# California Residential Rate Reform:
*The Transition to TOU in a Dynamic Market Environment*



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# PD Central Provisions



- **Tier Flattening "Glidepath" and Billing Impacts**
  - Compress rate tiers from 4 to 2 (with a 20% differential) on a gradual glidepath by 2019.
  - **Impact:** This will bring rates more in line with cost over a reasonable time horizon. Some high usage customers currently paying above the cost of service will experience bill reductions, while some lower usage customers paying below the cost of service will experience bill increases.

- **Default TOU**:
  - Residential customers will be defaulted to TOU rates on January 1, 2019.
  - TOU rates reflect predictable daily changes in the cost of electricity service, and enable customers to reduce usage during peak hours when electricity prices are higher.
  - Proposals for default TOU rates will be considered in the utilities 2018 Rate Design Window applications.

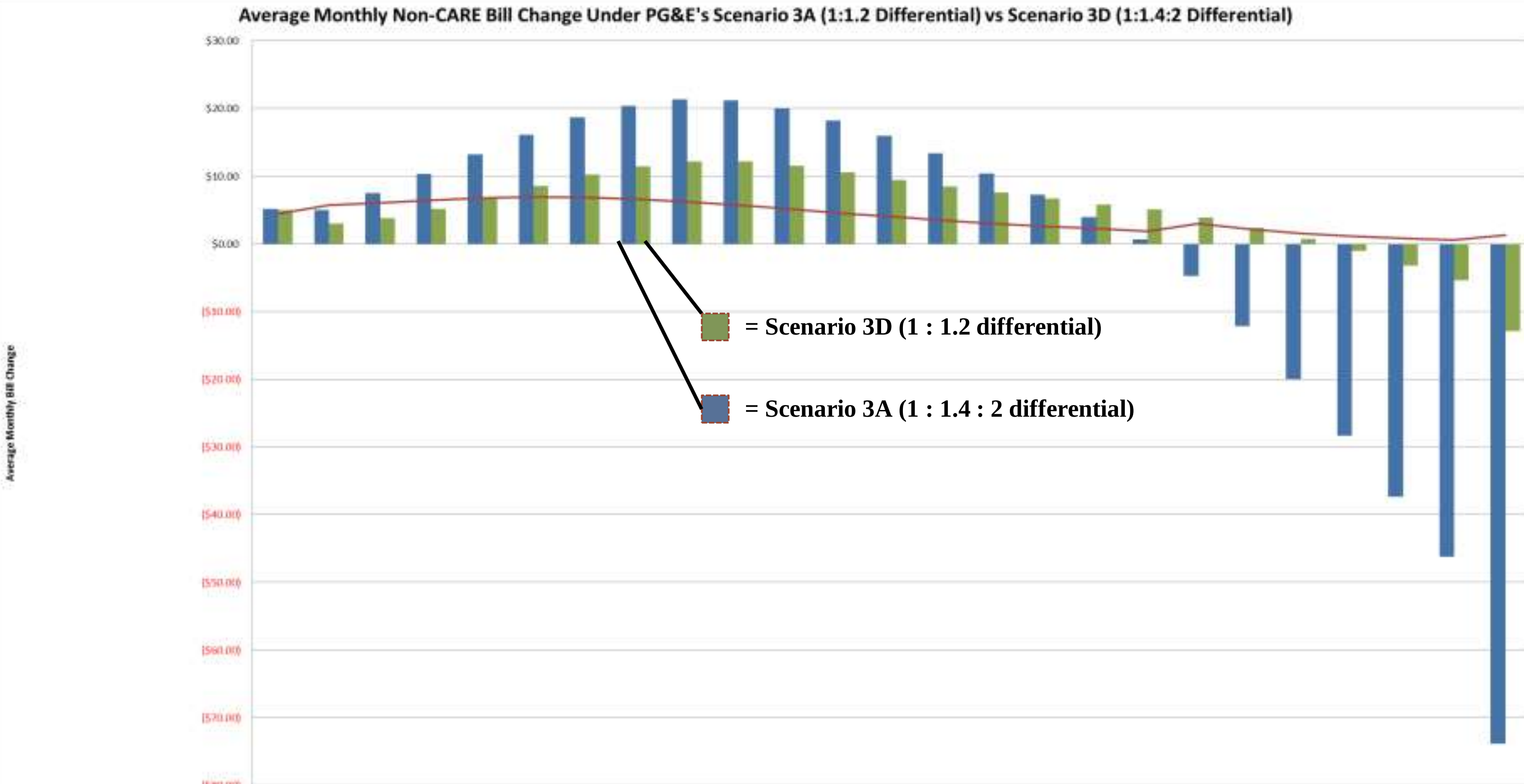
- **Minimum Bill**:
  - Introduces a minimum bill of $10 in 2015 that will stay its course to $10+CPI in 2018.
  - CARE customers will assume half the burden at $5 in 2015, $5.11 in 2017 and $5.11+ CPI in 2018.

# Central Provisions of the Proposed Decision (cont'd)



- **No Fixed Charge**: The PD does not approve a fixed charge at this time, but allows the utilities to refile for fixed charges for consideration in GRCs.
- **CARE Discount of 30-35%:** In accordance with AB 327, the IOU glidepaths include adjustments to the CARE discount so that they are within the new statutory discount range of 30-35% by 2018.
- **Super-User Electric Surcharge (SUE):** Set at 400% of baseline, to incentivize very high users to reduce consumption; to be implemented in January of 2017.
- **TOU Pilots and Customer Outreach**: Tier 3 Advice Letters on TOU pilots will be filed January 1, 2016. Workshops, reports on utility rate reform progress, and the convening of
- **Residential Electricity Rate Summits (RERS):** Annual conference to discuss and evaluate utility summaries of rate impacts on consumers and the effectiveness of consumer protections and marketing, education, and outreach.
- **Phase 3 of the Proceeding**: to address optional TOU pilot design implementation (Tier 3 advice letters to be filed Jan 1, 2016), outreach priorities (starting with vulnerable customers), etc.

# PG&E Non-CARE Bill Impacts to 2018: 20% vs 100% Differential




| | LOW -< 50 | 50 -< 100 | 100 -< 150 | 150 -< 200 | 200 -< 250 | 250 -< 300 | 300 -< 350 | 350 -< 400 | 400 -< 450 | 450 -< 500 | 500 -< 550 | 550 -< 600 | 600 -< 650 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average 2014-2018 Bill Change (Scenario 3A) | $5.17 | $4.98 | $7.50 | $10.33 | $13.23 | $16.15 | $18.66 | $20.40 | $21.34 | $21.22 | $20.05 | $18.19 | $15.94 |
| Average 2014-2018 Bill Change (Scenario 3D) | $5.01 | $2.97 | $3.79 | $5.16 | $6.72 | $8.55 | $10.24 | $11.45 | $12.15 | $12.17 | $11.52 | $10.53 | $9.46 |
| % of Total Non-CARE PG&E Customers | 4.48 | 5.73 | 6.07 | 6.49 | 6.76 | 6.9 | 6.83 | 6.58 | 6.2 | 5.69 | 5.13 | 4.55 | 4.05 |
| Cumulative % Non-CARE Customers | 4.48 | 10.21 | 16.28 | 22.76 | 29.53 | 36.43 | 43.26 | 49.84 | 56.03 | 61.72 | 66.85 | 71.4 | 75.45 |

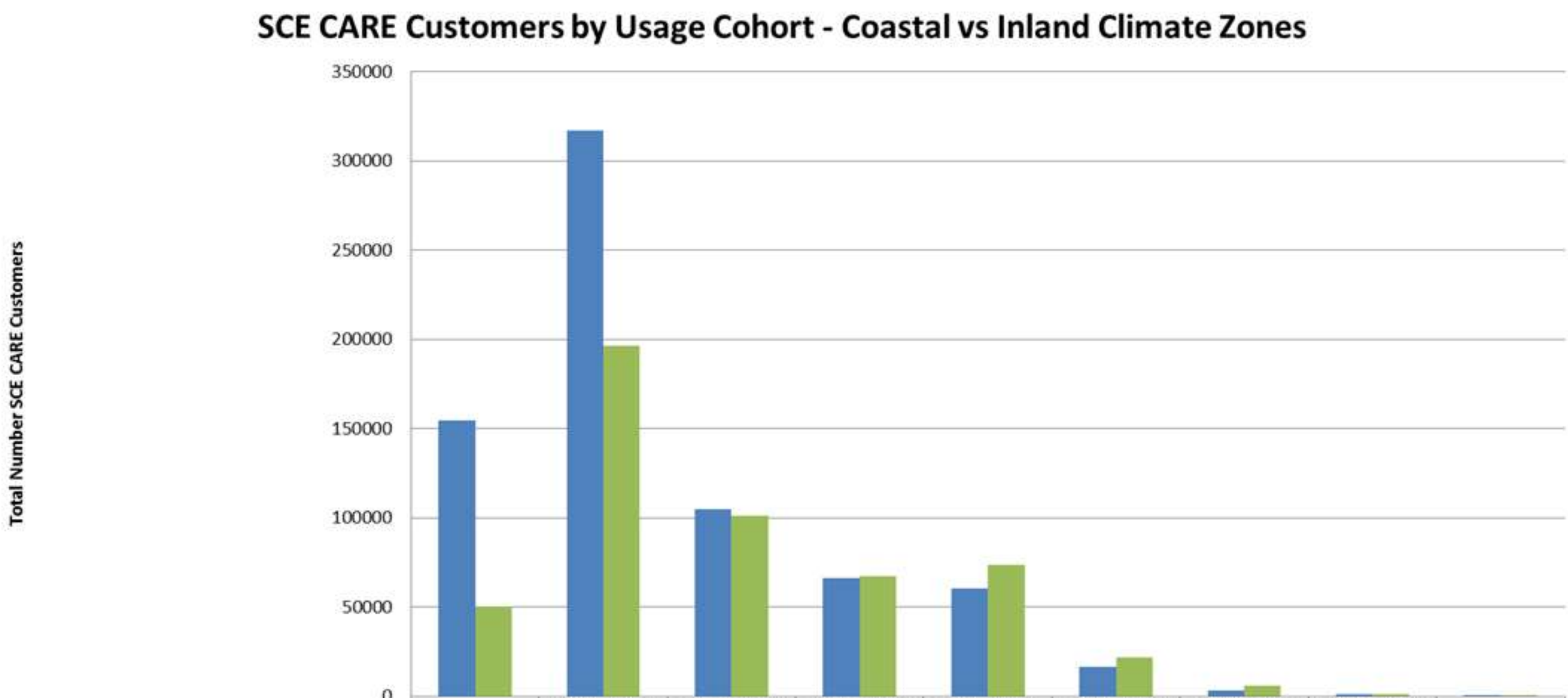
| | 650 -< 700 | 700 -< 750 | 750 -< 800 | 800 -< 850 | 850 -< 900 | 900 -< 1000 | 1000 -< 1100 | 1100 -< 1200 | 1200 -< 1300 | 1300 -< 1400 | 1400 -< 1500 | 1500 -< 2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average 2014-2018 Bill Change (Scenario 3A) | $13.37 | $10.42 | $7.25 | $3.93 | $0.64 | ($4.77) | ($12.17) | ($20.02) | ($28.33) | ($37.37) | ($46.22) | ($73.81) |
| Average 2014-2018 Bill Change (Scenario 3D) | $8.50 | $7.58 | $6.70 | $5.84 | $5.10 | $3.87 | $2.37 | $0.76 | ($1.05) | ($3.20) | ($5.41) | ($12.84) |
| % of Total Non-CARE PG&E Customers | 3.5 | 3.03 | 2.61 | 2.23 | 1.9 | 3 | 2.16 | 1.54 | 1.1 | 0.8 | 0.57 | 1.27 |
| Cumulative % Non-CARE Customers | 78.95 | 81.98 | 84.59 | 86.82 | 88.72 | 91.72 | 93.89 | 95.43 | 96.53 | 97.33 | 97.9 | 99.17 |

Average kWh Usage per Month

- We use Scenario 3A (blue) to represent the PD and Scenario 3D (green) to represent the APD. Note that the actual APD differential of 67% would result in bars that more closely resemble the PD (blue) bars in this graph.

# Edison CARE Customers by Usage: Coastal vs. Inland






| | 0 - 100% BQ | 100% - 200% BQ | 200% - 250% BQ | 250% - 300% BQ | 300% - 400% BQ | 400% - 500% BQ | 500% - 600% BQ | 600% - 700% BQ | > 700% BQ |
|---|---|---|---|---|---|---|---|---|---|
| Totals for the Coastal Zones (6, 8 and 9) | 154738 | 316863 | 105086 | 66381 | 60151 | 16284 | 3026 | 1068 | 623 |
| Totals for the Inland Zones (10, 13, 14 and 15) | 50186 | 196471 | 100994 | 67270 | 73410 | 21534 | 5695 | 1246 | 356 |
| % of Total Coastal Zone CARE Customers | 21.4% | 43.8% | 14.5% | 9.2% | 8.3% | 2.2% | 0.4% | 0.1% | 0.1% |
| % of Total Inland Zone CARE Customers | 9.7% | 38.0% | 19.5% | 13.0% | 14.2% | 4.2% | 1.1% | 0.2% | 0.1% |

# Emphasis on Customer Protections and Benefits



- **<u>Baseline Credits</u>**
  - Any default TOU rate implemented will contain a baseline credit or tier. Baseline amounts differ by climate zone, signifying that customers in hot inland areas will receive baseline credits in proportion with their energy usage.
  -
  - Will protect customers in hot climate zones from paying a disproportionate share of the state's electricity costs.
  - The PD finds that the CPUC should adopt a baseline credit on any default TOU rate and on at least one available TOU optional rate, as well as any opt-in or default pilot rates.

- **<u>Bill Protection, Shadow Billing and Bill Comparison</u>**
  - One year of bill protection for customers defaulted to TOU is required by statute. If, at the end of the year, a customer would have been better off on the previous rate plan, the customer will be credited the difference on their bill.
  - A **shadow bill** will allow customers to see how their electricity bill under the new rate differs from the bill they would have had under the old rate.
  - The PD also finds that the IOUs should be required to develop bill comparison tools that provide individual customers with bill comparison information tailored to their individual usage.

# TOU Background



- Time-of-Use (TOU) rates are a form of load-modifying Demand Response (DR), and as such, are a preferred energy resource in California.
- The idea is obviously to incentivize customers to shift usage from peak to off-peak, in alignment with state policy goals and grid operational objectives.
- Residential TOU default on January 1, 2019.
- TOU rates have recently become mandatory for nonresidential customers; Transition to TOU will be followed by transition to default CPP/TOU
    - Larger non-residential customers face a mix of TOU energy rates, noncoincident and peak demand charges.

# Current TOU Periods Are Shifting:
## (To reflect changes in load patterns and energy markets due to solar)



Recent & Pending Changes to TOU Periods

- D.14-12-048 approved a new SCE opt-in residential TOU rate, with a 2 PM to 8 PM summer on-peak period.
- SDG&E proposes to standardize its TOU periods for all rate classes, with a 4 PM to 9 PM summer peak period. A decision in A15-04-012 is expected in late 2016.
- D.15-11-013 approved a new PG&E opt-in TOU with a 3 PM to 8 PM summer peak period, transitioning to 4 PM to 9 PM in 2021.
- All 3 large CA IOUs are piloting late-shifted TOU rates in 2016-2017 to gather information for default TOU adoption in 2019.

# Rate Reform Implementation: Current State of Play



- 9 statewide optional TOU pilots are being deployed, 3 in each IOU territory.
  - Complexity of rates varies from basic vanilla TOU with mild peak to off-peak differential, to moderate designs that attempt to incentivize spring off-peak/super off-peak consumption to address overgeneration concerns,
  - "Spicy rates" include a fully dynamic, circuit based vehicle-to-grid integration VGI) rate.
  - Some pilots include technology overlays such as NEST or other PCTs and/or the Bidgely app to enhance customer education and awareness of discretionary load-shifting opportunities.
- Marketing, Education & Outreach (ME&O)
  - To ensure that pilots and optional TOU in general are marketed effectively during this transitional period; large working group with consultant assisting in long term IOU marketing plan development.
  - Operating under performance assumptions based on agreed upon customer metrics, including survey instruments to demonstrate learnings at conclusion of pay to play pilots.
  - IOU recovery of marketing expenditures very much dependent on performance and results.

# Implementation Challenges: Sales and Revenue Forecasts



- Tier compression and the transition to TOU in conformance with the decision's tier ratios and proposed end state (1:1.25 2 tier opt out rate) are also bound by a 5% annual cap on Tier 1 increases.

- Each IOU's rate structure is in a different place, so customized transitional pathways had to be constructed.

- Difficult to forecast with accuracy revenue requirement and kWh sales changes resulting from solar and EE growth, which can compound rate and billing impacts for some customers.

- Upper tier rate decreases in the rate reform process will likely be unraveled somewhat by declining sales.

  - Both a positive and a negative in terms of what it signifies about solar/DER/EE penetration, but will increase system average rates if revenue requirement continues to climb over the next several years.

# Declining IOU sales: concerns and potential solutions



- Competitive threats from continued BTM solar growth, EE penetration, and to a much lesser extent, CCA/DA/retail market growth in California will continue to erode sales (IEPR).
  - PG&E experienced a 4.4% residential sales decline YOY from August 2014-August 2015, primarily from solar and EE.
- Upward pressure on rates will occur unless revenue requirement is kept in check and follows the same trajectory as sales.
  - IOU ratebase has more than doubled over the past decade due to RPS compliance, transmission upgrade/growth, increases in distribution investment, etc.
- GRC and ERRA proceedings offer some opportunities to better manage revenue requirement while ensuring appropriate recovery and fair return for IOUs.
- The pace of electric vehicle adoption and charging infrastructure could partially mitigate sales erosion over the next decade (2500-7500 GWh EV incremental demand increase forecasted).
- Of course, the higher residential rates are, the more attractive the payback period on certain EE and solar DG investments – which further aggravates the sales erosion.

# Final Thoughts and Conclusions



- Effective rate designs and customer outreach are a critical tool in laying a foundation for improved grid resource management and integrated DER market development.
- Growing pains for IOUs will be inevitable at the intersection of government, utility operations, and the competitive threat of the DER and increased EE penetration.
- TOU pilots and default implementation will give us critical feedback as to customer tolerance and performance on more advanced rate designs.
- We are working toward key rate / pricing structure reforms for all customer classes that incentivize and accommodate technology growth, environmental goals, and customer choice.