California Public Utilities Commission

Residential Rate Structure Rulemaking R.12-06-013 and AB 327 Compliance Update

Low Income Oversight Board Meeting

Gabe Petlin
Analyst, Retail Rate Design Section
Demand-Side Analysis Branch, Energy Division
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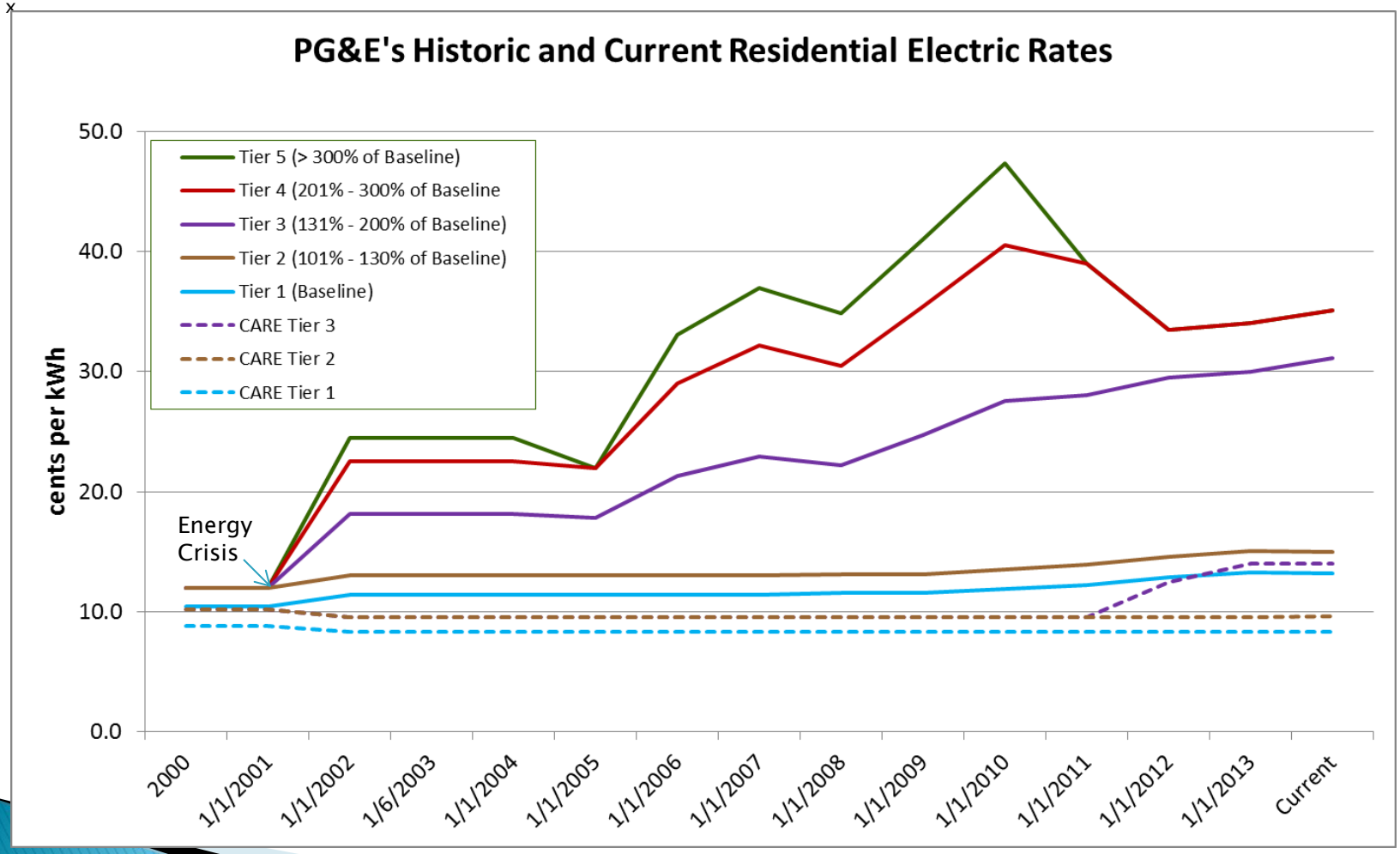
Executive Summary of Staff Proposal Recommendations

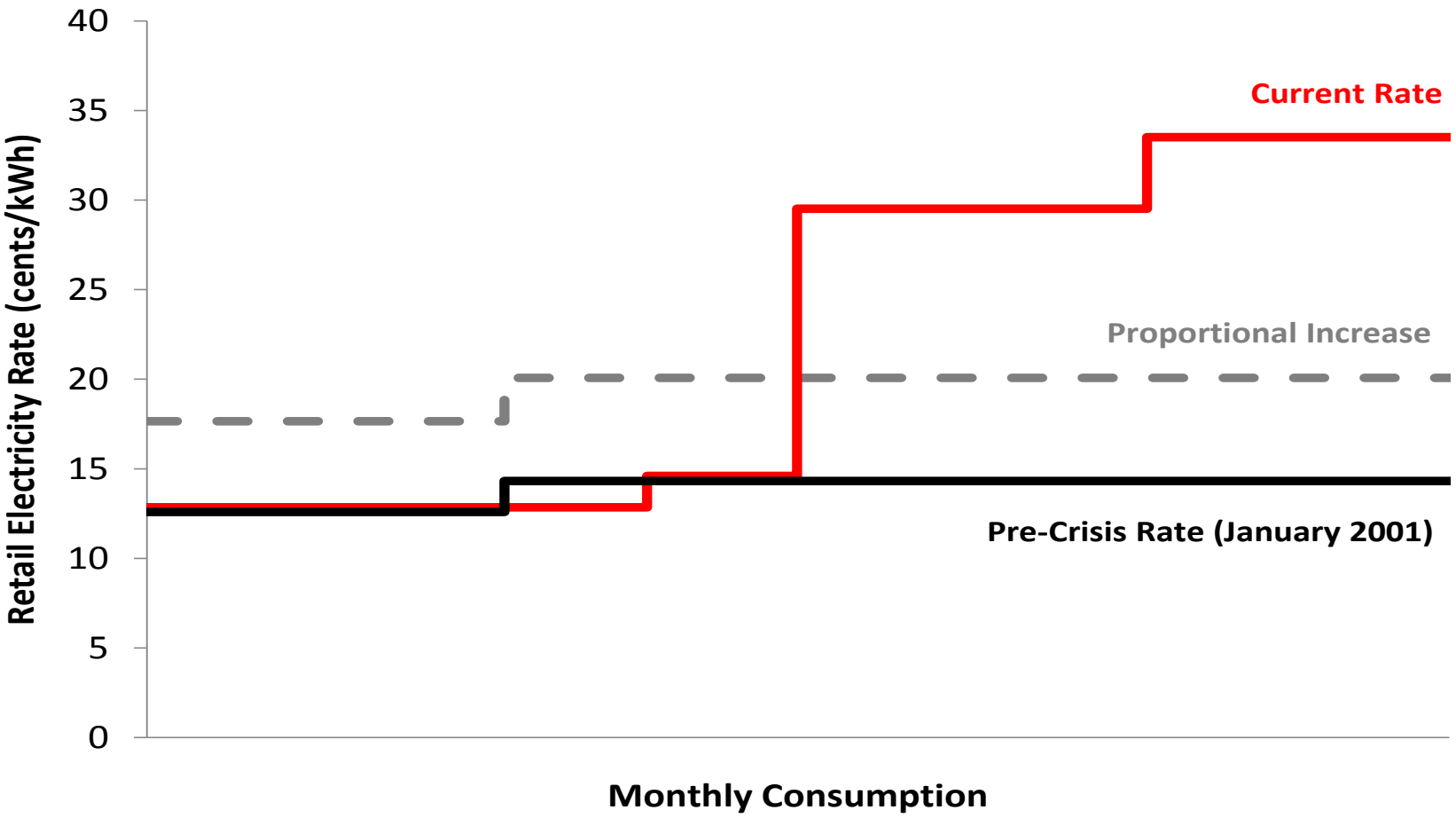
1. Default Cost-Based TOU in 2018 – (opt-out two-tier option)
2. Gradually Reduce the Number of Tiers and Tier Differentiation

3. Transitional Opt-in Time-Variant Pricing (TVP) – (non-tiered)
4. Minimum Bill or Fixed Charge Determined in Future Rate-Setting Proceedings
5. CARE Discount Consistent with 30-35% Requirements of AB 327
6. Customer Communication, Outreach and Education, including EE and DR offerings, and Demand Response Enabling Technology
7. GHG Costs Should be Embedded in Residential Rates
8. Assess Appropriate TOU Time Periods and Seasons for 2018 TOU Default

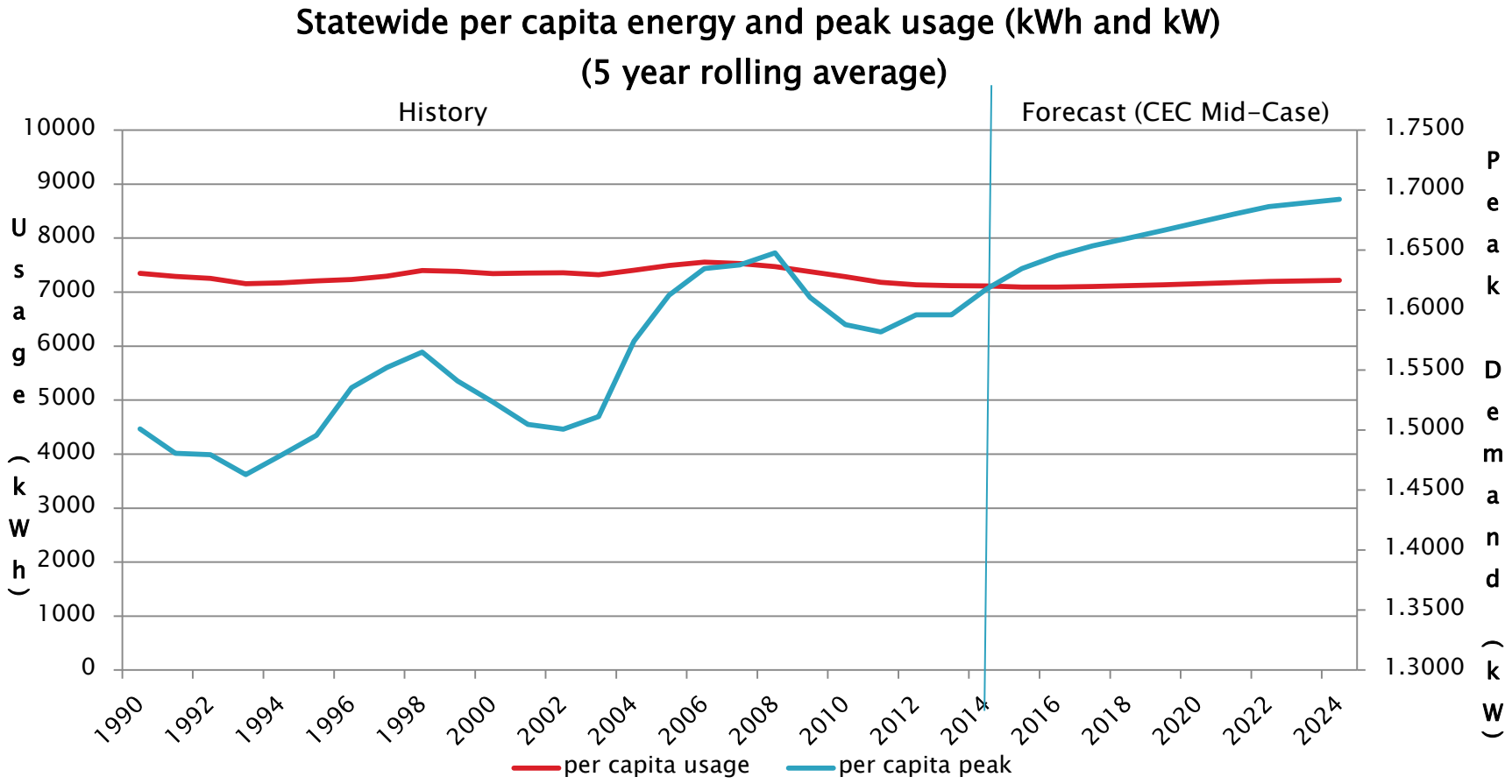
Inclining Block Rates Have Become Distorted Over Time



Low users pay too little– high users pay too much



Trends in Average and Peak Usage



- Per capita energy usage is flat
- Per capita peak demand is increasing
- **Statewide load factors are declining:**
  - **The Grid is becoming less efficient**

TOU Pricing Promotes Efficiency

- **TOU Pricing Gives the Correct Economic Signal (to *ALL* Customers) for:**
  - Efficient Energy Usage; EE & DR investment
  - DG (Solar & Wind); Storage; EV Charging

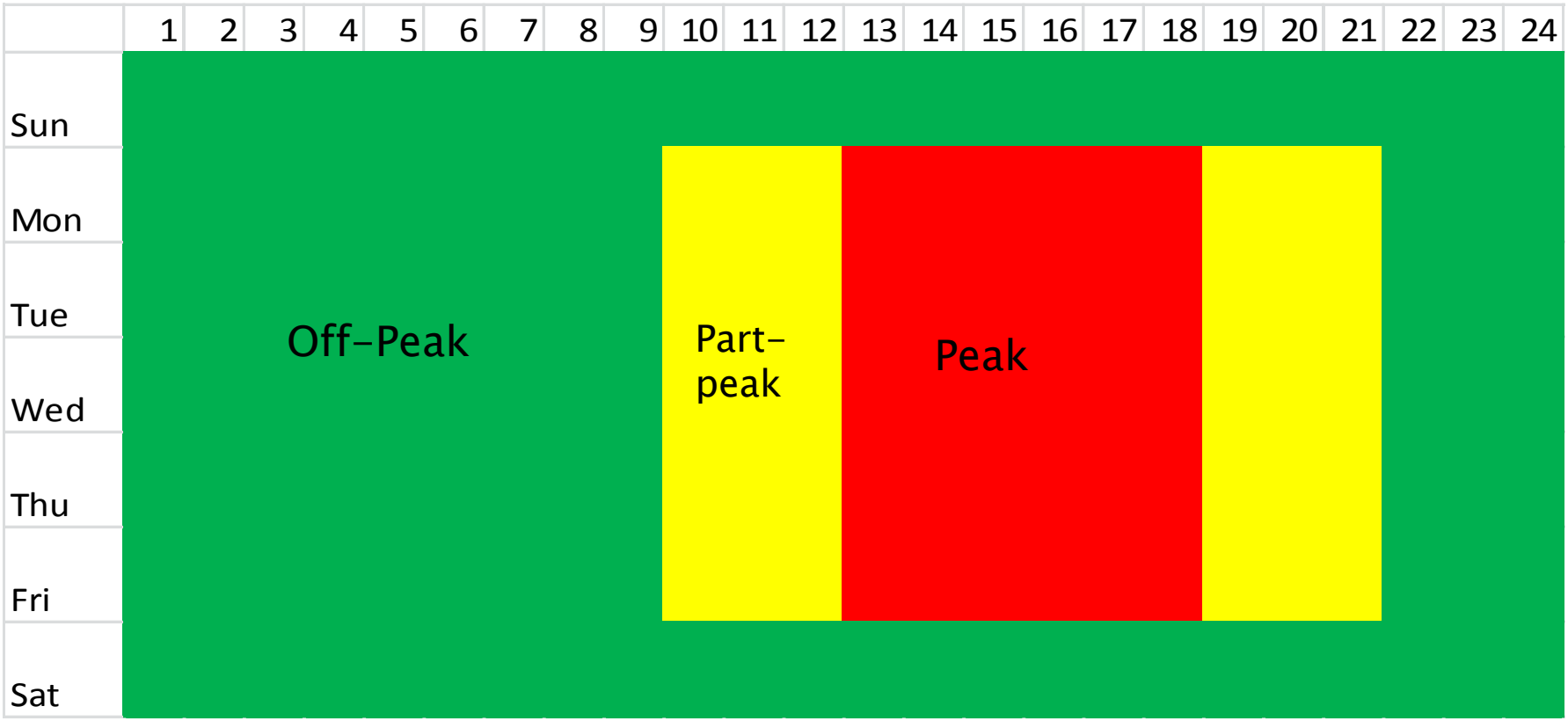
- **TOU Pricing Saves Grid Costs and Connects Retail Rates with California GHG Policy**
  - TOU can lower peak usage* and reduce the need to build additional generation to meet the peak
  - Off-Peak usage consumes 40% less natural gas and produces 40% less GHG, compared to summer peak usage

- **TOU Pricing Improves Customer Understanding and Control of their Bill**
  - Surveys indicate that customers understand TOU better than tiers.
  - TOU coupled with advanced meters will enable customers to better manage their electricity usage and reduce their bills.

*ORA analysis indicated that cost-based TOU with 90% statewide penetration could reduce summer on-peak load by approximately 2400 megawatts (MW).

82% of Summer Hours Are Non-Peak

Non-Peak TOU rates are lower than current Tier 3 Rates



Default TOU vs. Purely Opt-in

- There is strong evidence indicating that the adoption of TOU rates is much higher when offered on an opt-out basis compared to an opt-in basis.
- Staff recommends default opt-out TOU rates based on strong evidence that default TOU rates will lead to far greater peak load reductions then purely opt-in TOU rates.
  - A recent DOE study of customer enrollment patterns in time-variant pricing programs found an 8-fold increase in recruitment rates for the default (opt-out) over the opt-in approach.
  - Acceptance rates for SMUD's recent time-variant pricing pilot were in the high 90% range while opt-in rates were only 10-15%.
- To date, Commission approved opt-in TOU and CPP rates are adopted by less than 3% of residential customers.
- All commercial customers are either on TOU or will be on TOU by the end of 2015.

Proposed Customer Protections

Customer acceptance and understanding of the new rate structure and transition process will be enhanced by several important protections that are required by AB 327:

- **Vulnerable Customer TOU Exemption**
  - Medical Baseline and third party notification customers must be exempt from default TOU. They may voluntarily opt-in to any optional rate.

- **All Customers can Opt-Out of TOU**
  - AB 327 requires that customers be able to opt out of default TOU onto tiered rates with at least two tiers.

- **Comparative Rate Analysis (aka Shadow Billing)**
  - The utilities are required to provide each customer a rate comparison showing what their bill would be under alternative rates.

- **Bill Protection**
  - The law also requires one year of bill protection, ensuring that a customer's bill will be no higher than it would have been on the otherwise applicable rate during the first year on default TOU rates.

CARE Discount Consistent with 30-35% Requirements of AB 327

- CARE rates should average 30-35% less than regular rates.
- For SCE and SDG&E, the effective average CARE discount would not change significantly from the current level.
- PG&E's current 47% effective CARE discount should be decreased gradually through 3% annual reductions in the discount.

Potential options for implementing the 30-35 percent CARE discount

Options	Advantages	Disadvantages
30-35 Percent Discount Off of Each Care Customer's Bill (Staff Interim Recommendation until other options are vetted)	Simple to administer, easy to understand, and CARE customers would clearly see the otherwise applicable rate and the magnitude of the discount. Can easily be applied to different tariffs – a tiered or TOU tariff.	Would not target the discount to the basic needs of the most vulnerable customers
Volumetric Discount Differentiated by Tier	Could enhance conservation signals.	Could be somewhat complex to administer, and explain.
Discount Differentiated by Income Level	Would ensure that the most vulnerable customers who are most in need would receive larger discounts compared to other CARE customers with higher income levels.	Could be costly, cumbersome and complex to administer.
Equal Lump Sum Discount for All CARE Customers	Simple to understand and easy to administer and would provide a larger relative discount for those CARE customers that consume very little amounts of energy and a much smaller relative discount for larger customers.	Could be considered unfair to CARE customers that have large households and/or live in hot regions requiring considerable air-conditioning usage for health and comfort.

Current Rates

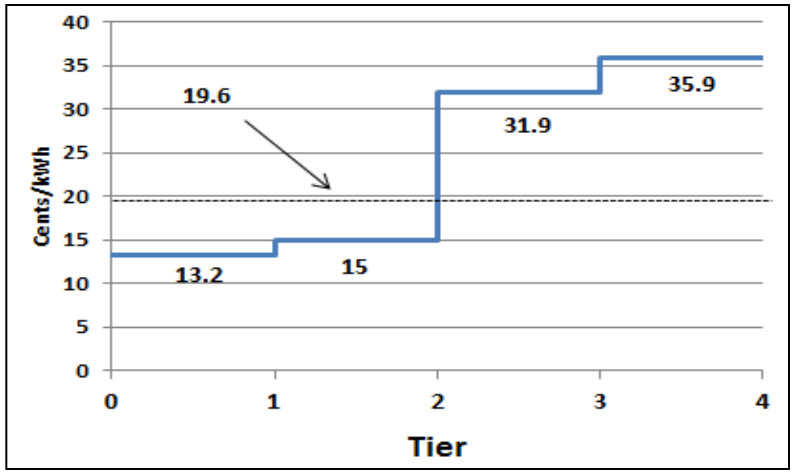
1) Current tiered rate structure imposes an inequitable cost burden on customers who use substantial amounts of electricity in the high-priced upper tier rates while simultaneously subsidizing the price of electricity to low-consumption customers.

2) Current upper tier Non-CARE and CARE rates are 1.7 to 2.7 times greater than Tier 1 rates.

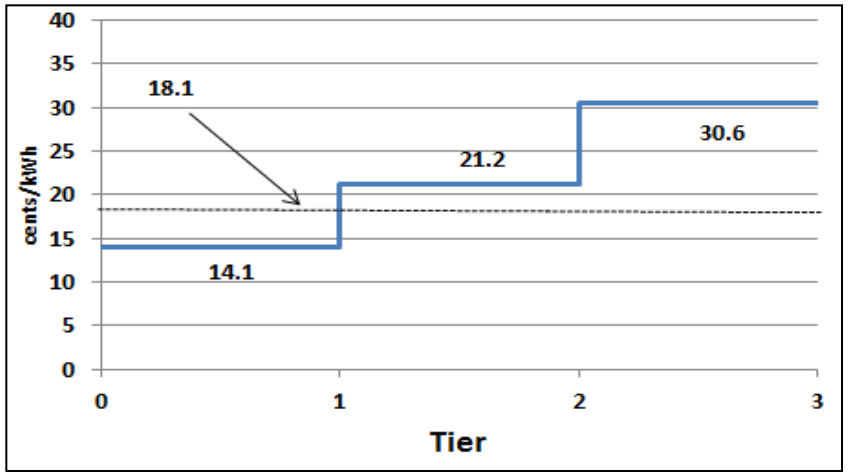
	PG&E cents/kWh	Upper Tier /Tier 1 Ratio	SCE cents/kWh	Upper Tier /Tier 1 Ratio	SDG&E cents/kWh	Upper Tier /Tier 1 Ratio
Non-CARE						
Tier 1	13.2		12.8		14.8	
Tier 2	15.0		16.0		17.1	
Tier 3	31.1	2.4	27.2	2.1	34.3	2.3
Tier 4 & Above	35.1	2.7	31.2	2.4	36.3	2.5
Average	18.9		19.2		22.7	
CARE						
Tier 1	8.3		8.5		9.9	
Tier 2	9.6		10.7		11.6	
Tier 3 & Above	14.0	1.7	20.8	2.4	17.0	1.8
Average	9.7		12.2		11.4	

Illustrative 2015 Transitional and 2018 End-State PG&E Non-CARE Electric Rates

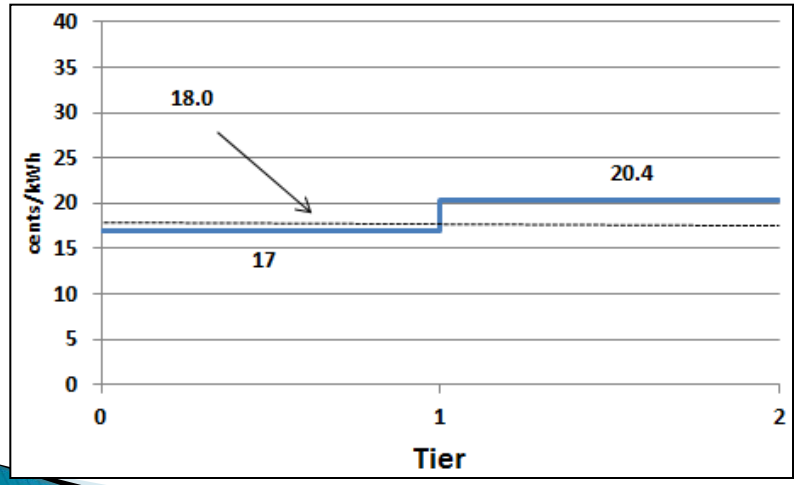
2013 4-Tier Rate



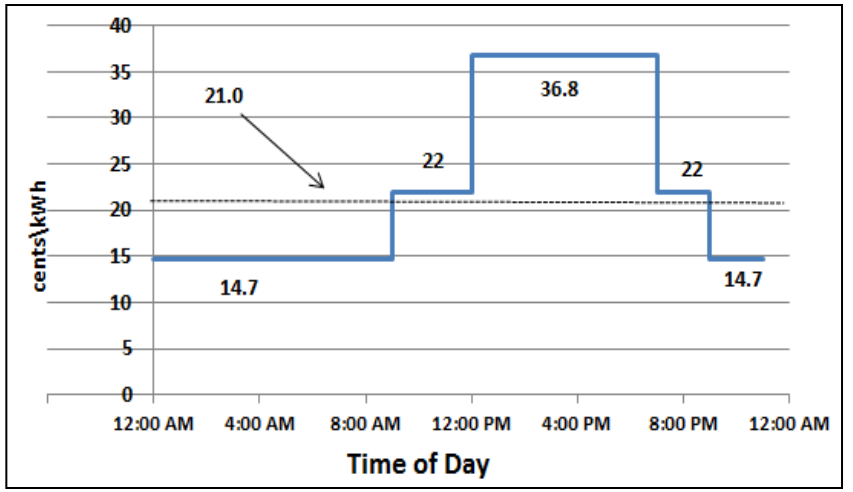
2015 Default 3-Tier Rate



2018 Optional 2-Tier Rate



2018 Default Summer TOU Rate



---------- Average Residential Non-CARE Tiered Rates (Year Round) or Average Residential Non-CARE Summer TOU Rate

Bill Impact vs. Average Monthly Usage for Transitional & End-State Rates– PG&E Customers

Avg. Usage @	July 1, 2012 Total	3-Tier Total (2015)	Δ dollars from 2012 GRC P2	Δ percent from 2012 GRC P2	2-Tier Total (2017)	Δ dollars from 2012 GRC P2	Δ percent from 2012 GRC P2	TOU Total (2018)	Δ dollars from 2012 GRC P2	Δ percent from 2012 GRC P2
200 kWh - Low	$18.42	$20.09	$1.67	9%	$24.21	$5.79	31%	$24.80	$6.38	35%
600 kWh - Med	$75.05	$79.00	$3.95	5%	$85.04	$9.99	13%	$87.43	$12.38	16%
1200 kWh - High	$238.50	$228.29	-$10.21	-4%	$204.03	-$34.47	-14%	$198.27	-$40.23	-17%

Bill Impacts From Tier Flattening

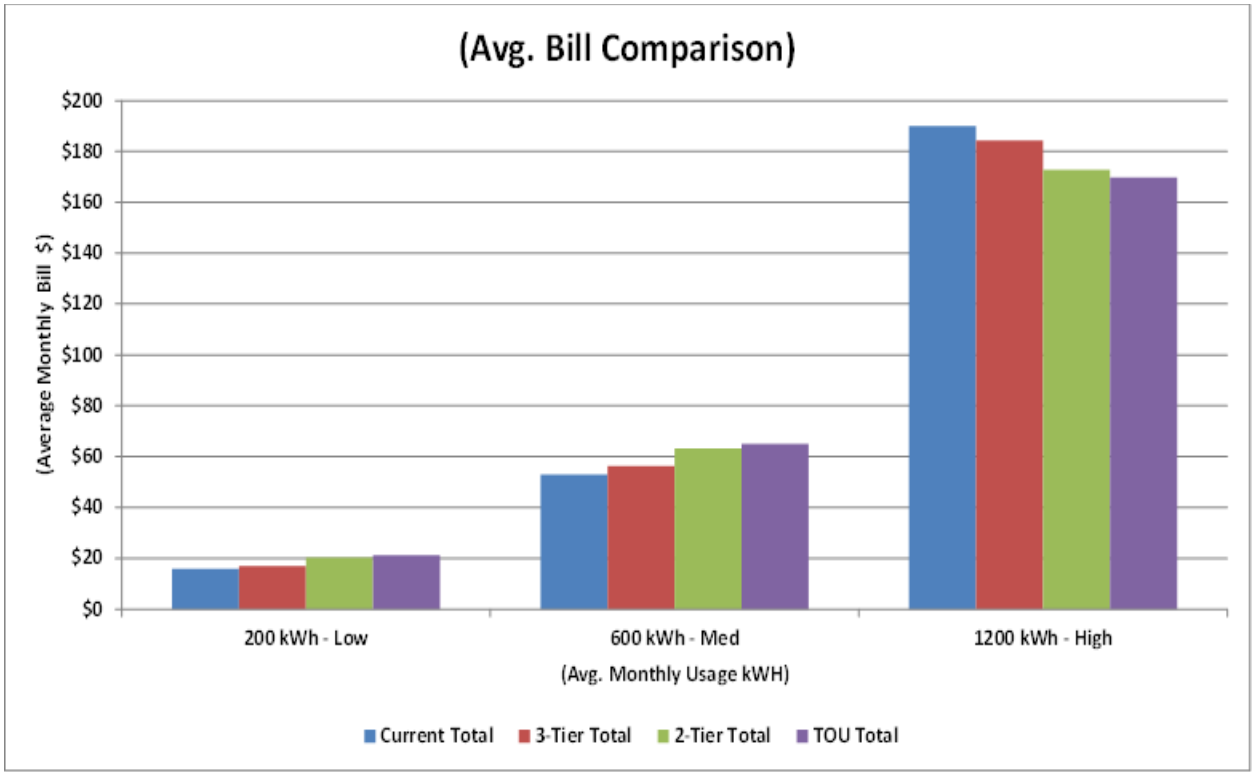
Avg. Usage @	July 1, 2012 Total	2-Tier Total	Δ dollars from 2012 GRC P2	Δ percent from 2012 GRC P2
200 kWh - Low	$18.42	$24.21	$5.79	31%
600 kWh - Med	$75.05	$85.04	$9.99	13%
1200 kWh - High	$238.50	$204.03	-$34.47	-14%

Bill Impacts from TOU

Avg. Usage @	2-Tier Total	TOU Total	Δ dollars from 2-Tier rate	Δ percent from 2-Tier rate
200 kWh - Low	$24.21	$24.80	$0.59	2%
600 kWh - Med	$85.04	$87.43	$2.39	3%
1200 kWh - High	$204.03	$198.27	-$5.76	-3%

- Most of the combined bill impact is from tier flattening;
- Bill impacts of TOU are mild on a system level.

Bill Impact vs. Average Monthly Usage for Transitional & End-State Rates- PG&E Customers



System Average Bill Impacts are shown. Bill impacts will vary by climate zone and would occur gradually over a multi-year transition period.

Hot Climate Rate Impacts Can Be Significant For Some Customers

- The average non-CARE customer in PG&E Climate Zone W would see about a $90 increase in their annual electric bill ($7.50 per month; 6.4%), assuming no change in usage.
- The average CARE customer in PG&E Climate Zone W would see about a $227 increase in their annual electric bill ($19 per month; 32%), assuming no change in usage.
  - However: 83% of the impact is due to adjusting the PG&E CARE discount from 47% to 35% per AB 327
- The average CARE customer in PG&E Climate Zone W would see about a $39 increase in their annual electric bill due to changes in rate structure ($3.24 per month; 4.3%), assuming no change in usage.

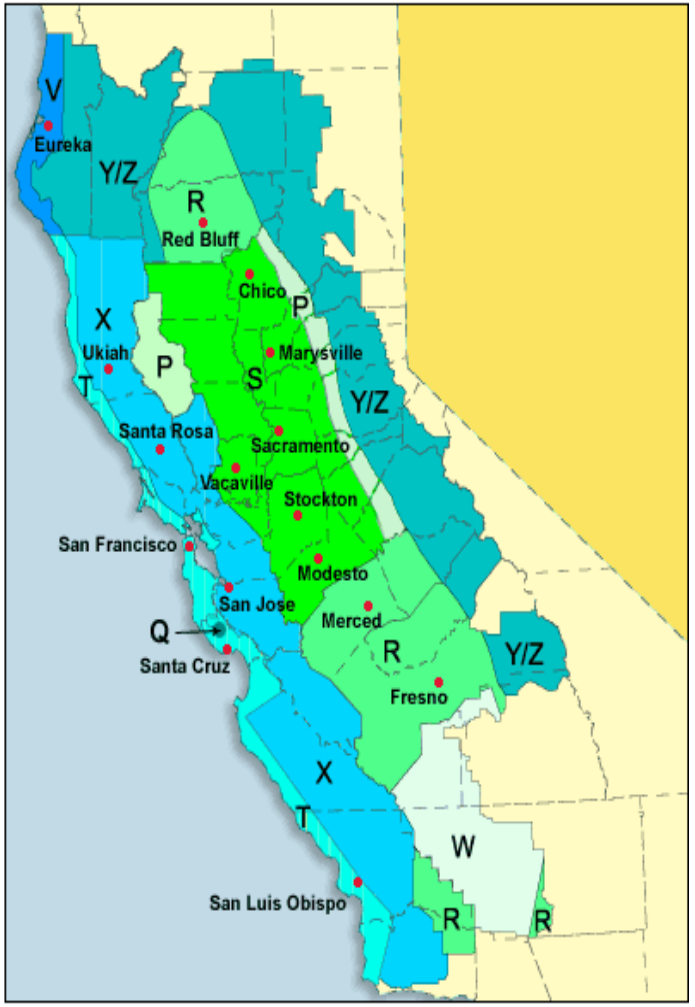
Medical baseline and all-electric customers were excluded from these analyses.

Current 4-Tier Rate vs 2-tier TOU Rate: PG&E Climate Zone W Non-CARE

Climate Zone W Annual Average Monthly Non-CARE Bill Impacts

Usage Range	Current 4-Tier Monthly Bill	Default TOU Monthly Bill	Bill Impact ($)	Bill Impact (%)	Number of Customers
100	$7.50	$9.04	$1.54	20.59%	1,988
200	$14.60	$20.82	$6.22	42.58%	6,471
300	$34.91	$49.30	$14.38	41.20%	11,892
400	$56.42	$64.81	$8.39	14.87%	7,765
500	$59.03	$77.45	$18.42	31.20%	7,588
600	$76.60	$95.78	$19.18	25.03%	11,032
700	$107.14	$129.00	$21.87	20.41%	12,868
800	$131.90	$143.89	$11.98	9.08%	8,144
900	$159.18	$167.58	$8.40	5.28%	25,957
1000	$191.95	$182.10	-$9.84	-5.13%	2,952
1100	$219.68	$207.87	-$11.81	-5.38%	6,661
1200	$256.20	$225.49	-$30.71	-11.99%	1,717
1300	$276.99	$243.81	-$33.18	-11.98%	245
1400	$321.79	$271.49	-$50.30	-15.63%	1,025
1500	$351.72	$271.77	-$79.95	-22.73%	736
1600	$397.40	$297.82	-$99.58	-25.06%	245
1700	$424.52	$317.86	-$106.66	-25.12%	245
1800	$447.46	$360.78	-$86.68	-19.37%	254
1900	$490.69	$393.77	-$96.93	-19.75%	245
2000	$626.76	$446.98	-$179.78	-28.68%	245
Average	$115.96	$123.43	$7.47	6.4%	108,276

Annual			$89.58



These results do not reflect peak load reduction or shifting due to customer energy efficiency investments or behavior modification (demand response).

Current 4-Tier Rate vs 2-tier TOU Rate: PG&E Climate Zone W - CARE

Climate Zone W CARE Annual Average Monthly Bill Impacts

Usage Range	Current 4-Tier Monthly Bill	Default TOU Monthly Bill	Bill Impact ($)	Bill Impact (%)	Number of Customers
100	$4.50	$3.25	-$1.25	-27.78%	302
200	$15.50	$20.30	$4.80	30.96%	1,149
300	$19.69	$26.53	$6.84	34.75%	10,429
400	$29.91	$40.81	$10.90	36.46%	4,407
500	$39.52	$52.88	$13.36	33.79%	8,239
600	$48.11	$65.64	$17.52	36.42%	19,261
700	$60.45	$81.35	$20.91	34.59%	23,754
800	$70.93	$94.47	$23.54	33.18%	11,009
900	$84.91	$109.52	$24.61	28.98%	7,383
1000	$95.38	$124.47	$29.08	30.49%	5,393
1100	$111.76	$134.59	$22.83	20.43%	4,893
1200	$121.70	$147.14	$25.44	20.90%	798
1300	$129.08	$156.77	$27.68	21.44%	745
1400	$141.35	$189.01	$47.65	33.71%	491
1500					
1600					
1700					
1800	$197.57	$250.89	$53.32	26.99%	245
1900					
2000	$219.63	$249.83	$30.20	13.75%	234
Average	$59.70	$78.62	$18.92	31.7%	98,731
Adjusted Average(*)	$75.38	$78.62	$3.24	4.30%	98,731
Annual			$38.91		

(*)About 83% of the CARE bill impact is due to the reduction in the discount % from 47% to 35%.

Hot Climate Rate Impacts Can Be Significant For Some Customers

- Staff-proposed default TOU rate has no baseline protection
- Impacts could be mitigated by (temporarily) including a baseline credit in the TOU rate (thus, converting it to a 2-tiered TOU rate)
- Impacts can also be mitigated via energy efficiency and/or customer generation investments, and/or behavior modification (demand response).
- The Commission must consider the tradeoff between customer protection and creating the correct price signal for energy efficiency.

Other Mitigation Strategies

- Impacts can also be mitigated via energy efficiency and/or customer generation investments, and/or behavior modification (demand response).
  - The Commission could target and heavily promote EE and DR technology in hot areas.
- The Commission must consider the tradeoff between customer protection and creating the correct price signal for energy efficiency.

Next Steps in the Proceeding 2014

Phase One – 2015 – 2018 Rate Design Changes per AB 327 and R.12-06-013	Phase Two – Interim Rate Changes Summer 2014
Late February – Rate Design Requests filed for 2015-2018 potentially covering*: • Rate Structure: TOU vs Tiers • Opt-out Rate Structure • Optional Rates • Customer Charges or Minimum Bills • CARE Restructuring and FERA and Medical Baseline • Customer Communications and Enabling Technology • GHG Costs in Rates • Future Design of TOU Periods and Seasons *Scope TBD	Late January – Supplemental 2014 Rate Design Requests Filed covering: •How to spread the approx. 7-14% expected revenue requirement increase in 2014 among the different tiers. •How to mildly flatten the spread between upper and lower tier rates without creating rate shock. •How IOUs with will get onto a glide path toward 30-35% CARE discount (mostly affects PG&E).
March to September- •Intervenor testimony, IOU Reply Testimony, Evidentiary Hearings, Opening and Reply Briefs, and Settlement Discussions.	February to April – •Intervenor testimony, IOU Reply Testimony, Evidentiary Hearings, Opening and Reply Briefs, and Settlement Discussions.
Fall 2014 – Proposed Decision.	Late May (approx.) Proposed Decision for new 2014 Rates.
End of 2014 – Commission Vote adopting new rates and rate design structure.	May or June – Commission Vote adopting new 2014 rates.
2015 and Beyond – New rates and rate structures take effect.	June or July – New rates take effect.

Appendix

Assembly Bill 327

Tiered Rates

- Requires that each utility offer ***default*** rates to residential customers with at least two usage tiers, at least through 2018. The first tier must include no less than baseline quantities, as defined in current law.

Time Variant Rates

- Allows the Commission to require or authorize ***default*** time-of-use rates beginning January 1, 2018, but requires the Commission to exempt medical baseline and third-party notification customers and to ensure that such schedule does not cause unreasonable hardship for senior citizens or economically vulnerable customers in hot climate zones.
- Requires that customers receive one year of interval data before being placed on a ***default*** time-of-use rate and one year of bill protection thereafter.
- Requires that the utilities provide, yearly, a summary of available tariff options and expected annual bill impacts of each of these tariffs.
- Allows residential customer to opt out of default time-variant rates and receive service pursuant to a non-time-variant rate.
- Allows the Commission to authorize the utilities to offer optional time-of-use and other time-variant pricing rates.

CARE Rates

- Requires that the average effective CARE discount be not less than 30 percent or more than 35 percent of the revenues that would have been produced for the same billed usage by non-CARE customers. The average effective CARE discount is defined as the weighted average discount provided to individual customers.
- Requires that if a utility currently provides a discount greater than 35 percent, the currently effective discount in excess of this amount should be reduced by a reasonable amount on an annual basis.
- Requires that the entire discount be provided in the form of a reduction in the overall bill for the eligible CARE customer.
- Revises the eligibility criteria for one-person households to be based on a two-person household guideline.

Fixed Charges

- Allows the Commission to adopt new and/or expanded fixed charges, but the Commission must ensure that such charges (1) reasonably reflect the costs of serving small and large customers, (2) not unreasonably impair incentives for conservation and energy efficiency, and (3) not overburden low-income customers. The Commission is not required to adopt fixed charges and may consider whether minimum bills are an appropriate substitute for fixed charges.
- Beginning January 1, 2015, the Commission may authorize fixed charges that do not exceed $10 per month for non-CARE customers and $5 per month for CARE customers. Beginning January 1, 2016, the maximum allowable fixed charge may be adjusted annually by no more than the annual percentage increase in the Consumer Price Index for the prior calendar year.

Transitions

- Requires that increases to electrical rates and charges, including the CARE discount, be reasonable and subject to a reasonable phase-in schedule relative to rates and charges in effect prior to January 1, 2014.
- PG&E is the only utility that currently provides a discount in excess of 35 percent.
- This effectively increases the income level under which an individual could qualify for the CARE program.

Scoping Ruling's Ten Rate Design Principles

To guide the development of an optimal residential retail rate design structure in the R.12-06-013 proceeding the Commission set forth 10 guiding principles:

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;

10. Transitions to new rate structures should emphasize customer education and outreach that enhances customer understanding and acceptance of new rates, and minimizes and appropriately considers the bill impacts associated with such transitions.

Scope of the Staff Proposal

The staff proposal attempts to synthesize elements of party proposals that we believe best comport with the CPUC rate design guiding principles while also complying with AB 327 requirements.

Therefore the staff proposal focuses on the following primary questions in conjunction with the CPUC rate design principles:

1. Should the Commission require the utilities to adopt default time-of-use rates beginning January 1, 2018 or thereafter, and should these default time-of-use rates be tiered or not?

2. Prior to 2018, should the utilities adopt optional time-of-use rates that are not tiered?

3. Should the utilities implement two-, three- or four-tiered rates and how steeply tiered should these rates be? If the utilities implement fewer than four tiers, how should the tiered rates transition over time to ensure a reasonable phase-in schedule?

4. Should the utilities implement fixed charges and should such charges be phased-in over time concurrent with other changes proposed herein?

5. Should the Commission adopt a different method for implementing the CARE discount and if so, should this be considered in this proceeding or in subsequent phase of this proceeding?

6. How should the utilities and the Commission conduct customer communication, outreach and education, and deploy demand response technologies to prepare customers for new rates and inform them about alternative rate options?

Gradually reduce the number of Tiers and Tier Differentiation

- Staff is persuaded that three and four tier rates with wide spreads between the tiers grossly distort the energy prices seen by customers and leads to great inequities among different customers, and result in economically inefficient behavior.
  - Staff recommends a gradual collapsing of the tiers from 4 to 2 and reduction of the tier differentials.
  - This should occur gradually to minimize customer bill impacts, because customers paying rates below cost will see a modest increase while customers paying rates above cost will see a modest decrease.
- In 2018, staff recommends that customers have the option to opt-out of TOU rates onto a two-tier flat rate with a modest 1.2 to 1 tier differential ratio.
  - Such a rate would comply with AB 327 requirements and move flat rates closer to cost while reducing the amount of distortion in present rates.
  - The rationale for the minimum number of tiers and a modest tier differential is to prevent distortions between a cost-based TOU default rate and a non-cost-based tiered rate.
- Tiered rates could distort prices such that low users have a “self-selection bias” towards remaining on a below-cost tiered rate if they can remain within tier 1 usage. This would undermine the Commission’s goal of migrating customers to cost-based TOU rates.

Transitioning to a Cost-Based TOU Rate

TRANSITION YEAR 1 (2015)

- In transition year 1, staff recommends combining current Tiers 2 and 3 into a new Tier 2 representing 101% - 200% of baseline.

- This would result in a 3-tier rate structure consisting of a Tier 1 rate for usage up to 100% of baseline, a Tier 2 rate for usage from 101% to 200% of baseline, and a Tier 3 rate for usage over 200% of baseline.

- We also recommend that the utilities offer customers optional, non-tiered, cost-based TOU and optional Critical Peak Pricing (CPP) rates in transition year 1 and throughout the transition period.

- These opt-in TOU and CPP rates should be revenue neutral and any resulting revenue deficiency collected from residential customers served by non-time-variant rates.

- This adjustment is part of a convergence strategy that would ultimately lead to both TOU and tiered rates that are more reflective of true costs.

- In addition, PG&E's CARE discount should be decreased by 3 percent, bringing it down to 44 percent as the start of a glide path toward complying with the maximum 35% CARE discount. If adopted a minimum bill of $10 for non-CARE customers and $5 for CARE customers should be in place at this time.

- Outreach and education campaigns should be initiated in 2015 to inform customers of the new rate structure as well as the changes coming in the future.

- The Commission should implement a series of TOU and CPP pilots that seek to understand customer responsiveness under time variant rates when combined with cost-effective deployment of HANs and other customer engagement tools and interventions. See Section 4 for additional discussion of the technical rationale for this approach.

Transitioning to a Default Cost-Based TOU Rate in 2018

Illustrative 2015 Transitional and 2018 End-State IOU Electric Rates*

	Transitional Default 3-Tier 2015			End-State Default TOU 2018					End-State Optional 2-Tier 2018	
Non-CARE	Tier 1	Tier 2	Tier 3	Summer On Peak	Summer Part Peak	Summer Off Peak	Winter Part Peak	Winter Off Peak	Tier 1	Tier 2
PG&E	14.1	21.2	30.6	36.8	22.0	14.7	17.6	14.7	17.0	20.4
SCE	14.9	22.4	29.3	40.6	24.3	16.2	21.0	14.0	17.9	21.5
CARE	Tier 1	Tier 2	Tier 3	Summer On Peak	Summer Part Peak	Summer Off Peak	Winter Part Peak	Winter Off Peak	Tier 1	Tier 2
PG&E	8.8	13.1	19.0	23.5	14.1	9.4	11.3	9.4	11.2	13.5
SCE	8.8	13.7	18.1	25.5	14.9	9.7	12.8	8.2	10.8	13.1

*Illustrative rates and bill impacts are based on IOU model inputs (i.e., billing determinants, revenue requirements, and marginal costs) utilized to generate 2012 PG&E or 2012 SCE GRC rates. In order to predict actual rates and bill impacts in future timeframes, the most current costs, revenues, and load forecasts will need to be utilized in GRC models.

Transitioning to a Cost-Based TOU Rate

TRANSITION YEAR 2 (2016)

- In transition year 2, we recommend that the default 3-tier rate structure be modified by further reducing the tier differentials.
- Specifically, we recommend an upward adjustment to Tier 1 and a downward adjustment to Tier 3.
- Opt-in TOU and CPP should continue to be encouraged, and PG&E's CARE discount should be decreased by another 3 percent, bringing it down to 41 percent.
- The TOU and CPP pilots initiated in 2015 should continue in 2016 with 1st year results being tabulated concurrently.
- Customer should also be made aware of the next step in the rate transition planned for 2017.

Transitioning to a Cost-Based TOU Rate

TRANSITION YEAR 3 (2017)

- In transition year 3, the tiered rate structure would be collapsed to a 2-tier structure with a modest rate differential of approximately 1.3 to 1.

- Tier 1 would represent usage up to 100% of baseline, and Tier would represent usage greater than baseline.

- In this, the final year before the transition to default TOU rates, the customer education campaign should be ramped up to heighten customer awareness about the approaching rate change, the ability to opt out, and customer protection tools.

- Opt-in TOU and CPP should continue to be promoted, and PG&E's CARE discount should be decreased by another 3 percent, bringing it down to 38 percent.

COORDINATION WITH THE NEM PROCEEDING

- Compared to today's rates, the staff proposed cost-based TOU rate design:
  - appropriately supports the development of NEM facilities,
  - provides reasonable value to existing NEM facilities,
  - and reduces the cost born by non-participants.
- Given the level of cross-subsidy that NEM represents today it is theoretically impossible to eliminate non-participant cross subsidies and maintain the current level of support provided to NEM through the rate structure.
- The ideal rate structure for NEM customers may not be the ideal rate structure for the majority of non-NEM customers.
- The goal of promoting customer-sited distributed generation is important as is the goal of reducing cross-subsidies unless the subsidy supports an explicit state policy.
- If rates are to reflect costs, then the extent to which subsidies are still required to incentive customer adoption of DG, these subsidies should be explicit and transparent.

Customer Communication, Outreach, Education, and Demand Response Technology

- In the past several years the IOUs have made considerable investment developing online tools to aid customers in understanding their usage patterns, and opportunities to reduce their use.

- Simultaneously many companies have developed automated Home Area Networks (HANs), Programmable Thermostats, or Programmable Communicating Thermostats (PCTs) that enable consumers to more easily respond to dynamic and time-variant rates and some are tied into AMI data.

- The best method to bridge automated technologies, existing online tools, and new TOU and CPP rates for consumers is through marketing, education and outreach campaigns, as well as select pilots during the transition period from 2015 to 2018.

Default TOU vs. Purely Opt-in

- There is strong evidence indicating that the adoption of TOU rates is much higher when offered on an opt-out basis compared to an opt-in basis.
- Staff recommends default opt-out TOU rates based on strong evidence that default TOU rates will lead to far greater peak load reductions then purely opt-in TOU rates.
  - A recent DOE study of customer enrollment patterns in time-variant pricing programs found an 8-fold increase in recruitment rates for the default (opt-out) over the opt-in approach.
  - Acceptance rates for SMUD's recent time-variant pricing pilot were in the high 90% range while opt-in rates were only 10-15%.
- To date, Commission approved opt-in TOU and CPP rates are adopted by less than 3% of residential customers.
- All commercial customers are either on TOU or will be on TOU by the end of 2015.

Opt-in Time-Variant Pricing (TVP)

The Commission should require the utilities to offer customers optional, *non-tiered*, cost-based TOU and optional Critical Peak Pricing (CPP) rate throughout the transition period.

- These opt-in TOU and CPP rates should initially be revenue neutral but any resulting revenue deficiency collected from residential customers served by non-time-variant rates.
- IOUs should develop **separate billing determinants for non-TVP and TVP customers**, in their first post-2018 GRCs. This departure from revenue neutrality is a necessary part of a divergence strategy that would ultimately lead to both TOU and tiered rates that are more reflective of true costs.
- Typically under CPP rates customers see much higher peak prices during ~12 critical peak pricing "events" with ~24 hrs event notification, and receive discounted rates during non-event hours all summer long. Avoiding peak usage during events saves money.

Customers would therefore have four rate choices:

1. Optional non-tiered TOU rate
2. Two-tiered rate
3. Optional non-tiered TOU w/ optional CPP overlay
4. Two-tiered w/ optional CPP overlay

Minimum Bill or Fixed Charge Determined in Future Rate-Setting Proceedings

Minimum Bill	Fixed Charge
• Min $10/month non-CARE, $5/month CARE • Greater or equal to the fixed charges permissible under AB 327 beginning in 2015 increasing with the rate of inflation thereafter. • Only applies to a limited sub-set of customers who do not pay for any of the infrastructure that is required to serve them.	• Start at $5/month. • Increase annually to $7.50/month and $10/month. • Increase with rate of inflation thereafter.
• Allows for the continued recovery of fixed costs via a volumetric rate that blends the infrastructure and energy costs for the vast majority of residential customers. • Exaggerates the price signal to encourage adoption of efficiency, demand response, and distributed generation resources consistent with the loading order.	• Will better align residential rate design with the principle of cost-causation and further reduce some of the cross-subsidies in rates.

SB 1090 Required Findings

- (d) The commission shall not require or authorize an electrical corporation to employ default time-of-use pricing for residential customers unless it has made all of the following findings relative to any proposed time-of-use rates:

- (1) Customers located in hot, inland areas will not experience unreasonable summertime bills, assuming no changes in overall usage by those customers during peak periods.
- (2) Any resulting shift in revenue collected between territories for baseline usage is reasonable, assuming no changes in overall usage or in usage during peak periods.
- (3) Seasonal bill volatility will not cause hardship for residential customers living in areas with hot summer weather, assuming no change in summertime usage or in usage during peak periods.
- (4) Use of default time-of-use pricing will not exacerbate the potential consequences of excess generation during times of peak solar generation.
- (5) Costs for integration of eligible renewable energy resources will not increase as the result of employing default time-of-use pricing.

- (e) The commission shall submit its findings made pursuant to subdivision (d) to the Legislature not less than 12 months prior to requiring or authorizing an electrical corporation to employ default time-of-use pricing for residential customers.

Response to TURN's Critique of TOU Rates (1)

TOU rates will cause customers located in hot, inland areas to experience unreasonably high and volatile summer bills.

- Many large families on tiered rates already experience unreasonably high summer bills;
  - TOU rates are lower than current Tier 3 rates in most hours: TOU actually helps many large users, relative to current IBR;
  - High bills are not necessarily "unreasonable" if cost-based, and serve to encourage energy efficiency and self-generation.
- Customers must have one year of shadow billing before the IOU can move customers to TOU and then one year of bill protection. Vulnerable customer are exempt from default TOU.
- Customers will be able to opt out to non-TOU rates.
- Low-income customers continue to have access to CARE.
- Customers continue to have the option to mitigate bill volatility via "balanced payment plans".

Response to TURN's Critique of TOU Rates (2)

TOU rates could cause an unreasonable shift in the revenue collected between baseline territories

- Much of this potential revenue shift could be mitigated by the higher baseline allowances assigned to hot inland climate zones.
- The Commission could consider including baseline credits in default TOU rates (at least, on a temporary basis)*.

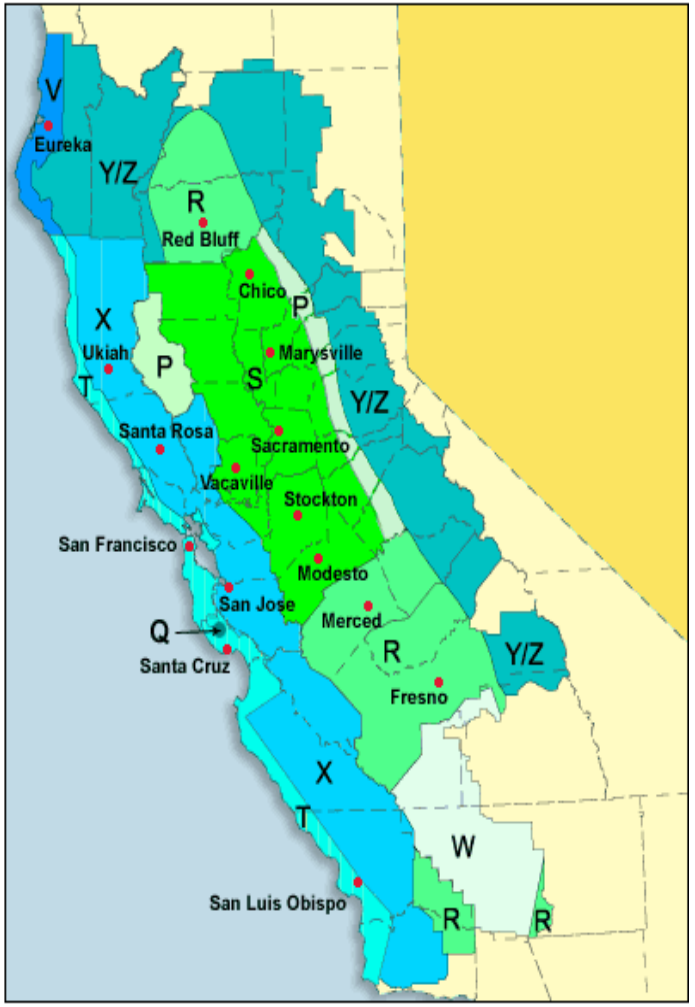
- Remaining shift in the revenue collected between baseline territories would be reasonable (as previous subsidies are unwound).

*ORA legal staff believes baseline is a required feature of default residential rates

Current 4-Tier Rate vs 2-tier TOU Rate: PG&E Climate Zone R Non-CARE

Climate Zone R Non-CARE Bill Impacts

Usage Range	Current 4-Tier Monthly Bill	Default TOU Monthly Bill	Bill Impact ($)	Bill Impact (%)	Number of Customers
100	$14.92	$15.65	$0.73	4.89%	6,065
200	$21.72	$27.10	$5.38	24.77%	8,895
300	$34.41	$46.41	$12.00	34.87%	8,653
400	$50.64	$65.55	$14.91	29.43%	13,138
500	$61.90	$79.82	$17.92	28.95%	15,321
600	$84.37	$103.32	$18.95	22.46%	30,560
700	$103.36	$118.33	$14.97	14.49%	28,733
800	$141.25	$146.96	$5.71	4.04%	24,310
900	$156.62	$155.01	-$1.60	-1.02%	14,522
1000	$195.92	$183.14	-$12.78	-6.52%	4,970
1100	$228.63	$202.49	-$26.14	-11.43%	17,235
1200	$257.79	$225.02	-$32.76	-12.71%	3,454
Average	**$109.50**	**$115.89**	**$6.39**	**5.84%**	**175,856**



These results do not reflect peak load reduction or shifting due to customer energy efficiency investments or behavior modification (demand response).

Current 4-Tier Rate vs 2-tier TOU Rate: PG&E Climate Zone R - CARE

Climate Zone R -- CARE Bill Impacts

Usage Range	Current 4-Tier Monthly Bill	Default TOU Monthly Bill	Bill Impact ($)	Bill Impact (%)	Number of Customers
100	N/A	N/A	N/A	N/A	0
200	$13.75	$18.55	$4.80	34.92%	2,387
300	$22.01	$31.17	$9.16	41.64%	8,847
400	$30.41	$42.23	$11.82	38.86%	14,014
500	$39.14	$54.58	$15.44	39.43%	10,270
600	$48.79	$63.17	$14.38	29.48%	16,263
700	$59.74	$79.41	$19.67	32.92%	3,327
800	$71.87	$96.11	$24.25	33.74%	26,966
900	$82.48	$105.39	$22.91	27.78%	6,527
1000	$96.00	$117.19	$21.19	22.07%	1,759
1100	$109.31	$131.31	$22.01	20.13%	2,379
1200	$120.37	$147.80	$27.43	22.79%	976
Average	$54.11	$71.56	$17.45	32.26%	93,713

Adjusted Average(*)	$67.25	$71.56	$4.31	6.42%	93,713

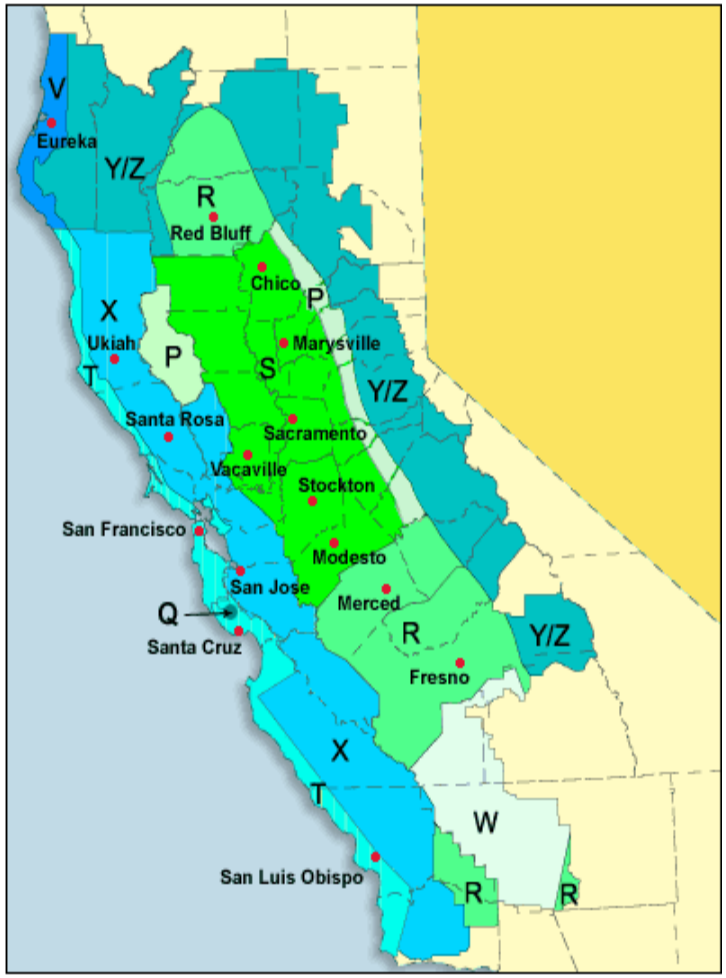
4-Tier CARE bill adjusted upward to reflect discount reduced from 47% to 35%

About 75% of the CARE bill impact is due to the reduction in the discount % from 47% to 35%.

Bill Impact vs. Average Monthly Usage for PG&E Climate Zone T Customers – TOU vs. 2-Tier

Usage Range (kWh)	Climate Zone T TOU Non-CARE	Climate Zone T 2-Tier Non-CARE	Δ	%Δ
100	$13.03	$12.56	$0.46	3.70%
200	$26.65	$26.36	$0.29	1.11%
300	$43.34	$42.94	$0.39	0.92%
400	$60.67	$61.27	-$0.59	-0.97%
500	$77.73	$79.74	-$2.01	-2.52%
600	$93.86	$98.67	-$4.81	-4.87%
700	$112.78	$121.01	-$8.23	-6.80%
800	$126.73	$139.04	-$12.31	-8.85%
900	$150.07	$159.57	-$9.50	-5.95%
1000	$163.48	$178.17	-$14.69	-8.24%
1100	$180.48	$199.25	-$18.77	-9.42%
1200	$198.11	$224.27	-$26.15	-11.66%

Usage Range (kWh)	Climate Zone T TOU CARE	Climate Zone T 2-Tier CARE	Δ	%Δ
100	$7.22	$6.68	$0.54	8.02%
200	$17.78	$16.51	$1.27	7.71%
300	$28.21	$26.41	$1.80	6.81%
400	$39.34	$37.36	$1.98	5.30%
500	$48.55	$47.20	$1.35	2.86%
600	$63.53	$62.74	$0.79	1.26%
700	$71.93	$74.09	-$2.16	-2.92%
800	$81.33	$84.83	-$3.50	-4.13%
900	$96.73	$101.11	-$4.38	-4.33%
1000	$107.61	$112.50	-$4.89	-4.35%
1100	$115.78	$116.92	-$1.14	-0.97%
1200	$125.60	$134.41	-$8.81	-6.55%



Bill Impact vs. Average Monthly Usage for PG&E Climate Zone S Customers – TOU vs. 2-Tier

Usage Range (kWh)	Climate Zone S TOU Non-CARE	Climate Zone S 2-Tier Non-CARE	Δ	%Δ
100	$10.43	$10.36	$0.07	0.68%
200	$24.24	$23.32	$0.92	3.93%
300	$45.08	$42.11	$2.97	7.05%
400	$62.17	$59.87	$2.30	3.84%
500	$82.03	$76.97	$5.07	6.58%
600	$104.36	$97.70	$6.67	6.83%
700	$119.94	$114.76	$5.18	4.51%
800	$140.47	$136.33	$4.14	3.04%
900	$153.65	$153.03	$0.61	0.40%
1000	$170.67	$173.59	-$2.92	-1.68%
1100	$186.20	$192.32	-$6.12	-3.18%
1200	$214.04	$215.32	-$1.28	-0.60%

Usage Range (kWh)	Climate Zone S TOU CARE	Climate Zone S 2-Tier CARE	Δ	%Δ
100	$3.91	$3.77	$0.14	3.71%
200	$20.30	$17.84	$2.47	13.83%
300	$28.44	$25.58	$2.86	11.19%
400	$40.23	$36.02	$4.22	11.70%
500	$45.34	$40.05	$5.29	13.20%
600	$66.22	$58.90	$7.32	12.43%
700	$79.63	$71.53	$8.09	11.31%
800	$89.41	$82.70	$6.71	8.12%
900	$102.98	$95.65	$7.33	7.66%
1000	$117.73	$112.22	$5.51	4.91%
1100	$121.35	$115.50	$5.86	5.07%
1200	$134.64	$129.75	$4.89	3.77%