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 Utilities' Residential Rate Structures, the Transition to Time Varying and Dynamic Rates, and Other Statutory Obligations	**R. 12-06-013** (Filed June 21, 2012)

SIERRA CLUB RESIDENTIAL RATE DESIGN PROPOSAL

Andy Katz
Attorney at Law
2150 Allston Way, Suite 400
Berkeley, CA 94704
510-848-5001
andykatz@sonic.net

Matt Vespa
Senior Attorney
Sierra Club
85 Second Street, 2nd Floor
San Francisco, CA 94105
415-977-5753
matt.vespa@sierraclub.org

ATTORNEYS FOR
SIERRA CLUB CALIFORNIA

May 29, 2013

I. Introduction

Pursuant to the November 26, 2012 Scoping Memo and Ruling of Assigned Commissioner Peevey, and the ALJ Ruling extending the filing date for proposals to May 29, 2013, Sierra Club submits this proposal for residential rate design to the California Public Utilities Commission for consideration. Sierra Club commissioned EcoShift Consulting, LLC to analyze potential rate design alternatives, to determine a rate design that meets the specifications of the Rulemaking while achieving positive environmental outcomes, and to prepare testimony to support the proposed rate design.

II. Executive Summary of Proposal

This report details Sierra Club's proposed rate design, which attempts to maximize GHG reductions from electricity generation while maintaining the key elements of rate design including fairness and cost causation. The Sierra Club's proposed rate design will help California achieve the GHG reduction goals set forth in the California Global Warming Solutions Act (AB 32, 2006) and set the foundation for the additional deeper post-2020 emission reductions called for under Executive Order S-3-05.

A rate structure that functions to significantly reduce greenhouse gas pollution and reliance on fossil fuels benefits all ratepayers. From increased wildfires to a reduced snow pack to sea level rise, California's economy, environment, and the health and safety of its residents are already being impacted by climate change. With atmospheric concentrations of greenhouse gas pollution recently passing 400 parts per million, a level the Earth has not experienced since the much warmer Pliocene Era 3 million years ago, the severity of climate impacts to California will only increase. However, the extent and severity of future impacts depends on if and how rapidly California and the rest of the world reduce greenhouse gas pollution. It is incumbent upon the

California Public Utilities Commission (CPUC) to demonstrate national leadership and implement a rate structure that provides significant conservation opportunities, reinforces the Loading Order, and reduces greenhouse gas pollution. Designed and executed properly, rate design reform will move California to a modern grid that leverages the capabilities of smart meters by providing price signals that encourage conservation, facilitates deployment of distributed generation (DG) solar photovoltaics (PV) and adoption of energy efficiency (EE) measures, and reduces energy use during peak periods.

In contrast, rate design changes such as the imposition of fixed charges undermine achievement of California's environmental objectives and mark a step backward in state efforts to fight climate change and reap the environmental and economic benefits of robust deployment of DG PV and EE. Fixed charges also result in a significant and inequitable subsidization of rates from lower income customers that consume less electricity to more affluent high energy consumers. Marginal cost and cost-causation principles should allocate costs to customers based on their impact on the grid. Because high energy users, particularly at peak periods, have a greater impact on peak generation capacity requirements, transmission congestion, and other aspects of transmission and distribution, they should be responsible for a greater share of those costs.

With these considerations in mind and after analysis of a number of potential rate designs, the Sierra Club proposes a hybrid 3-tiered, 3-time-of-use (TOU) period rate design. The proposal more strongly encourages energy conservation and adoption of DG PV and energy efficiency retrofits than the existing rate design while minimizing potential bill impacts. The proposal results in minimal bill increases or decreases for aggregated groups of income levels and maintains the existing levels of CARE subsidy. The hybrid design also has important

advantages over a rate structure that relies on time-of-use alone, particularly in reducing overall energy usage and supporting DG PV.

Our key findings, based on empirical comparisons of rate design alternatives, are as follows:

- TOU rates create important incentives for load shifting and more efficient air conditioning.
- Tiered rates create important incentives for energy conservation and DG PV.
- A combination of tiered and TOU rates is essential to maximize conservation outcomes and achieve state clean energy objectives. For example, TOU rates in combination with elimination or flattening tiers would likely significantly reduce the economic incentive for adoption of DG PV. Combining TOU rates with tiers avoids this outcome.
- TOU rates modestly reduce GHGs through load shifting but can result in slightly increased electricity use overall. GHG reductions from TOU rates also depend upon the specific mix of baseload and peak energy sources, which is expected to change as more solar comes online. If TOU time periods do not track these shifts, the GHG benefits of load shifting could be reduced over time. Rate design with a tiered component will encourage overall conservation and provide added resiliency from impacts to the efficacy of TOU rates from changes to net load from increased penetration of renewable resources.
- Flattening tiers are likely to result in increased consumption. Conservation estimates using constant elasticities that purport to show conservation from flatter tiers are based on simplifying assumptions that are not supported by basic economic theory.

- Tiered rates coupled with TOU improve equity. Flattening or eliminating tiers increases bills for lower income households and reduces bills for higher income households. TOU rates provide customer opportunity to further minimize energy bills by shifting usage.
- Combining TOU rates with tiers more closely aligns rates to marginal cost of electricity consumption as compared to the current rate structure or a TOU-only approach.
- A 3-tier/3-TOU rate structure minimizes bill shock. A rate that uses only two tiers or only two TOU periods will result in higher differentials between peak/off-peak and Tier 1 and Tier 2, or a greatly increased Tier 1 rate. Three TOU periods and three tiers significantly reduced this differential.
- Fixed customer charges have negative impacts on incentives for DG solar PV, air conditioning upgrades, and conservation.

As part of our analysis, we also show how various electricity rate structures that incorporate a TOU rate structure would impact GHG emissions by calculating:

- Levelized cost of electricity purchased from the grid (LCOE-G) compared to levelized cost of electricity from DG PV (LCOE-PV) for current and proposed electricity rate designs.
- Simple payback period (SPP) for replacement of air conditioning (AC) units under current and proposed rate design for customers in climate zones that require cooling.
- Change in total energy consumption resulting from the proposed rate design.

The attached Sierra Club rate design proposal prepared by EcoShift Consulting, LLC is set forth in accordance with questions identified in the Scoping Memo. We also identify areas of

CPUC action related to rate design but not specifically covered in this proceeding that would enable more effective achievement of energy conservation outcomes.

Respectfully Submitted,

/s/

Andy Katz
Attorney at Law
2150 Allston Way, Suite 400
Berkeley, CA 94704
510-848-5001
andykatz@sonic.net

Matt Vespa
Senior Attorney
Sierra Club
85 Second Street, 2nd Floor
San Francisco, CA 94105
415-977-5753
matt.vespa@sierraclub.org

ATTORNEYS FOR
SIERRA CLUB CALIFORNIA

May 29, 2013