are recovered through a volumetric dollar per kilowatt-hour ("$/kWh") charge. For rates to be based on cost-causation principles, they would need to accurately reflect the costs utilities incur to provide services, in the same manner in which these costs have been incurred. An "unbundled" rate structure would charge customers separately for each service that has been provided to the customer, in the same manner in which costs were incurred to provide those services. Unbundling rates for residential customers will transform rate design from the "all-in" rate structure currently in place to a transparent and understandable rate design that promotes and supports customer choice in new emission-reducing and energy

[9] *Id*, at p. 6.

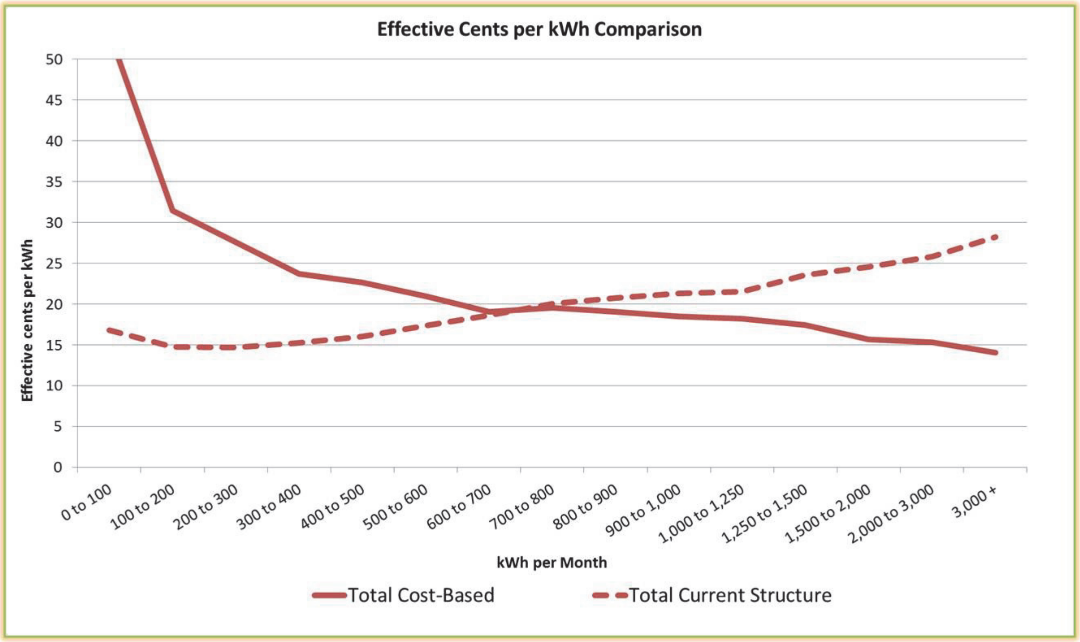
management technologies. Further, SDG&E's Optimal Rate Design can only be accomplished through unbundling utility rates to more accurately reflect the services utilities provide to customers. This, then, leads to the question of how utilities incur costs to provide services to customers.

b. Drivers of Utility Costs

The costs of providing service to customers have traditionally been defined in the following three broad categories: Commodity, Distribution, and Transmission. In addition, rates recover the costs of policy programs, which will be discussed in more detail later. When looking at the cost of providing service, only the marginal energy cost, the cost of the electricity itself, is driven by a customer's energy (or kWh) usage. Transmission rates fall under the jurisdiction of the Federal Energy Regulatory Commission ("FERC") and, therefore, are not addressed herein. SDG&E's Optimal Rate Design focuses on the cost recovery of Commodity and Distribution services.

Chart 1 below illustrates the difference between utility costs and existing utility rates, correlated to a customer's kWh demand. Put simply, there is little relationship between the two, largely because utility rates recover fixed and capacity costs through volumetric rates.

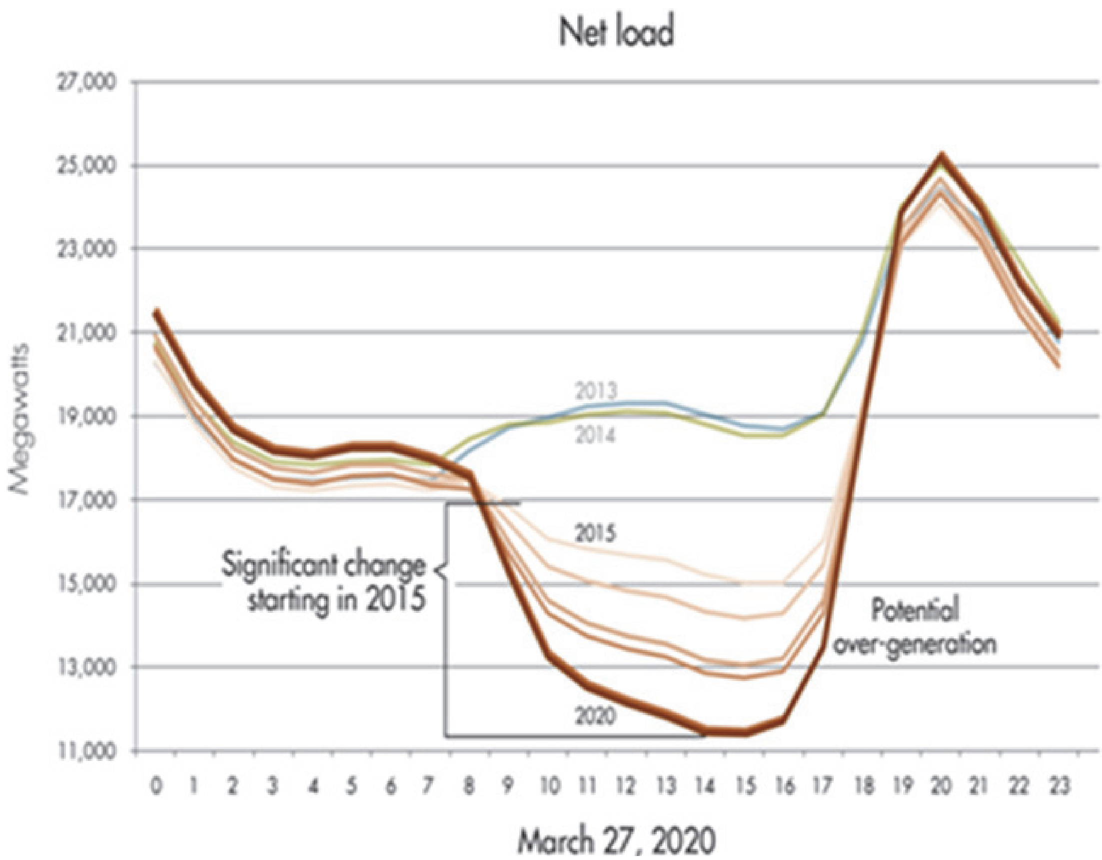
Chart 1: Total Rate: Cost-based versus Current (cents/kWh)



(1) Commodity Services

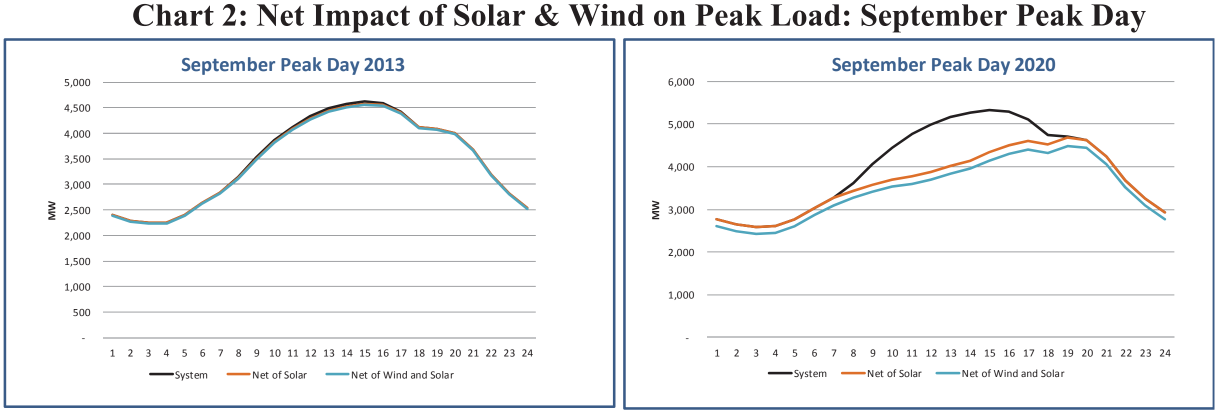
In order to understand how utility rates could be designed to reflect accurate price signals, it is necessary to consider the cost components included in utility rates. Included within Commodity and Transmission rates are costs related to system capacity as well as the costs incurred to meet SDG&E's obligation to provide reliable service to customers. The costs related to commodity services that SDG&E incurs to meet reliability obligations are driven by system demand at every hour of the day. For rates to reflect cost-causation principles, they would have to be based on some measurement of customer demand during periods of peak capacity need.

To date, capacity need has largely been driven by times of system peak demand, which has historically been summer afternoons. However, the California Independent System Operator ("CAISO") "Duck Belly" curve, presented by Mark Rothleder, CAISO, at the Long-term Resource Adequacy Forum on February 26, 2013, demonstrates that peak capacity needs in the future will move toward the evening hours with high penetration of solar and may be driven by need for resources to follow the demand net of must-take variable generation renewables.



This can also be seen when comparing SDG&E's system requirements with a modest estimation of renewable resources from customer adoption and Renewable Portfolio Standard ("RPS") requirements in 2020 in Chart 2 below.

Chart 2: Net Impact of Solar & Wind on Peak Load: September Peak Day



2013 Installed Capacity

MONTH	SOLAR DG (MW)	SOLAR Central (MW)	WIND (MW)
Sep	176	25	50

2020 Installed Capacity

MONTH	SOLAR DG (MW)	SOLAR Central (MW)	WIND (MW)
Sep	400	1000	500

As can be seen in Chart 2 above, the adoption of renewable technologies through state polices (such as RPS) and customers' adoption of distributed renewables, shifts the time in which firm, flexible capacity is required. The adoption of renewables can reduce capacity for peak demand needs during daylight hours while creating dual peaks in the early morning and evening hours in some months. These new peaks will drive future capacity requirements. The ability to provide capacity whenever required is a reliability service provided to customers by the utility.

The following rate design options would provide customers with a price signal that more accurately reflects energy commodity and system capacity costs. These rate design options would create price signals that cause customers to reduce their coincident demand (demand at times of peak capacity need).

It is important to note that one of the key findings from the web-based customer survey, conducted by Hiner & Partners in this Rulemaking which analyzed a diverse group of customers in each IOUs' service territory ("Customer Survey"), was that customers want choices and there is no "one size fits all" when it comes to rate design. In line with this finding, SDG&E's Optimal Rate Design offers three rate designs that appropriately capture commodity capacity costs.

<u>Peak demand charges based on a $/kW demand charge are applicable to the on-peak period to recover commodity revenues associated with commodity capacity costs</u>. Currently, SDG&E's Medium and Large Commercial and Industrial ("C&I") customers are primarily on rate schedules with a peak demand charge and time-of-use energy commodity rate structure. A Time-Of-Use ("TOU") Energy Charge is a $/kWh energy charge structure to recover commodity revenues related to marginal energy costs, differentiated by season and/or TOU period structure.

Dynamic pricing or critical peak pricing ("CPP") options. Dynamic and critical peak pricing provide another alternative to recover capacity costs through a premium energy rate or an energy rate adder that is applied only during peak periods on noticed days. For SDG&E, on-average, this equates to nine event days per calendar year. Default CPP ("CPP-D") was implemented as the default commodity rate for medium and large non-residential customers with smart meters. The remaining medium customers will default to CPP-D once they have at least 12 months of smart meter data.[10]

Peak Time Rebate ("PTR"). This is a dynamic pricing program that provides a bill credit to customers for each kWh reduction in energy consumption below an established customer-specific reference level during specified high system peak days when PTR events are called. PTR was implemented first as a pilot for a group of SDG&E residential customers in the summer of 2011 and was fully implemented for SDG&E residential customers in the summer of 2012.[11]

CPP or PTR would be combined with a time-of-use pricing to reflect varying energy costs throughout the day to provide accurate commodity pricing. Decision ("D.") 12-12-004, approving SDG&E's Dynamic Pricing Application ("A.") 10-07-009, authorized the following commodity options for residential and small non-residential customers: (1) for small commercial, optional time-of-day and critical peak pricing rates would transition to mandatory time-of-day rates along with default critical peak pricing rates with time-of-day opt-out; and, (2) for residential customers, optional time-of-day and critical peak pricing rates. The Commission also adopted additional adders to TOU energy rates to provide for the recovery of capacity costs as in the TOU small commercial and residential rate options identified above.

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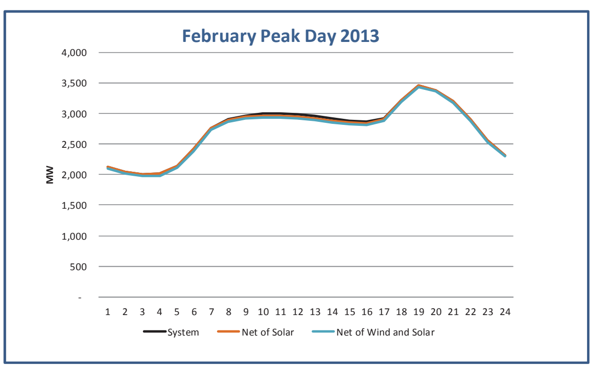
[10] For SDG&E, only medium C&I customers will be defaulted because SDG&E's dynamic pricing decision eliminated the requirement that CPP-D be the default rate for medium agricultural customers.

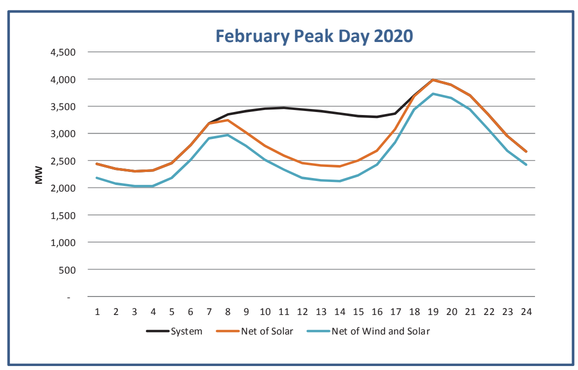
[11] PTR was also implemented for small commercial customers for the summer of 2012 to supplement SDG&E's 2012 demand response portfolio due the potential generation shortfall related to the outage of the San Onofre Nuclear Generating Station.

These rate design options for the recovery of commodity costs have already been vetted through the Commission, as well as in the literature, and are part of the existing portfolio of commodity options for California IOUs. The issue that remains before the Commission is whether the options that have been previously explored would be adequate, on their own, to support the state's long-term public policy objectives. As technology and markets continue to evolve, the Commission will be required to confront questions concerning how a rate design that was structured to support the higher emitting central station technologies of yesterday, should be revised to support the customer-empowering and emission reducing technologies of tomorrow.

An emerging driver of capacity services is driven by both customer choice and state policy. New levels of flexible capacity services are needed to meet the high penetration of renewables that will be required to achieve California's environmental policy goals. Chart 3 below shows the month of February with the same level of renewable penetration as Chart 2 above.

Chart 3: Net Impact of Solar & Wind on Peak Load: February Peak Day





2013 Installed Capacity

MONTH	SOLAR DG (MW)	SOLAR Central (MW)	WIND (MW)
Feb	176	25	50

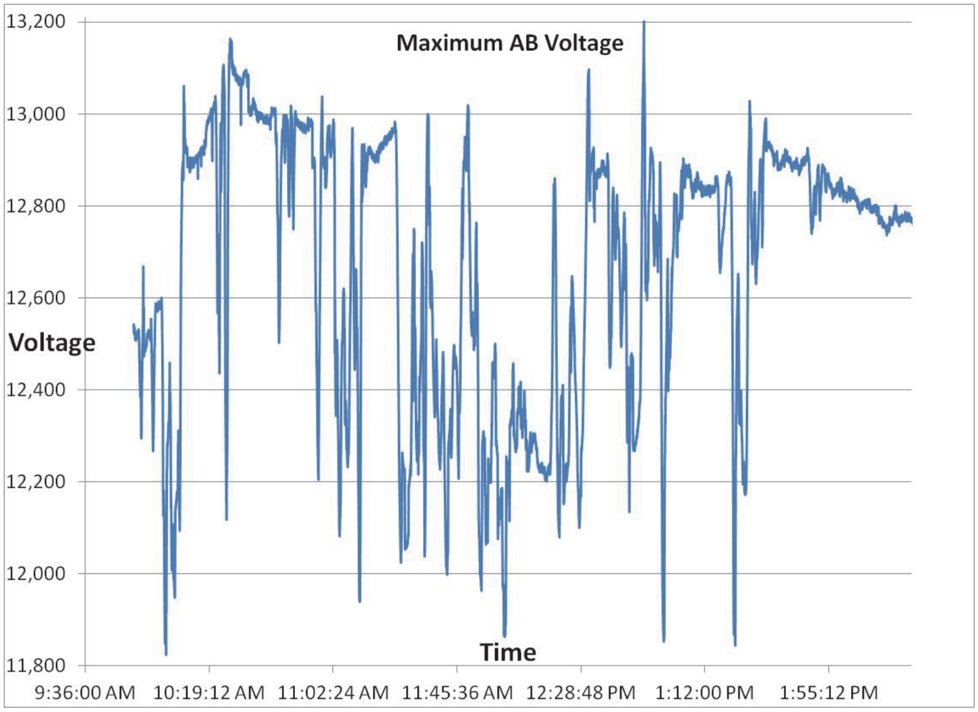
2020 Installed Capacity

MONTH	SOLAR DG (MW)	SOLAR Central (MW)	WIND (MW)
Feb	400	1000	500

What can be seen is that peak firm capacity needs spikes in the early morning and afternoon. This creates additional capacity attributes to manage the grid. The steep slopes in the morning and again in the afternoon require capacity that can ramp up and down quickly to match solar generation as the sun rises and sets. This fact will necessitate a reassessment of TOU periods in each season. In the future, as renewable penetration continues to increase, utilities could face periods of over-generation creating the need to create incentives for consumers to shift electricity demand to those hours to avoid wholesale market sales of renewable energy at a loss. In these kinds of situations, price signals that more accurately reflect the marginal cost of electricity would create incentives for consumers to use electricity in ways that minimize costs and emissions, while maximizing economic efficiency in utility operations.

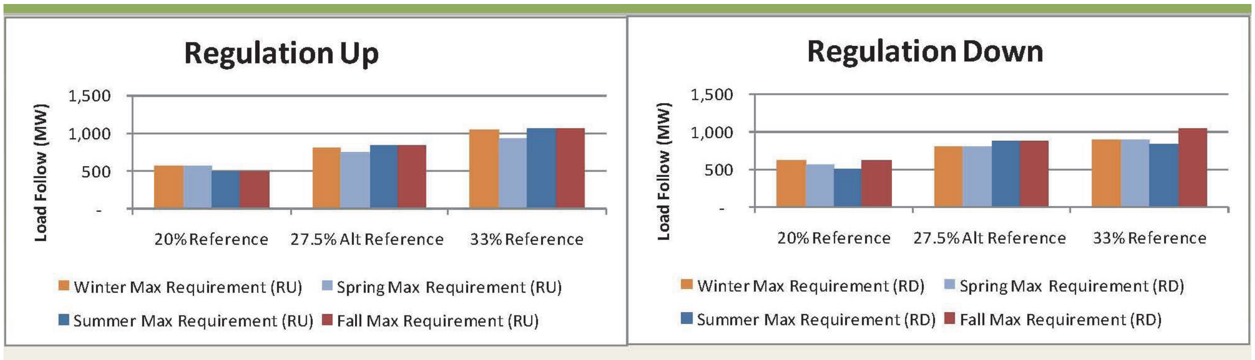
In addition, intermittent renewables also change the need for another type of capacity attribute, regulation to ensure adequate power quality. Regulation manages the moment by moment fluctuations in generation that can contribute to voltage fluctuations on the grid. Chart 4 below depicts voltage fluctuations as a result of solar generation on the SDG&E distribution system at a time when demand was relatively low while intermittent solar production was relatively high (a sunny, but not hot day). This chart illustrates one of the services utilities provide to customers.

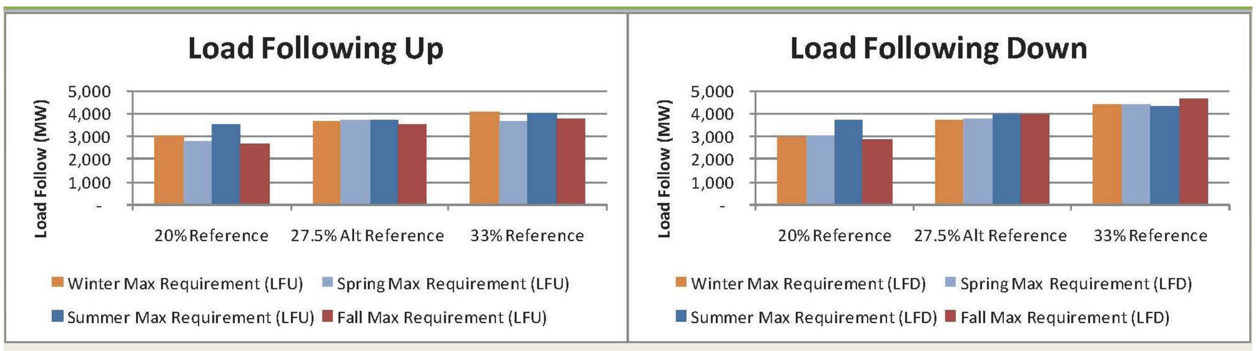
Chart 4: Voltage Fluctuations Caused by Solar Generation



Various technologies can address these issues. Unfortunately, the cost of addressing these issues is generally significantly higher when they are addressed on the utility side of the meter than when they are addressed through new technologies such as a smart inverter investment by customers. However, absent an unbundled price signal for the power quality services customer receive or a smart inverter standard, these issues will continue to be addressed through utility investments.

New ancillary service requirements of load following and regulation are currently being studied, but no determination of renewable integration costs has been set by the California Energy Commission ("CEC") or Commission at this point. However, the CAISO presentation of their "ISO Study of Operational Requirements and Market Impacts at 33% RPS" at the CPUC workshop on November 30th, 2010shows the amount of load following would increase by a third and regulation requirements would double to achieve a 33% RPS.





Just as accurate price signals regarding the costs utilities incur to provide grid support services to customers would lead to more economically efficient grid utilization and the opportunity for consumers to participate in grid operations, the same is true for electricity commodity services. The marginal cost, or market value of electricity fluctuates throughout the day, with prices during hours of peak electricity demand reflecting the highest cost of production, as the grid is forced to rely on increasing amounts of less efficient and higher emitting sources of electricity generation.

Given the greater flexibility in the utilities ability to provide customers commodity services resulting from re-examination of the commodity portfolio on an annual basis and in support of customer choice, SDG&E's Optimal Rate Design that provides accurate price signals and the transition to achieving that Optimal Rate Design could consist of any of the commodity rate alternatives described above. SDG&E's Optimal Rate Design would include a flat rate option with a premium in addition to the TOU structure. An added premium to the flat rate is necessary given that the flat rate option does not reflect marginal cost or cost-causation. In the Customer Survey, prior to any education about Time-of-Use or tiered rates, 33% customers claimed initially that a flat rate would work best for them.[12] Also, when choosing rates, customers not only want rate options that save them money, but they also rate options that work for their household, and that are stable, simple, and predictable.[13] Consistent with this feedback, SDG&E proposes to provide a flat rate option with a premium. The premium would recognize the willingness to pay for some customer's to avoid time of day commodity price fluctuations while creating incentives for customers to move to a rate that more reflects the costs associated with patterns of energy use.

Flexibility will accommodate and facilitate long-term market growth in known renewable technologies. Flexibility will ensure the California can react to changes in markets and technologies to efficiently pursue policy goals.

Price signals based on when customers use electricity and system capacity provide a good way of creating accurate price signals to reflect the costs of energy and system capacity services today.

(2) The Distribution System

The cost-causation behind distribution costs differ from system and commodity costs in that the cost drivers focus on more localized demand drivers. This is because the distribution system is built to meet local, as opposed to system, demand. Distribution costs fall under two broad categories, Customer Costs and Distribution Demand Costs.

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[12] Survey Key Findings Report, served on April 17, 2013 to R.12-06-013, at slide 7.
[13] *Id*, at slide 14.

(a) Customer Costs

Customer Costs are incurred on a fixed basis even before the customer even begins to use electricity. Customer Costs have traditionally been defined as the following:

- Transformers
- Services (i.e. the lines connecting a transformer to a service panel)
- Meters
- Applicable O&M, including expenses for Customer Services/Accounts

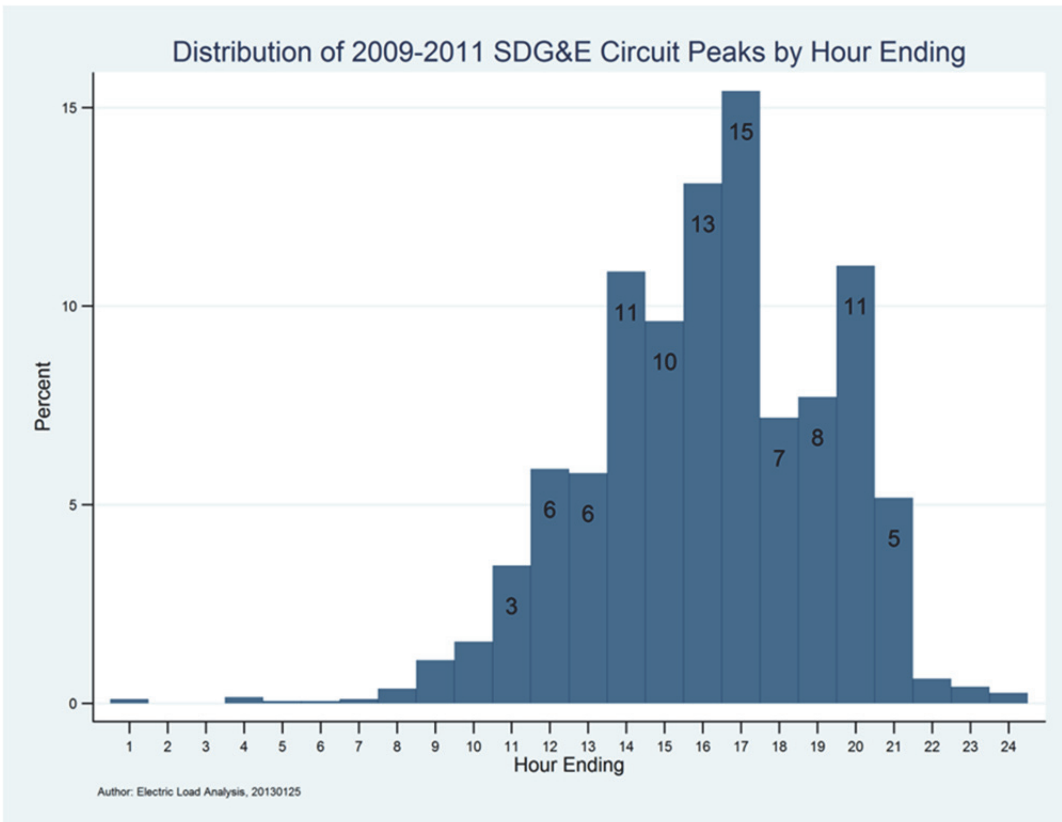
Utilities incur customer costs just to maintain a service connection with a customer, and these costs generally do not vary with a customer's demand. As a result, an accurate price signal would recover these costs through a monthly basic service fee that does not vary with a customer's demand.

Basic Service Fee or Monthly Customer Charge. An accurate price signal for recovery of Customers Costs would be created through a Basic Service Fee or Monthly Customer Charge to reflect the actual costs the utility incurs to maintain a service connection with the customer. This accurate price signal would not vary with a customer's demand.

(b) Distribution Demand Costs

Distribution Demand Costs, which include substations, circuits, feeders, and applicable O&M, are the costs SDG&E incurs to ensure reliable service to customers at the local neighborhood level. The planning criteria for the distribution infrastructure is based on local load at the circuit and substation level. In other words, in order to provide reliable service to a range of distribution circuits, each of which has different levels of peak demand, the distribution system is designed to have adequate capacity to serve the combined peak demand of all customers served off of a distribution circuit, without regard to when that demand occurs ("non-coincident peak"). The distribution costs utilities incur to provide service to customers is therefore best measured on the basis of a customer's individual maximum demand, distinct from demand at peak system capacity need. As can be seen in Chart 5 below, distribution circuits peak over a wide range of time that does not necessarily coincide with times of system peak capacity need. This translates into a non-coincident demand ("NCD") charge based on a customer maximum demand at any time, as contrasted with a peak demand charge that measures a customer's demand during the system peak capacity need period.

Chart 5: Peak of Distribution Circuits



The installation of Smart Meter technology and the data it provides allows for more refined pricing of distribution services. This coincides with the proliferation of new technologies, which have dramatically changed the way the distribution system is being utilized. Further refinement of distribution price signals could be expected to result in additional efficiency gains, similar to dynamic pricing for energy commodity. Such gains could include incenting the utilization of excess local capacity at times of low loading (i.e. super off-peak). Accommodating changes both in customer needs and technology requires that the optimal rate design be responsive to customer and market conditions, not a static target.

Rate design that provides more accurate price signals regarding how customers' electricity use causes utilities to incur costs at the distribution level, for distribution demand costs in particular, are identified below. SDG&E's Optimal Rate Design would include a rate structure for the recovery of distribution costs based on the costs of distribution services, separate from other service costs.

Non-Coincident Demand Charge. An accurate price signal would recover Distribution Demand costs on the basis of a customer's individual peak demand, consistent with current cost studies. In describing how SDG&E's proposal complies with Rate Design Principle 10 ("Transitions to the 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"), SDG&E explains the need for a smooth transition from the existing, badly flawed rate design to one that is based on accurate price signals and could be sustainable long into the future. One potential way of making this transition for NCD charges would be through how demand is defined for purposes of calculating this rate. The period for which the demand measure is defined is a major driver in terms of bill impacts. For example, traditionally, demand is defined as the average on a 15-minute interval. For residential customers, SDG&E is currently setting up measurement and pricing based on hourly demand. This would have the effect of muting the demand charge, averaging any momentary spike in customer demand over the hour as opposed to over 15 minutes.

Demand Differentiated Basic Service Fee. An alternative transition vehicle for phasing in a rate component that reflects a residential customer's NCD. A Demand Differentiated Basic Service Fee, or a set $/month adder, would vary by levels of NCD demand (i.e. 0 to 2 kW = $X, 2 to 4 kW = $Y, etc.). While such a charge would not accurately reflect the costs associated with all of a customer's non-coincident demand, it creates a far more accurate reflection of these costs than currently exists in rates while providing for greater bill stability as customers become accustomed to the concept of demand.

As noted in the discussion of commodity services above, the adoption of new technologies, such as intermittent renewables, can create for utilities the need to incur different kinds of costs to maintain the integrity of the grid. For example, in the case of distributed renewable generation, utilities may need to incur new and different kinds of costs to address power quality and reliability issues as penetration levels increase. When a technology impacts the costs associated with an attribute bundled within a utility rate, the rate structure must change to reflect that reality. Only by unbundling, can customers adopt new technologies without shifting costs to other customers.

But unbundled pricing is not just necessary to ensure proper allocation of new costs incurred to address issues created by the new technologies we are already seeing enter the market; it is also necessary to create new customer options and to create new opportunities for new technology development. For example, today, there is no price signal to incent the development of storage services since residential customers that install distributed generation receive the equivalent to storage services for no cost. Under these circumstances, a residential customer might not be willing to pay for distributed energy storage. This stifles potential investment in distributed storage technologies. Unbundled pricing would provide customers that invest in distributed energy resources meaningful opportunities to save money by investing in new technologies.

Flexibility to accommodate customer adoption of new technologies, such as electric vehicles, battery storage and yet to be contemplated technologies, will be key to achieving California's environmental policies. Unbundling needs to occur so that those customers who choose to self-provide the attribute are able to realize the full and actual value of their investments.

(c) Subsidies to Further Public Policy Goals

The Commission is not confronted with the need to make a choice between accurate price signals and the use of subsidies to promote state policy goals. Instead, SDG&E's Optimal Rate Design proposal would create the opportunity for the Commission to adopt subsidies, when necessary to fulfill state policy objectives, in a transparent manner that enables the Commission to better target subsidies at the public policy goals it intends to advance. As such, resting on the foundation of accurate price signals, subsidies that advance state policy goals could be transparently identified in utility bills, separate from the charges for services provided to or from the customer. Because the accurate price signals created under SDG&E' Optimal Rate Design would not be bypassable (if a customer receives a service, the customer would pay for that service), the costs of subsidies that further state policy goals would also not be bypassable.

(d) Support of Public Policy

Rates that reflect accurate prices do not preclude the ability for the same rates to support state policy goals. In fact, rates that reflect accurate prices provide policymakers with the opportunity to do both by providing customers with more accurate information and allowing for better targeting incentives at specific policy goals when incentives are removed from the rate structure and applied in an explicit and transparent manner.

Cross-subsidies. Rate Design Principles 7 and 8 provide, "Rates should generally avoid cross-subsidies, unless the cross-subsidies appropriately support explicit state policy goals," and "Incentives should be explicit and transparent." SDG&E's Optimal Rate Design would ensure the existence of rates that promote accurate price signals furthering Rate Design Principles 2, 3, 4, 6, 7, 8, and 9. It would also create the opportunity for policymakers to design clear and transparent subsidies to support state policy goals. SDG&E's Optimal Rate Design Proposal would not provide for incentives hidden in complex rate designs and therefore obscuring the actual cost of the services customers receive, or creating unintended consequences from market changes created by things such as the introduction of new technologies. Instead, under SDG&E's proposal, incentives would be separately identified, creating transparent price signals while providing for incentives that could be adjusted as warranted by changes in market conditions and customer response to ensure that the state's policy goals are being achieved at the lowest societal cost.

For instance, a subsidy that allows a distributed generation technology to avoid fixed customer costs is an arbitrary means to set an incentive level. The avoided customer cost, or incentive/subsidy, would not adjust with increases or decreases in the cost of the technology. Conversely the customer costs could increase or decrease, increasing or decreasing the incentive/subsidy, even if the technology cost remained constant. Only by providing the incentive separate from basic rates can the incentive be reasonably adjusted over time to enable public policy at the lowest societal cost.

Transparent incentives/subsidies also provide greater certainty for customers who choose to adopt technologies that support public policy. By providing the incentive transparently and directly, the Commission could eliminate the uncertainty that created by changes in utility costs and rate structures that are independent of the benefit, or avoided cost, that the technology provides.

Conservation and Energy Efficiency. SDG&E's Optimal Rate Design would also be consistent with Rate Design Principle 4, "Rates should encourage conservation and energy efficiency." By empowering customers to compare the costs of conservation and energy efficiency to the costs that would be avoided with a reduction or shift in energy use, customers will be able to engage in conservation and energy efficiency efforts in ways that more accurately reflect the environmental and financial costs of electricity infrastructure development/expansion as well as energy production.

To the extent that distribution demand and system or transmission capacity costs are recovered from customers based on the costs utilities incur to provide those services to customers, customers will have incentives to reduce their demand in ways that reduce the costs they pay for these services. This, in turn, will reduce the need that would otherwise exist for the distribution and transmission system to be expended to meet that demand, resulting in economic and environmental benefits for consumers.

Rates that are designed to reflect these costs in this manner will create incentives for customers to pursue conservation and energy efficiency efforts that consider production and capacity-related environmental costs. The Customer Survey indicated that saving money is the strongest driver of rate choice.[14] Therefore, to save money on their bill, 95% of customers said they have tried reducing their energy use and 75% of customers said they have tried shifting their

[14] Survey Key Findings Report, served on April 17, 2013 to R.12-06-013 at slide 14.

electricity use.[15] These behaviors show that customers are interested in reducing their use, which supports conservation and energy efficiency, in turn potentially reducing bills and ultimately saving customers money. In the event that additional conservation and energy efficiency beyond which would result from consideration of accurate signals regarding the costs of electricity services were desired, incentives that are designed to promote those outcomes could be adopted in a clear and transparent manner consistent with Rate Design Principle 8.

To the extent that accurate price signals do not incent the energy efficiency objectives, then direct incentives could be adopted (i.e. rebates for Light Emitting Diode ("LED") lights) consistent with Rate Design Principle 8. Existing rate structures do not provide that transparency and, consequently, do not encourage all energy to be conserved. For instance, a rebate provided today in combination with a Tier 4 rate provides a much higher incentive than a rebate provided in combination with a Tier 1 rate. Accurate prices with an appropriate sized rebate provide the same incentive for all sales providing greater opportunities for all customers to participate in achieving California policy.

Today, inclining tier blocks incentivize roughly 1/3 of energy sales comprised of high use customers who are provided an economic opportunity to conserve. Approximately 2/3 of sales (Tier 1 and Tier 2 sales) are priced at a discount leaving low use customers with less of an economic incentive to conserve. In addition, direct incentives with accurate price can be incorporated seamlessly with California's policy to promote distributed renewable generation. To further illustrate this point, consider current solar customers. While typical solar customers are on average high energy consumers, they do not receive the same economic incentive to conserve energy consumption as high use consumers without solar. This is due to the tiered structure as noted above. As a growing percentage of California's customer base, and an energy

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[15] *Id*, at slide 11.

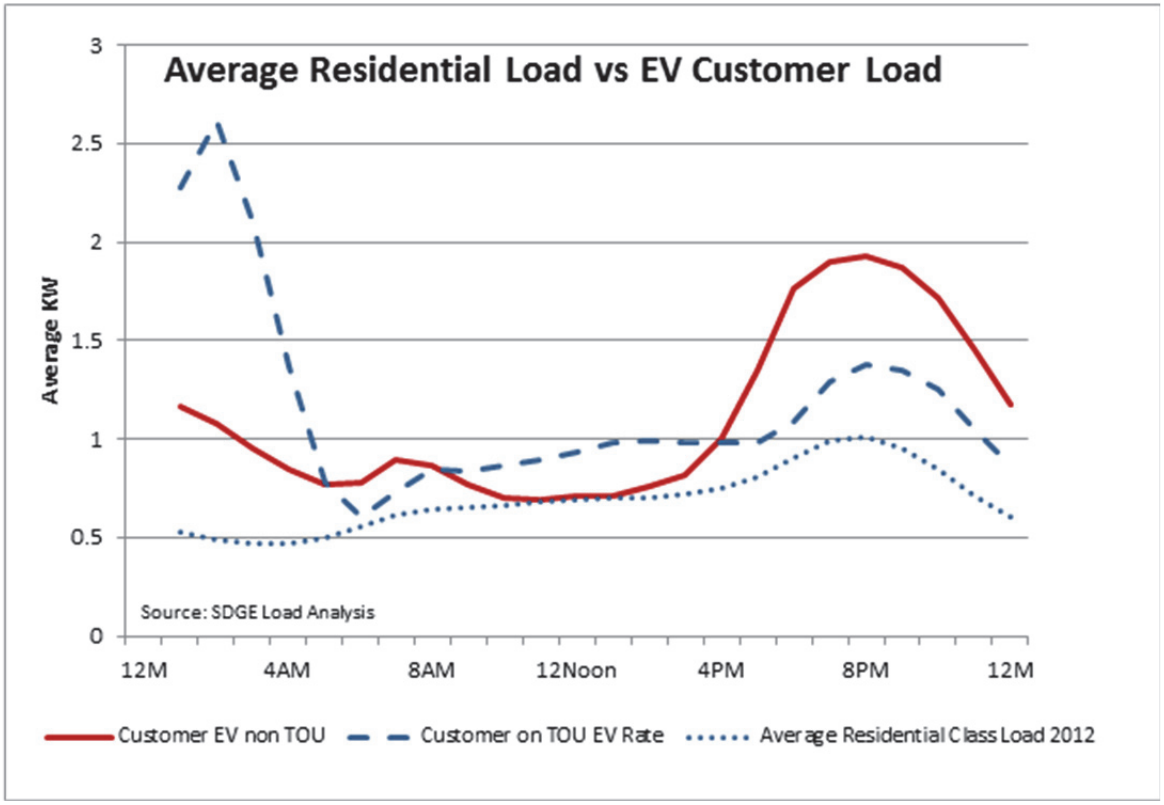
conscientious customer segment, this represents a lost opportunity to California for energy conservation.

Once again accurate prices are not about the level of incentives/subsidies that are provided but rather how that incentive is provided to achieve policy benefits at the lowest societal cost.

SDG&E's Optimal Rate Design proposal also supports Rate Design Principle 5 ("Rates should encourage reduction of both coincident and non-coincident peak demand") because accurate price signals would price services according to the cost utilities incur to meet a customer's coincident and non-coincident demand. This would create incentives for customers to use electricity in ways that minimize unnecessary grid infrastructure construction, reducing the environmental issues and costs associated with this activity. A clear example of the benefit of accurate price signals in reducing pressure on infrastructure costs is evident in SDG&E's electric vehicle rates. Customers on SDG&E's experimental electric vehicle rates have a super off peak period that includes a lower rate for consumers during periods when grid use is low. Electric vehicle customers who receive the super off peak price signal charge their vehicles during the super off peak periods, demonstrating that they will shift usage in response to price signals minimizing emissions and maximizing economic efficiency in grid/generation utilization.

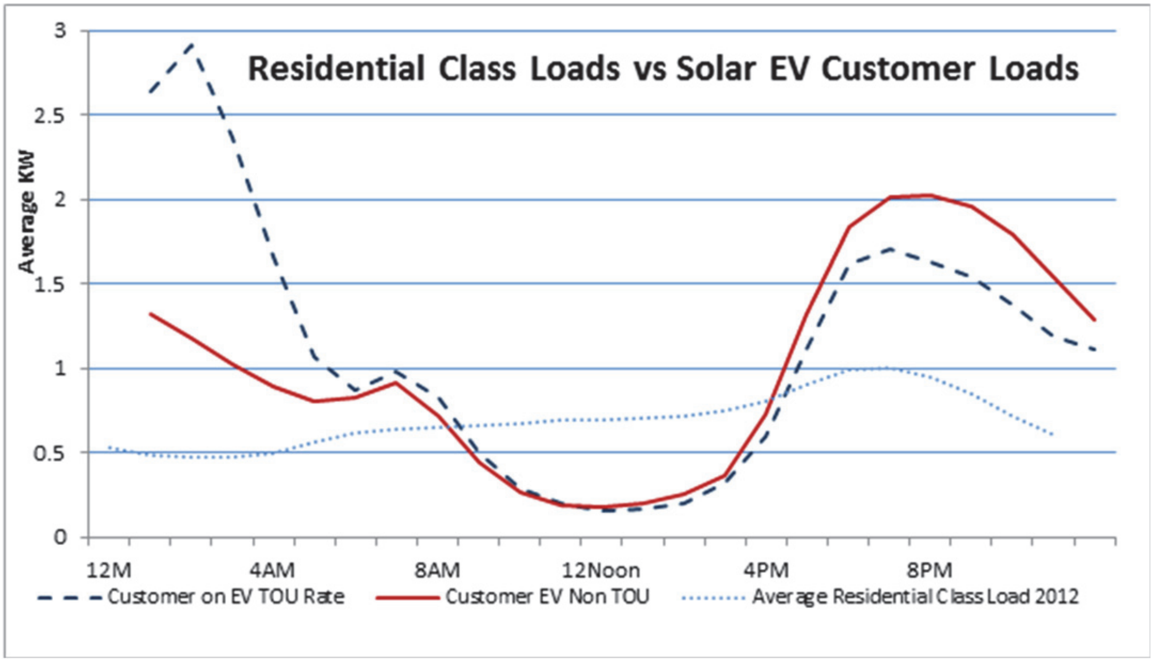
Conversely, customers who own electric vehicles and remain on SDG&E's typical inclining block rate, DR, will start charging their cars around 5:00 to 7:00 p.m. when they arrive home from work. This is the beginning of peak demands on residential circuits.

Chart 7 Average Residential Load and EV Customer Load



In addition, nearly 40% of the Electric Vehicle customers that also have distributed solar generation systems on their homes chose to stay on their existing residential rate. These customers can size their system to stay out of the upper tiers and thus, stay on schedule DR and do not receive any time of use price signal. The result is that these customers tend to come home from work and charge their cars at the time of the residential class peak demand, contributing to increased peak demand on residential circuits.

Chart 8: Average Residential Load and Solar Electric Vehicle Customer Loads



In short, electric vehicle customers that are able to save money by charging in the super off peak period also reduce the cost of service for all customers, and those who do not receive a price signal that accurately reflects these costs (e.g., remain on DR rate) increase the costs for all customers by increasing the build out of distribution capacity infrastructure.

Based on consumer patterns recorded to date, if these customers received accurate price signals for super off-peak energy use they would charge their cars in the super off peak and greater societal benefit could be achieved at a lower cost.

Ensure Affordable Electricity to Meet Basic Needs. Rate Design Principle 1 provides that, "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." Currently low-income customers receive protections through both bill credits and rate subsidies. Under SDG&E's Optimal Rate Design, all subsides would be made clear and transparent. Complying with this policy goal by excluding them from paying for public purpose charges and subsidies and if necessary in addition providing a line item bill discount, as opposed to a discounted rate, would then have the advantage of being transparent. However, it would also inadvertently obscure price signals that would otherwise encourage conservation, demand response, and energy efficiency.

Alternatively, to ensure that low-income customers also see the accurate price signals that would incent the behavior identified in Principles 4 and 5, the subsidies that are currently embedded in rates could instead be provided through income supplements as bill credits. Bill credits sized based on need ensures that the amount of electricity necessary to meet the customer's basic necessities and comforts are available at an affordable price efficiently supporting the policy goal. As such this structure would also align the protections for low-income to be consistent with Principle 8.

(e) Economic Efficiency

Rate Design Principle 9 provides, "Rates should encourage economically efficient decision-making." Economically efficient decision-making is only possible if customers are able to make choices based on the actual costs that are associated with the services they receive consistent with Rate Design Principles 2 and 3. The Optimal Rate Design described by SDG&E herein would provide customers with accurate information regarding the services they receive, enabling them to make well-informed decisions regarding their electricity use and competitive alternatives to traditional utility service. Currently there is no relationship between utility cost-drivers and the price signals that customers see. Because customers make decisions based on the price signals they receive this leads to inefficient economic outcomes. Policy makers face the same issue when rates do not reflect the cost of service.

SDG&E's Optimal Rate Design also simplifies economically efficient decisions for policy makers by providing a direct assessment of what economic gap, if any, is required to be filled to achieve a policy. As previously noted, when an incentive/subsidy is buried in rates the level of the incentive/subsidy can change independent of the cost of the technology that supports a California policy. There is only so much economic burden that California consumers can shoulder. By achieving policy objectives at a lower cost more objectives can be achieved for the same cost.

(f) Transition Path

Principle 10 provides that, "Transitions to the 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." SDG&E is committed to finding ways to ensure that customers are well informed and that adverse bill impacts are minimized. The challenge will be in the determination of the transition path. The current rate structure, being an "all-in" energy rate does not reflect a cost-based rate. The current tiered rate structure, in opposition with the average cost of service, further compounds the difficulty of the transition path.

SDG&E is committed to ensuring fairness and meeting customer's needs. An immediate shift to an Optimal Rate Structure could create adverse bill impacts for some customers, which SDG&E seeks to avoid. The appropriate transition for each utility may differ, based on facts and circumstances unique to that utility. Utility-specific transitions should be determined in utility-specific rate proceedings. SDG&E is committed to proposing transition mechanisms in all rate design proceedings that are designed to avoid significant adverse customer impacts while moving towards a sustainable rate structure for the future.

SDG&E also understands the importance of customer outreach and education. A comprehensive communication plan will be developed as SDG&E begins the transition to a new rate design. This is discussed in more detail in SDG&E's response to Question 7.

B. ***Question 2:*** *Explain how your proposed rate design meets each goal and compare the performance of your rate design in meeting each goal to current rate design. Please discuss any cross-subsidies potentially resulting from the proposed rate design, including cross-subsidies due to geographic location (such as among climate zones), income, and load profile. Are any such cross-subsidies appropriate based on policy principles? Where trade-offs were made among the principles, explain how you prioritized the principles.*

SDG&E has attempted to balance and meet all of the Rate Design Principles in its Optimal Rate Design proposal. However, Principle 10, which is more of an implementation mandate, is of particular importance to SDG&E. Principle 10 provides, "Transitions to the 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." SDG&E's Optimal Rate Design is designed to support the long-term policy objectives of the Commission, the state, and SDG&E's customers. By clearly identifying long-term rate design goals today, the Commission will create the opportunity for a smooth and gradual transition, implemented through utility-specific rate proceedings in ways that are designed to fully inform and educate customers and minimize the bill impacts associated with those changes.

SDG&E considers all ten principles to be necessary characteristics of an optimal rate design. SDG&E summarizes how its Optimal Rate Design meets the Rate Design Principles in response to Question 1, above. In response to Question 1, SDG&E grouped Principles 1 through 9 into three categories: (1) Accurate Price Signals, (2) Support of Public Policy, and (3) Economic Efficiency. How SDG&E's Optimal Rate Design compares with current rate structures as it relates to Support of Public Policy (Principles 1, 4, 5, 6, 7, and 8), and Economic Efficiency (Principle 9) are discussed above. Further discussion of the comparison of how SDG&E's Optimal Rate Design aligns better with Rate Design Principles 2 and 3 in comparison to existing rate design is set forth below:

Principle 2 (marginal costs). Chart 1 above shows that the current rate structure provides customers with a volumetric energy rate that increases with increased use while costs when recovered through an energy rate decrease with increased use due to the recovery of fixed costs. This identifies the cross subsidies that occur between customers with varied consumption levels.

Principle 3 (cost-causation). Current cost recovery is based on volumetric energy rates that increase with energy use, not demand. Therefore, cross subsidies occur between customers with different load factors (i.e. levels of demand compared to a customer's energy use). However, such a cross-subsidy would be eliminated with an optimal rate structure that charges for demand separately from energy.

Under the current rate structure, geographic differences in SDG&E's service territory are captured through baseline differences across climate zones. Baseline supports the public policy of ensuring equal access to affordable electricity across climate zones (for SDG&E this is across four climate zones: Inland, Coastal, Desert, Mountain) and across service types (basic service (gas and electric) and all-electric service) and seasons (summer/winter). Therefore, baseline differences between climate zones are currently based on differences in average usage rather than differences in cost of service. Accurate price signals would capture a critical component of cross subsidies between geographic regions, load factors, as described above. An assessment and determination of differences in cost of service would need to be made to determine whether cross subsidies occur geographically. Once accurate prices are identified, policy makers are better informed as to what, if any, level of subsidy is appropriate between geographic regions.

Policy driven income cross-subsidies occur through support of low-income programs, such as California Alternate Rates for Energy ("CARE"). Currently, the CARE program is supported through incentives and embedded rate subsidies. An optimal rate design will ensure that policy driven income cross-subsidies are supported in a way that is consistent with the other principles as well as removing unintended income cross-subsidies. It should be noted that unintended income cross-subsidies can result in the subsidization of higher income low use customers by mid/lower income customers of moderate to high use.

C. ***Question 3:*** *How would your proposed rate design affect the value of net energy metered facilities for participants and non-participants compared to current rates?*

SDG&E's optimal rate design is a long-term vision for a future residential rate design that will meet all of the principles set forth by the Commission in its November ruling for residential customers. SDG&E believes that, only by moving towards the kind of Optimal Rate Design described herein, will the state be able to fulfill its policy objectives in the long-term.

In short, the value of net metered facilities need not change with the adoption of SDG&E's Optimal Rate Design. SDG&E's Optimal Rate Design simply makes the incentive/subsidy transparent. Policy makers ultimately make the decision on the appropriate level of incentive/subsidy and, therefore, the value of net energy metered facilities.

Accurate price signals themselves would mean that customers who have different costs of service would see price signals reflecting that. Customers with different service requirements (i.e. solar customer compared to solar customer with an electric vehicle) could also be offered different rate structures if warranted by cost studies. Currently, efforts are underway to examine the cost of service of solar customers. The Commission has contracted with Energy and Environmental Economics ("E3") to provide an evaluation of the cost of service of solar customers and whether or not they are paying those costs under the existing Net Energy Metering ("NEM") structure. This study fulfills the requirements of AB 2514 (Bradford, 2012) and D.12-05-036, which requires a study on the costs and benefits of NEM by October 1, 2013. In addition, a group of stakeholders in San Diego are sponsoring a similar study that is being conducted by Black and Veatch under the management of the Energy Policy Institute Center at the University of San Diego Law School. This study will be made available to all participants to inform the Commission's future rate design policies.

D. ***Question 4:*** *How would your proposed rate design structure meet basic* ***electricity*** *needs of low-income customers and customers with medical needs?*

As described above, SDG&E's optimal rate design proposal would continue to provide protections to low income customer and customers with medical needs. SDG&E's Optimal Rate design simply addresses the structure by which these protections are provided to ensure that the rates for all customers align with the Rate Design Principles. To ensure that sufficient protections exist to address customer needs, SDG&E's Optimal Rate Design would include additional backstops through customer programs. For instance, in the event a customer finds the need for additional support outside of the prescribed CARE bill credit, an energy audit would allow for more customer specific review and options. Further, current baseline provides the basis for ensuring equal access to affordable electricity across climate zones, service types and seasonal differences. SDG&E's Optimal Rate Design continues to support this policy.

In addition to SDG&E's Energy Efficiency Programs, which deals with SDG&E's preferred Energy Efficiency portfolio, SDG&E's Low-Income programs includes the Energy Savings Assistance Program, and addresses strategies, plans, activities, measures, policies, and budgets designed to increase the programs' enrollment and overall delivery, as well as help customers' reduce their energy bills, provide home improvement retrofits and promote energy conservation.

Energy efficiency funds are used to cover the cost of LED and Compact Fluorescent Light ("CFL") lighting, Energy Star appliances and provide customers with no cost measures like low flow shower heads and faucet aerators. Additionally, SDG&E has a Middle Income Direct Install Program that targets customers with income between 200% and 250% of the federal poverty level for no cost energy efficiency retrofits to their homes.

SDG&E offers a number of programs to help customers reduce consumption, which are briefly summarized below:

- Refrigerator/freezer recycling program where customers get an incentive to remove refrigerator/freezers; appliance pick-up is included.

- Incentives to customers that purchase Energy Star (e.g. high efficiency) appliances.

- Incentives to customers to participate in SDG&E's air conditioning ("A/C") cycling program where their A/C unit will be cycled either 50% or 100% (higher incentives for greater cycling) during peak days.

- Premium incentive, offered in SDG&E's Peak Time Rebate tariff, for customers with enabling technologies ($1.25/kWh for customers with enabling technologies vs. $0.75/kWh for customers without technologies).

- Plan on installing up to 15,000 programmable communicating thermostats (i.e. enabling technologies) in customer's homes as part of SDG&E's 2012-14 Demand Response portfolio.

In addition, the Energy Savings Assistance Program offers low income customers free weatherization and energy efficiency services such as weather stripping, caulking, insulation, and efficient appliances such as furnaces, refrigerators, and clothes washers.

Under SDG&E's Optimal Rate Design Proposal, the costs of these kinds of programs would be funded through a transparent subsidy.

E. ***Question 5:*** *What unintended consequences may arise as a result of your* ***proposed*** *rate structure and how could the risk of those unintended consequences be minimized?*

SDG&E's proposal is designed to maximize the Commission's ability to ensure state policy goals can be achieved while encouraging economically efficient decision-making and providing more accurate information to customers. The inevitable consequence of any change to rate design are the bill impacts, but these can be anticipated and mitigated with appropriate transition mechanisms. The current rate structure is so far from cost-based that any movement towards cost-based will result in bill impacts for those customers current being subsidized.

Rate Design is a Zero Sum Game—if some ratepayers avoid costs of services they have received, those costs are then paid by other ratepayers. A primary reason to address the implementation of SDG&E's Optimal Rate Design in utility-specific rate design proceedings is the discussion of customer bill impacts. Only in this way can the progression to an Optimal Rate Design be done which balances customer bill impacts with accurate price signals.

F. ***Question 6:*** *For your proposed rate structure, what types of innovative* ***technologies*** *and services are available that can help customers reduce consumption or shift consumption to a lower cost time period? What are the costs and benefits of these technologies and services?*

A significant issue for California is what innovative technologies have not been adopted because accurate price signals were not introduced. Because an accurate price for power quality, for example, is not being sent to consumers, incentives to develop, market and invest in technology that could resolve these issues do not exist.

The Commission has an opportunity to ponder in this proceeding what new technologies California's innovators and entrepreneurs might develop in the future if the market provides a price signal for all of the services that are required to support the policy objective of a low carbon, customer empowered future energy market.

Under existing rate design, an unintended consequence occurs—customers lack incentives to pay for various kinds of new distributed energy resource technologies, such as energy storage and demand automation technologies that could flatten a customer's load profile. This stifles potential innovation in these technologies and unintentionally eliminates incentives that could otherwise exist for customers to flatten their demand profiles; these kinds of incentives, were they to exist, would reduce the need to construct new distribution and transmission facilities that would otherwise exist.

Accurate price signals that accurately reflect transmission and distribution demand capacity costs as well as the time value of energy would create incentives for customers to consider investments in new distributed resource technologies that help flatten demand, spurring further development in these markets and reducing the need for infrastructure construction that would otherwise exist. While many opportunities for customers to reduce and/or shift consumption already exist, appropriate incentives in rates would create opportunities, not only for distributed generation, but for distributed electricity storage and after-meter demand automation/management.

G. ***Question 7:*** *Describe how you would transition to this rate structure in a manner that promotes customer acceptance, including plans for outreach and education. Should customers be able to opt to another rate design other than the optimal rate design you propose? If so, briefly describe the other rate or rates that* ***should*** *be available. Discuss whether the other rate(s) would enable customers opting out to benefit from a cross-subsidy they would not enjoy under the optimal rate.*

As is discussed above, the key to customer acceptance is rates that make sense because those rates reflect the costs associated with the services customers receive. When customers pay for what they get and get what they pay for, they will be far more likely to understand their rates than under the existing tiered model. However, such a move will need to be made through gradual steps, proposed in individual utility proceedings specifically tailored to meet the needs of that utility, and designed to minimize adverse customer bill impacts while empowering customers through education to change their energy usage to further minimize these impacts.

The Customer Survey concluded that customers do not understand existing utility rate design. Nearly half (42%) of the customers surveyed said they have not heard of tiered rates, even though that is the basis for the bills they pay.[16] Further, only 21% of the customers believe that a tiered rate design would work best for them.[17] By contrast, the vast majority of customers that have not been exposed to traditional rate design principles (known as "unexposed customers") have attempted to shift the time at which they use electricity, under the belief that this would save them money.

This demonstrates an understanding of the fact that energy costs vary by time of day, even among those that know little about electricity pricing. Prices that reflect accurate price signals are more likely to make sense to customers because it reflects reality. The fact that the majority of customers have attempted to shift the time at which they use electricity, under the belief that this would save them money, tends to show that customers have the ability and desire to shift or reduce their electricity use in response to price signals in order to reduce their electricity bills, in turn supporting Principles 4 and 5.

A couple of mechanisms that will ease customer acceptance and adoption of alternative rate structures are: (1) phasing to full cost basis; (2) phasing of rate components; and (3) transparent subsidies. The combination that ultimately will be utilized depends, in part, upon the combination of rates that are proposed, individual utilities customer service requirements, and utility costs at the time rates are proposed. Education and outreach plans are critical and will be

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[16] Survey Key Findings Report, served on April 17, 2013 to R.12-06-013 at slide 7.
[17] *Id*.

predicated upon which rates are proposed and which transition mechanism(s) are used. It would also depend on what stage of the transition and how educated customers are at the time.

An effective outreach and education plan, which SDG&E will develop, should contain the following key elements: (1) the plan must be rooted in customer research; (2) a test and learn strategy should be utilized to continuously measure the success of outreach and education efforts; and (3) the plan must be developed with customer, community and stakeholder feedback. While the ultimate customer education plan should be customized to the IOUs' customers and rate offerings, an integrated, multi-channel outreach and education effort should be utilized to drive awareness, understanding and engagement, with the overarching goal of helping customer understand their choices and make informed decisions about how customers use and pay for electricity. Outreach and education efforts may include:

1. General market communication to increase customer awareness regarding upcoming changes and options. Tactics could include traditional and online advertising, social media as well as education videos.
2. Targeted communications with individualized, customized messaging delivered based on customers preferred communication channel to receive information such as email and direct mail.
3. Stakeholder outreach and engagement consisting of grassroots activities and including collaboration and partnerships with community-based organizations.

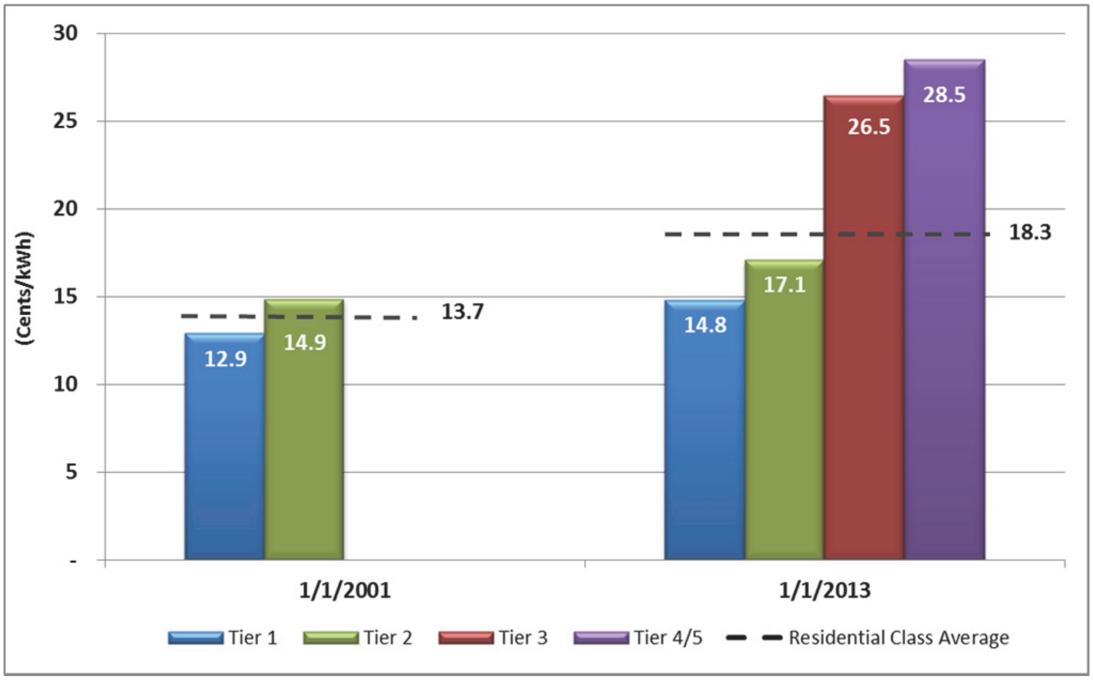
Customer choice should also be considered as rate structures are transitioned to the Optimal Rate Design. The base rate structure will be designed for a full service customer. Alternatives to the base rate structure can either be more or less complex. In the case of customers who wish for greater customization of their services through the adoption of alternative technologies, greater granularity and pricing accuracy will be required. These rates could be more complex than the base rate as the services that they have adopted may not reasonably need to be unbundled for a full service customer. Rates that are less complex and trade accuracy for simplicity will come at a premium cost to the base rate. If a customer elects for something other than the base rate, then that customer's rate must cover the cost of service. It follows that less accuracy requires a premium to assure that those costs of service are recovered. In that manner, customers who select either a more or less complex rate will not shift costs to those customers who remain on the base rate structure. Whatever rate structure a customer selects will not have an adverse impact on another customer.

Accurate price signals will provide customers with a direct connection between the behavior and the costs incurred. The current structure has some customers paying for none of the incremental costs of providing service, while others pay up to three times the costs of the incremental costs of service.

H. ***Question 8:*** *Are there any legal barriers that would hinder the implementation of your proposed rate design? If there are legal barriers, provide specific* ***suggested*** *edits to the pertinent sections of the Public Utilities Code. If there are legal barriers, describe how the transition to your proposed rate design would work in light of the need to obtain legislative and or other regulatory changes and upcoming general rate cases.*

PU Code Sections 739.1 and 739.9, enacted by SB 695, and PU Code Section 2827 (h) and (g) hinder the ultimate long term implementation of SDG&E's Optimal Rate Design Proposal as we look to incorporate and integrate new energy technologies that will emerge over the coming decades. The current California residential rate structure is an inclining block rate structure with multiple tiers. Until 2010 with the implementation of SB 695, which modified various sections of the PU Code and Water Code § 80110 that had capped rates for Tier 1 and 2 usage at 2001 levels, and now permits these rates to increase in accordance with specified formulas, the first two tiers were frozen causing all cost increases for the residential class to be absorbed exclusively by the upper tiered rates.

Chart 9: SDG&E Residential Rates – 2001 and 2013 Class Average and Tiered Rates



Since 2001, as seen in Chart 9 above, the residential class average rate, which is representative of the class average cost of service, has increased 34%. However, due to legislative constraints, lower tier rates have only increased approximately 15%, while the upper-tier rates have risen 85% on average in order to maintain the subsidy levels embedded in lower tier rates. This results in current Tier 1 rates recovering approximately 80% of the residential class average cost of service, while Tier 4 rates reflect a price that is more than 50% higher than the class average cost of service. Prior to AB1X, the difference between baseline and non-baseline rates was approximately 20%. The difference between the lowest tier and the highest tier is now over 90%.

I. ***Question 9:*** *How would your proposed rate design adapt over time to changing load shapes, changing marginal electricity costs, and to changing customer response?*

The CAISO Duck Curve discussed above demonstrates how the load shape is changing. An optimal rate design would have the flexibility to ensure that it does adapt over time to changing load shapes, changing marginal electricity costs, and to changing customer response. A primary reason for this is that the Optimal Rate Structure will charge for each of these individual services separately, thus providing an unbundled structure. Therefore, as the cost of these services changed so will the price of the rates.

A critical component of the philosophy of SDG&E's Optimal Rate Design is the flexibility of the Commission to react to a new technology that effectively unbundles a new component of utility services. Today, distributed generation has unbundled energy services by providing a technology that allows a customer to generate electricity. Distributed generation also has the potential to provide services such as capacity and power quality. Price signals must be made available so that those customers can pay for the services they require and be compensated for services they provide.

The pace of technology is accelerating in California and around the world. Agility is critical in such an environment. With adequate flexibility the Commission would be able to updated necessary pricing in Rate Design Windows and General Rate Case ("GRC") proceedings to ensure that rate reflect changing load shapes, costs and consumer response.

J. ***Question 10:*** *How would your proposed rate design structure impact the safety of electric patrons, employees, and the public?*

Consistent with SDG&E's support of other public policy objectives as well as SDG&E's own commitment to safety, SDG&E's Optimal Rate Design would support the safety of electric patrons, employees, and the public.

IV. CONCLUSION

SDG&E respectfully submits that an Optimal Rate Design is one under which utilities charge for the services they provide, recover costs on the same basis in which they have been incurred, and under which incentives or subsidies that have been deemed necessary to further public policy objectives are separately and transparently identified. A rate design based on this structure would accomplish and balance each of the Commission's Rate Design Principles, accurately inform customers, and provide a platform for long-term growth in the policy objectives of the state and this Commission.

DATED at San Diego, California, on this 29th day of May, 2013.

Respectfully submitted,

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