Excerpts and Interpretation of Pacific Gas & Electric's AET (Annual True-Up) Advice Letter to the CPUC

Changes in Electric Rates beginning Jan 1, 2021
Featured here by a residential Net Energy Metered (solar)
Customer Bill Martin, 12-31-20

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Once again, we are on the cusp of new residential electric rates from the largest combined gas/electric investor-owned utility in the country. These charges for electrical power are something I have followed for years as both a consumer and as an energy conservation advocate. California has demonstrated that a combination of regulation and pricing can bring down consumption, saving consumers billions of dollars in the last 45 years and holding per capita electric consumption flat.

Pricing of utility-supplied electricity in California was diverted from a "load growth for profit" model long ago. Profitability (or more precisely "return on invested capital") is now a regulated range allowed by the state PUC (Public Utility Commission). It's theoretically high enough to attract investor dollars for operating capital rather than to be exclusively dependent on bond sales or bank loans. Theoretically, it's low enough to not constitute a rip-off of ratepayers. This situation is not and never has been black and white. It governs a (regulated) territorial monopoly. Nothing wrong with that.

Disclosure of expenses along with continuous reports on infrastructure status, are the most common items shared by the utility's staff and lawyers with analysts from the state PUC. Desired utility expenditures that are proposed for recapture by rate revenue need PUC approval in advance. They become the subject of public disclosures and hearings. Thus, transparency and final approval can be a drawn-out affair, but it lessens the chances that this transaction becomes a zero sum game favoring either party's interest.

Here's an example. Say the utility would rather not build another base load or "peaker" power plant at great expense, with associated permitting and construction delays. It may want to offer ten million dollars of free LED light bulbs to customers that will save enough energy to eliminate that next power plant. Analysis is presented to the PUC and mulled over. Five million dollars might be incorporated into rates for the next three years while load demand is reviewed, particularly at certain times of day. After three years and proof that the effort worked, the PUC might immediately approve the second half of the request quickly; even going so far as to make it a semi-automatic approval until this lowest of low hanging efficiency fruit has been gathered.

Another example. Say the utility wants customers to use less of its product, particularly at certain times. Prices could be taken higher, but in California there is strong regulation linking pricing to proven "cost of service." Violating this is seen as a punishment of customers rather than a dis-incentive. But, in a process similar to the first example, the utility could dis-incentivize excess use, particularly at certain times

when it is more difficult to keep the grid fully supplied. Thus was borne Tiered Usage Pricing with Time-of-Use. A customer can consume kilowatt-hours up to a certain quantity and the remainder of use is sold at a higher price. If the utility can demonstrate no additional revenue from this customer class, then the cost of service principle may not be violated. Some of the customer base will change behavior in their economic self-interest. Others won't. As a grid load-leveling tool, we could say that TOU and Tiers have worked.

For customers like me with solar photovoltaic panels on my roof, the historical practice necessitated a two-metered system—one for my use (at a higher price), and one for what I exported back to my utility (at a lower price, the utility's marginal cost of acquiring or generating additional power). With the coming of smart metering and new regulation that incentivized solar customers, NEM (Net Energy Metering) was born. A single meter, one year of minimal monthly payments for grid access, and a True-Up billing at year's end for what I owe is the current arrangement.

NEM with True-up lets me "coast and delay" my year's payment until it's all tallied. Then, I pay. But the terrific benefit to me is that with a single smart meter tracking all import-export of power, I am always dealing in the retail market's pricing structure. I pay retail for what I consume, but I get credit at retail for what I export. And when I've been exporting within the second tier during peak summer afternoons, I was credited at around 48¢ per Kwh. This was a great help when my consumption is priced at a minimum of 26¢. I am in a heating dominant climate and summer tier allowances are small, so if I can export, I make up for much of the cost of cloudy, cold winter periods when I gather reduced solar energy. Below is my True-up bill ending mid-November, 2020. The fifth column's $567 excess credit was retail-based but evaporates at True-up.

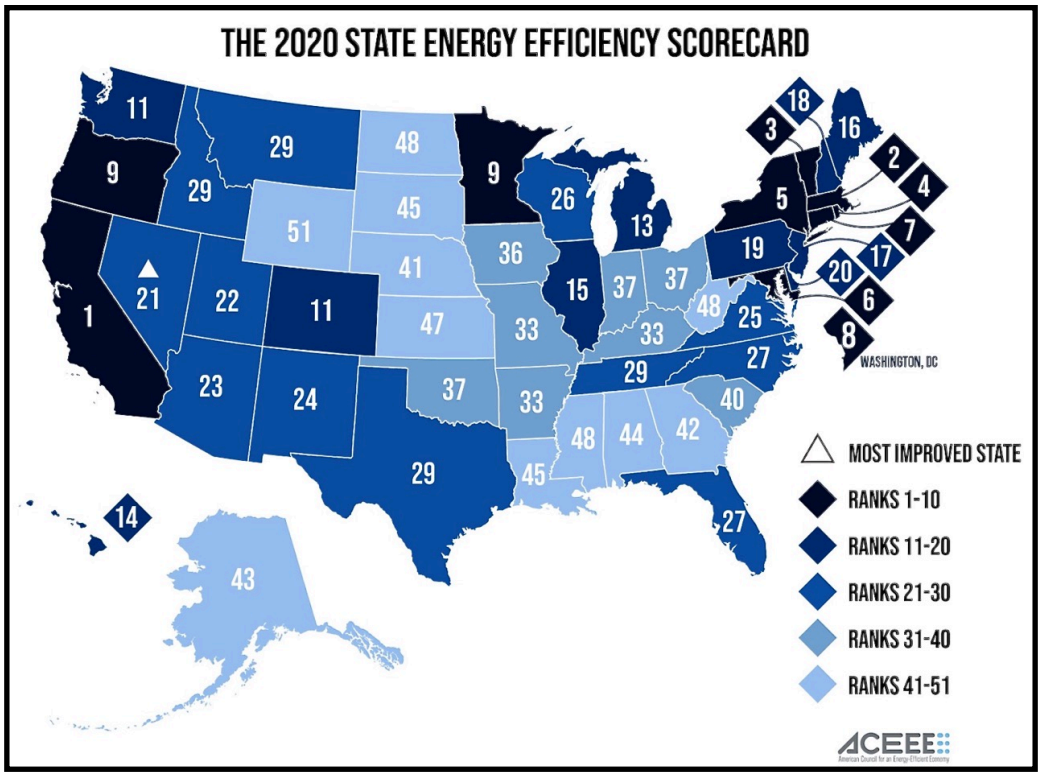
Summary of NEM Charges

Bill Period End Date	Net Peak Usage (kWh)	Net Part Peak Usage (kWh)	Net Off Peak Usage (kWh)	Net Usage (kWh)	Estimated NEM Charges Before Taxes	Estimated NEM Charges After Taxes
12/16/2019	0	124	1095	1219	$280.30	$280.67
01/15/2020	0	155	1058	1213	284.85	285.21
02/17/2020	0	144	896	1040	231.66	231.97
03/17/2020	0	91	117	208	44.64	44.70
04/16/2020	0	73	225	298	62.82	62.91
05/17/2020	-199	-132	-445	-776	-230.76	-230.99
06/16/2020	-394	-272	-160	-825	-309.69	-309.94
07/15/2020	-420	-307	-181	-909	-343.20	-343.47
08/16/2020	-368	-252	-112	-732	-273.07	-273.29
09/15/2020	-181	-138	50	-269	-102.27	-102.35
10/15/2020	-268	-214	-57	-538	-195.65	-195.81
11/15/2020	-92	-73	201	36	-17.02	-17.01
TOTAL	-1922	-801	2687	-35	-$567.39	-$567.40

This summary showed that I was NET ZERO for the period, but this was also Cost Zero to me. In this case, maximizing my benefit might have been to consume more electricity by taking the $567 closer to zero, and buying an all-electric car.

There are some critics (especially within utilities) who claim that solar NEM customers like me are increasing costs to non-solar customers. I say this is a possibility, but would like to see the math that accounts for my local excess generation during hot summertime afternoons. What is the monetary value of *that* to the grid?

California has a long history of energy policy leadership. Lately, it is witnessing catch-up by other states, particularly in the northeast. We here are working hard against air pollution. They are working to stem methane leakage and convert from dependence on fuel oil. Below, the ranking of states by the ACEEE (The American Council for an Energy Efficient Economy).



California, with its large and dense population (and air pollution) ranks first. Wyoming, with its low population, near non-existent pollution and heavy coal and fracking-based economy is last. Somewhere in this comparison of state rankings, the regulations that produced these results are anchored by differences in regional political ideology.

What follows are my excerpts from the latest PG&E E-6 Rate Proposal. Where I interject comment, those words will be in ***bold, and in purple.***

ELECTRIC SCHEDULE E-6 ***(EXCERPTS)***
Cal. P.U.C. Sheet No. 48181-E Cal. P.U.C. Sheet No. 47509-E Sheet 2 RATES:
RESIDENTIAL TIME-OF-USE SERVICE **(All solar NEM customers are on this rate)**
Total bundled service charges are calculated using the total rates below. On -peak, part-peak, and off-peak usage is assigned to tiers on a pro-rated basis. For example, if twenty percent of a customer's usage is in the on-peak period, then twenty percent of the total usage in each tier will be treated as on-peak usage. Customers on this schedule are subject to the delivery minimum bill amount shown below applied to the delivery portion of the bill (i.e. to all rate components other than the generation rate). In addition, total bundled charges will include applicable generation charges per kWh for all kWh usage.

Residential electricity has been sold for many years in California by a system of tiers, where a baseline usage allowance is assigned a cheaper rate than higher consumption beyond baseline. (Example: as an all-electric customer in the most severe heating climate zone, I am on schedule Y which allows 12.6 Kwh daily in summer and 25.3 Kwh daily in winter. That's a Tier 1 (Baseline) monthly allowance of 378 and 759, respectively.) What was originally a 5-tier allowance/ pricing system went to four, has been three for some time, and now is reduced to just two.

TOTAL RATES **(all E-6 customers)**

Total Energy Rates $ per kWh)	PEAK	PART-PEAK	OFF-PEAK
Summer			
Baseline Usage	$0.41101	$0.29258	$0.21735
Over 100% of Baseline	$0.48417	$0.36573	$0.29050
Winter			
Baseline Usage	—	$0.23852	$0.22169
Over 100% of Baseline	—	$0.31167	$0.29484

Total Meter Charge Rate ($ per meter per day) =	$0.25298
Delivery Minimum Bill Amount ($ per meter per day) =	$0.32854
California Climate Credit (per household, per semi-annual= payment occurring in the April and October bill cycles)	($17.20)

This means that as a TOU (Time of Use) customer, as soon as I break 378 Kwh in summer, I'm paying 29¢ off-peak and when over 759 Kwh in winter, I'm paying 29¢ off-peak as well. This is expensive electricity.

Many elements are "baked-in" to our electric rates such as the retirement of bond funding from 2001's electric de-regulation black-out fiasco, de-commissioning for a nuclear power plant, and recently, payment to a state-managed wildfire compensation fund. Such things have kept prices higher than the national average.

My own 7.4 KW-AC rated panels on my roof have potential to dramatically lower my consumption (but not in December, when the average fraction of potential clear-day sunshine is only 45% during a period where days are their shortest). However, the inverse is true in summer, and I can export lots of power at retail credit prices to the utility that tend to erase my winter consumption.

After many years of summer and winter periods being six months each, below is a new schedule of 4 months summer and 8 months winter. Also, for the first time, weekends 5-to-8pm will now be Partial-Peak rates in winter, too.

TIME PERIODS: **(2021)** Times of the year and times of the day are defined as follows: **Summer** (service from **June 1** through **September 30**): Peak: **M-F 3-8pm** Partial-Peak: **M-F Noon-3pm + 8-10pm + Wknds 5-8pm** Off-Peak: **All other times + 8 national holidays.**

Winter (service from **October 1** through **May 31**): Partial-Peak: **M-F 5-8pm** Off-Peak: All other times including **8 national** Holidays.

DAYLIGHT SAVING TIME ADJUSTMENT: The time periods shown above will begin and end one hour later for the period between the second Sunday in March and the first Sunday in April, and for the period between the last Sunday in October and the first Sunday in November. **(No change)**

TIME PERIODS: **(2022)**
In 2022, the times of year and times of the day will be defined as follows: Summer (service from **June 1** through **September 30**): Peak: **M-F 4-9pm** Partial-Peak: **M-F 2-4pm + 9-10pm + Wknds 5-8pm** Off-Peak: **All other times + 8 national holidays.**

Winter (service from **October 1** through **May 31**): Partial-Peak: **M-F 5-8pm** Off-Peak: All other times including **8 national** Holidays.

TIME PERIODS: **(2023)**
In 2023, all remaining grandfathered Schedule E-6 customers shall be transitioned to PG&E's then-existing default residential rate schedule, unless they indicate that they instead prefer to take service under a then-existing optional schedule

For me, this decision is unclear. My action will be based on self-interest as to how well my solar exports protect me from higher cost. Though nothing has come out as an official prediction, demand charges for all-electrics like me may be on the horizon. Some are already installing battery back-up to mitigate this and the possibility of frequent shut-offs because of high fire danger. The speed with which this state's grid builds inverter-enabled battery storage might also affect rates.

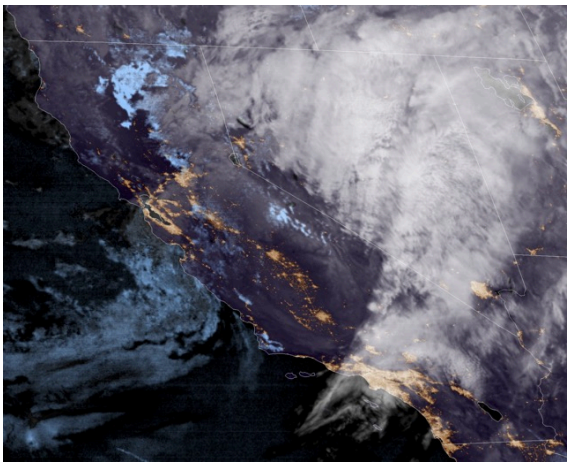
TOTAL RATES (all EV2 customers)

RESIDENTIAL TIME-OF-USE
SERVICE FOR PLUG-IN ELECTRIC VEHICLE CUSTOMERS

Total Energy Rates $ per kWh)	PEAK	PART-PEAK	OFF-PEAK
Summer Usage	$0.53791	$0.29718	$0.14497
Winter Usage	$0.38577	$0.23821	$0.14822

Total Meter Charge Rate ($ per meter per day) =	$0.32854
California Climate Credit (per household, per semi-annual= payment occurring in the April and October bill cycles)	($17.20)

As can be seen above, the EV price schedule contains both the highest and the lowest electric prices for residential customers. In this case, homeowner peak summer charging puts a strain on the grid at a bad time of day. Off-peak winter use is cheap—an encouragement that helps to balance the load profile of the grid at night. Assessments on carbon are expected to contribute to its higher cost in the future. With electric equivalent mileage of EVs already besting that of internal combustion engines, the ownership, use, and charging of an EV at home, overnight will be an enticement for many.



—Bill Martin