Valley Clean Energy Community Advisory Committee Meeting – Thursday, May 23, 2019

City of Woodland Council Chambers, 300 1st Street, Woodland, CA 95695

VALLEY CLEAN ENERGY

PG&E / Valley Clean Energy Authority
CCA Time-of-Use Rate Transition

May 2019

Together, Building
a Better California

Residential TOU Transition Origination

Why TOU Transition?

In an effort to make rates more understandable to customers, more cost-based and to encourage customers to shift usage to times of day that support a cleaner more reliable grid, the CPUC directed Pacific Gas & Electric Company, Southern California Edison & San Diego Gas & Electric to begin Residential Rate Reform.

- **Simplifying the rate structure**
- **Optimization of new energy efficiency technologies**
- **Promotion of Energy Conservation**
- **More Accurate Cost Allocation**

Source: CPUC RRR TOU Decision 17-12-023:
http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M201/K231/201231862.PDF (Pg 10)

State Campaign – Keep it Golden

- *"A statewide campaign that will be high-level, emotion-based, and provide Californians with the context for the changing rate structure and a vision to rally around."*

- Provides a **neutral** explanation of TOU

Source: CPUC RRR TOU Decision 17-12-023:
http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M201/K231/201231862.PDF (Pg 10)

Time-of-Use Transition Phase I

Background:

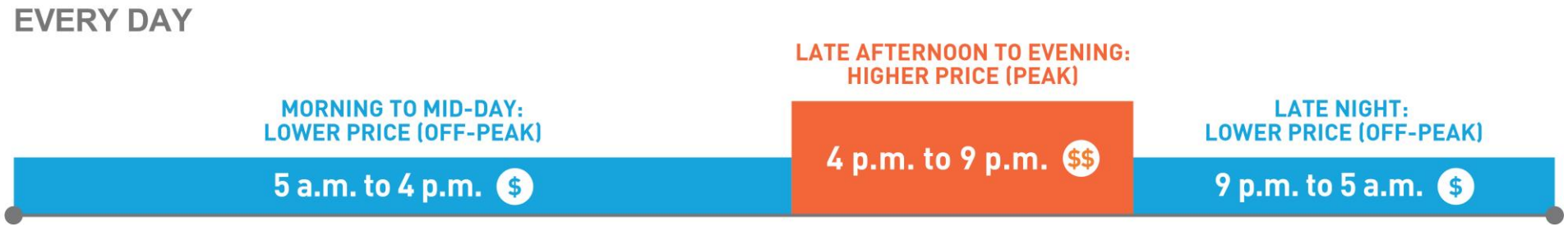
- In **April 2018**, PG&E transitioned **~114k** customers to the new TOU Rate (Everyday, 4-9pm)
- Customers received a combination of 90, 60 and 30 Day communications
- 3 CCAs participated: MCE, Sonoma Clean Power & Silicon Valley Clean Energy

Highlights:

- Customer retention has been high through 11 months (over **99,746** customers remain on rate)
- Based on qualitative and quantitative studies, customer awareness has been high (**68%** aware they were part of a transition)
- Self-serve rate change selection was high (**60%** on-line/web)
- Preliminary Load Impacts show an overall reduction of **4.2%** of total peak load per customer per hour

CCA & bundled customer overall performance was similar

Residential TOU Transition Phase 1 (Pilot) Overview



Summer	T&D Only	Generation Only	Total
Peak (4-9pm Every Day)	$0.20425	$0.17059	$0.37484
Off-Peak (9pm-4pm Every Day	$0.20425	$0.10715	$0.31140
Winter	**T&D Only**	**Generation Only**	**Total**
Peak (4-9pm Every Day)	$0.17362	$0.11413	$0.28775
Off-Peak (9pm-4pm Every Day	$0.17362	$0.09680	$0.27042

Baseline Credit: [$0.08001] Applied to Baseline Usage Only

***PG&E bundled pricing ETOU-C – effective 3/1/19**

Residential TOU Full Transition Overview

- Beginning in **October 2020, PG&E will begin** transitioning all **eligible** E1 Tiered rate plan customers to "*Time-of-Use Peak Pricing 4pm-9pm Every Day" (ETOU-C)* rate plan.

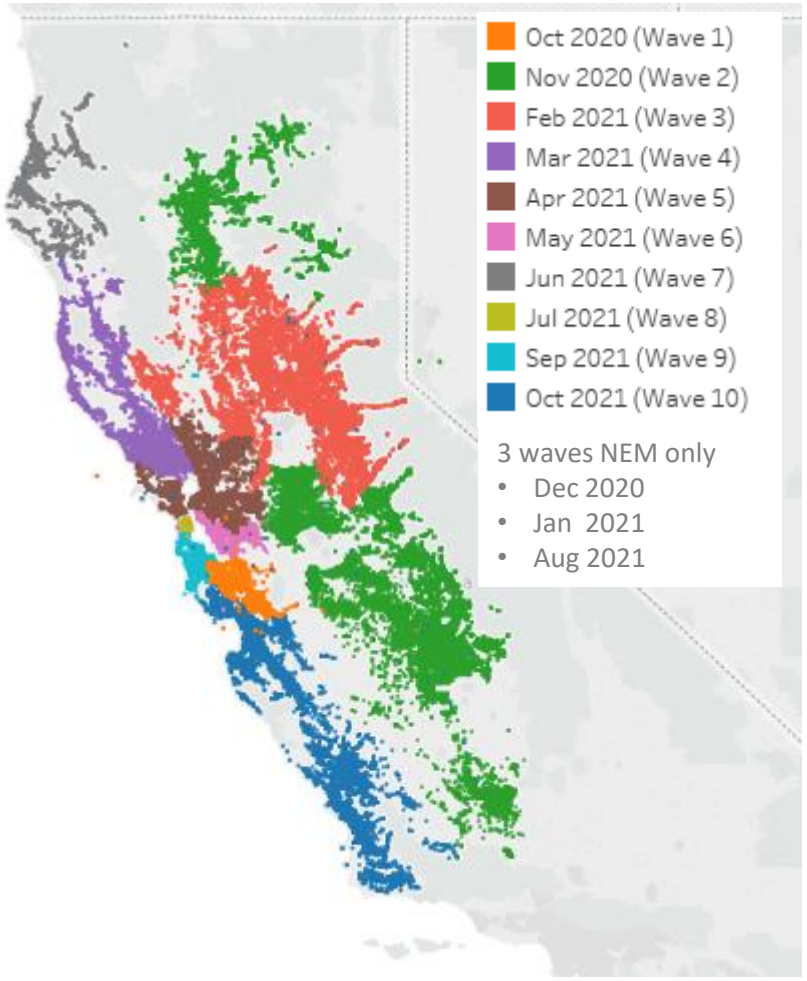
- ETOU-C rate plan will become the **default rate plan** around April 2020.

- Customers will have the **ability to elect** to remain on their current rate plan or choose another rate plan.

- Up to **12 months of bill protection** will be provided to all PG&E charges for transitioned customers.

- Customers will be provided with a **minimum of 2 notifications prior to the transition** including: information on the New Time-of-Use rate plan, how to remain on their current rate and bill protection.

Residential TOU Full Rollout Plan (13 month rollout)

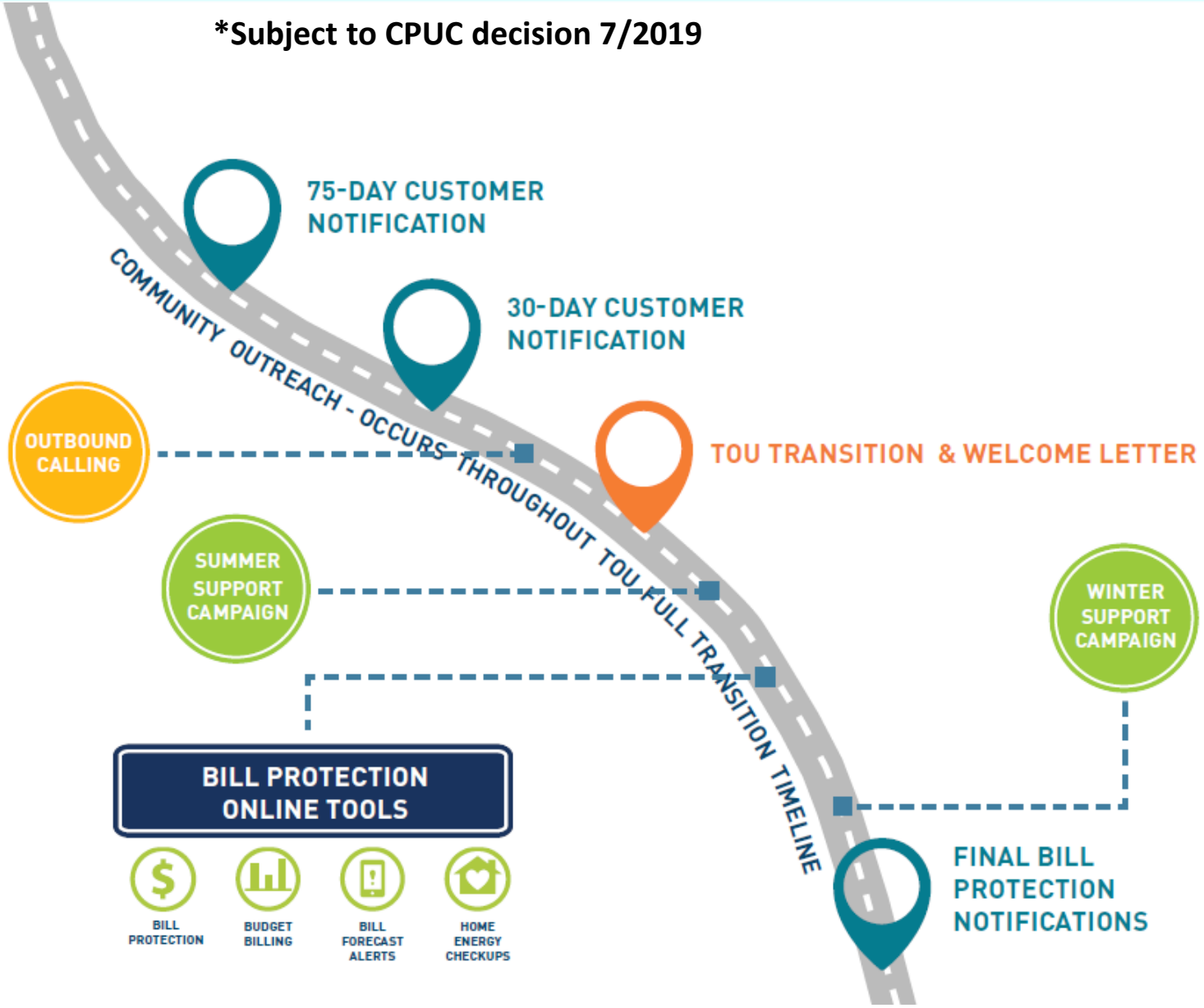


Counties	Service Provider Territory Included	Totals
Oct 2020 (Wave 1)		**390,000**
Santa Clara	San Jose Clean Energy (SJCE)	230,000
	Silicon Valley Clean Energy (SVCE)	170,000
Nov 2020 (Wave 2)		**200,000**
Fresno, San Joaquin, Kern, Tuolumne, Shasta, Madera, Merced, Tehama, Plumas, Stanislaus, Mariposa, Kings, Tulare, Lassen	PG&E Bundled	200,000
Feb 2021 (Wave 3)		**180,000**
Placer, El Dorado, Yolo, Butte, Nevada, Calaveras, Lake,	PG&E Bundled	120,000
Amador, Sutter, Yuba, Glenn, Colusa, Sacramento, Sierra,	Pioneer Community Energy (PIO)	40,000
Alpine	Valley Clean Energy (VCE)	20,000
Mar 2021 (Wave 4)		**140,000**
Sonoma, Mendocino	Sonoma Clean Power	140,000
Apr 2021 (Wave 5)		**410,000**
Contra Costa, Solano, Marin, Napa	MCE	310,000
	PG&E Bundled	100,000
May 2021 (Wave 6)		**400,000**
Alameda	East Bay Community Energy (EBCE)	370,000
	PG&E Bundled	30,000
Jun 2021 (Wave 7)		**40,000**
Humboldt, Trinity, Siskiyou	Redwood Coast Energy Authority (RCEA)	40,000
	PG&E Bundled	850
Jul 2021 (Wave 8)		**260,000**
San Francisco	CleanPowerSF (CPSF)	260,000
Sept 2021 (Wave 9)		**200,000**
San Mateo	Peninsula Clean Energy (PCE)	200,000
Oct 2021 (Wave 10)		**260,000**
Monterey, Santa Cruz, San Luis Obispo, Santa Barbara, San Benito	Monterey Bay Community Power (MBCP)	170,000
	PG&E Bundled	90,000
	King City Community Power	2,300

Note: Customer counts are approximate and reflect PG&E's proposed exclusion criteria. Also, assuming NEM customers transition on their true-up date, each wave would have an additional ~10K NEM customers. This table assumes all customers within each CCA territory are enrolled with the CCA service provider.

Residential Draft Transition Notifications Roadmap

***Subject to CPUC decision 7/2019**

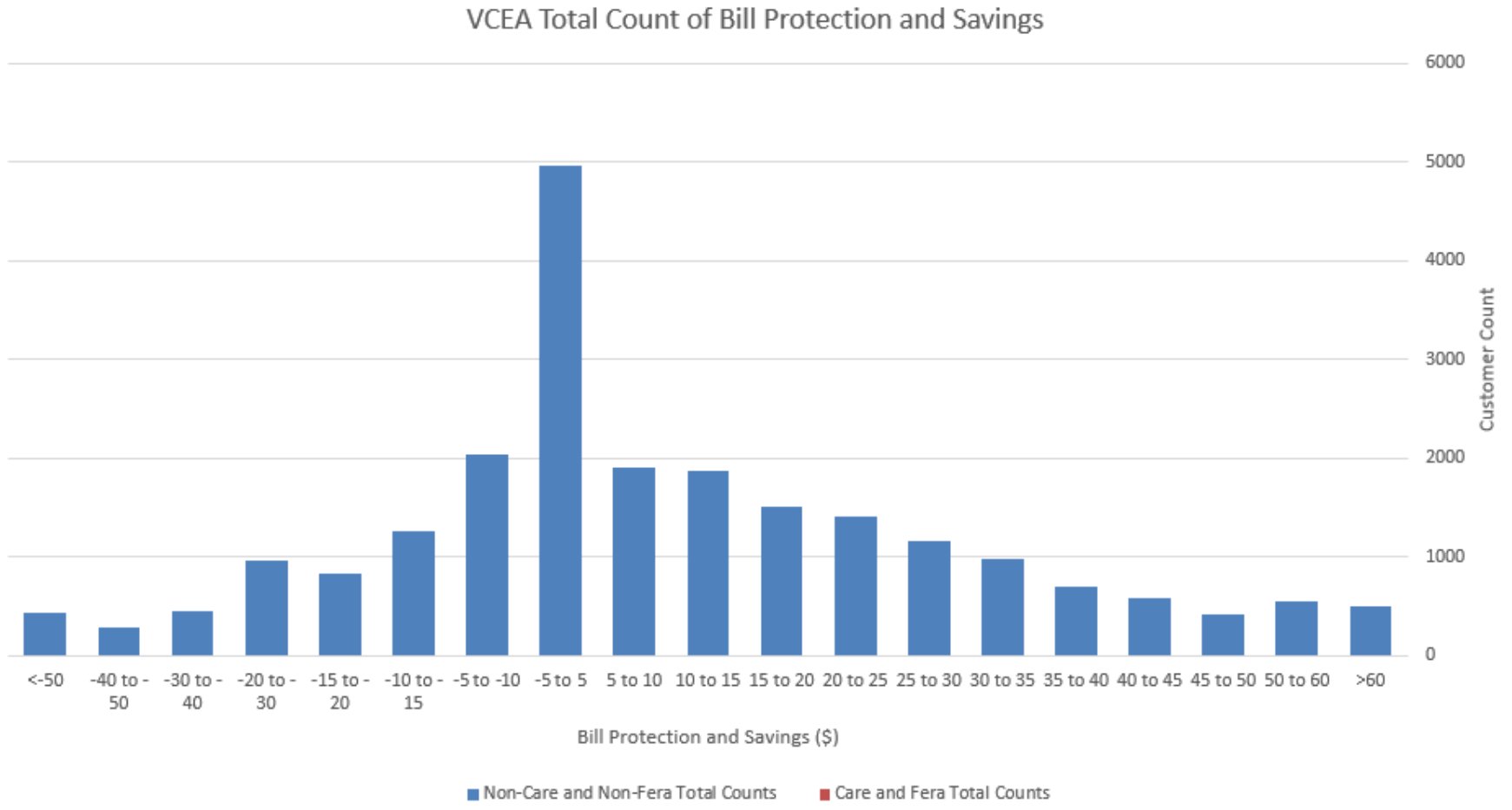


Residential TOU Full Transition Overview – Generation only Bill Protection Analysis

	TOU MORE expensive than Tiered Rate	TOU LESS expensive than Tiered Rate
Estimated Annual Generation Bill Difference ($)	$300,934	$141,697
Number of Customers Impacted	13,784	8,970
Annual Bill Impact/Customer	$21.83	$15.80

***Estimates are calculated with PG&E generation pricing**

Residential TOU Full Transition Overview – Generation only Bill Protection Analysis



Overall:

- 39% neutral (8,896) – less than +/- $10 per year impact
- 42% non-benefiters (9,678) – $10 or more per year impact
- 19% benefiters (4,222) – ($10) or more per year impact

Residential TOU Transition Cost Recovery

Traditional Approach:

- TOU rates designed to be **revenue-neutral**
  - assume all customer remain on the rate
  - collect the same revenue as collected with tiered rates
- Resulting **revenue shortfall** due to self-selection
  - some non-benefiters do not remain on the rate
  - can be tracked in a balancing account
- **Rates can be "trued-up"**
  - Adjust rate after first year to collect the first-year shortfall

Alternative Approach:

- Estimate revenue shortfall **in advance & increase rates** via rate adders
  - Estimating revenue shortfall is **very uncertain**
  - Rate adders may be set too high or too low requiring a **subsequent "true-up"**

TOU Residential Full Transition – Environmental Benefits

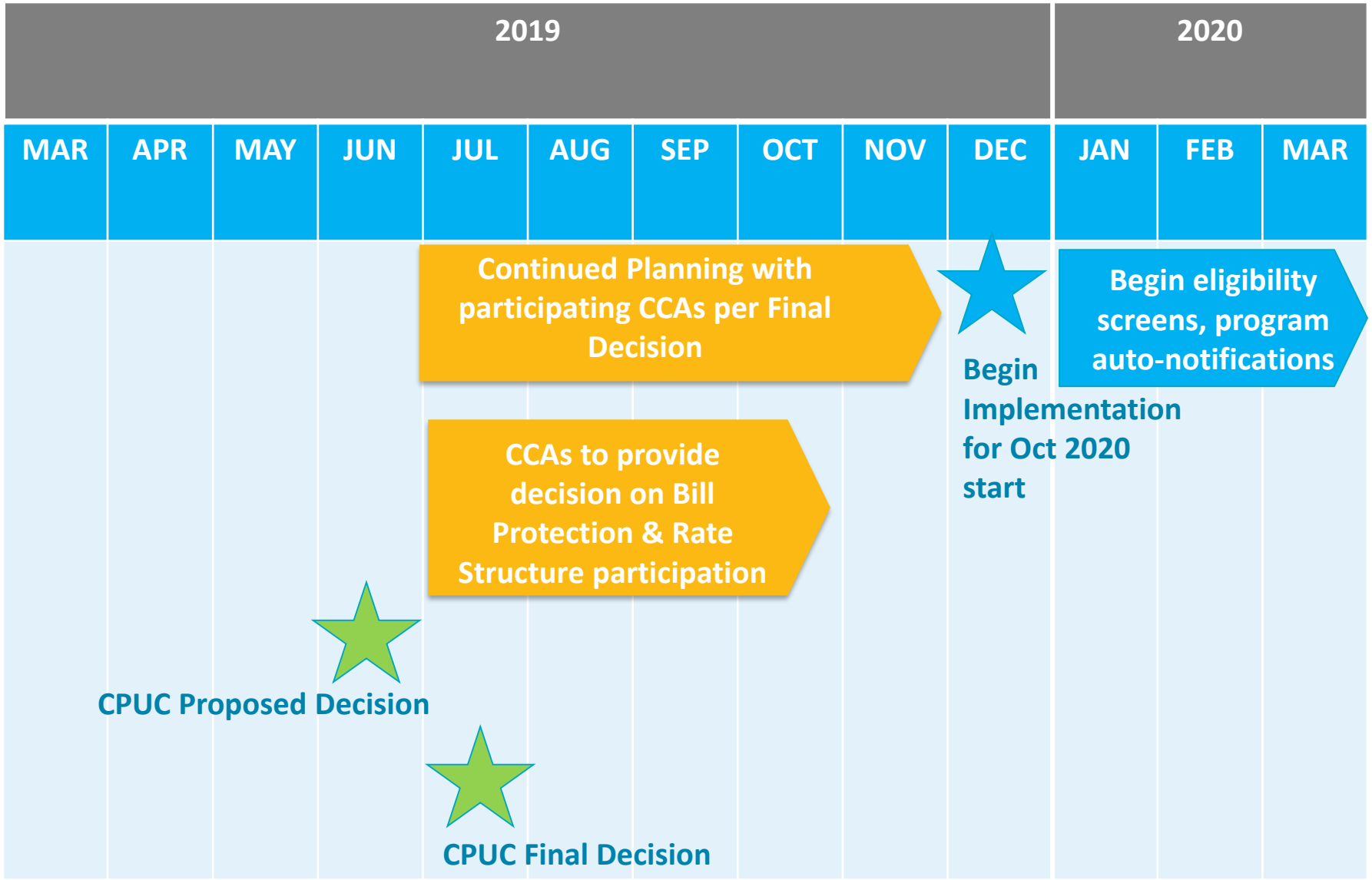
Greenhouse Gases (GHG):

- Estimated savings of 5,000-10,000 tons of CO_2 per year across PG&E territory due to load shifting resulting from the new TOU rate plan
  - Range dependent on number of CCAs following PG&E 4pm-9pm peak period
  - Equivalent to removing about 1 – 2 thousand gas-powered cars from the road

- Greater benefits expected with peak period conservation (versus load shifting) and/or a higher volume of renewables

GHG estimate based on calculations performed in 2018 according to the methodology agreed upon by the CPUC, PG&E, and the other CA IOUs. GHG equivalency based on https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.

CCA/PG&E Joint Planning Timeline



TOU Residential Full Transition – Why Participate?

- **Support Statewide policy**
  - Align on policies for a cleaner, more reliable energy grid
  - Contribute to greenhouse gas reductions

- **Enhance Customer Experience**
  - Streamlined and consistent experience for Valley Clean Energy Authority's and PG&E's mutual customers
  - Reduced customer confusion

State Campaign - Keep it Golden

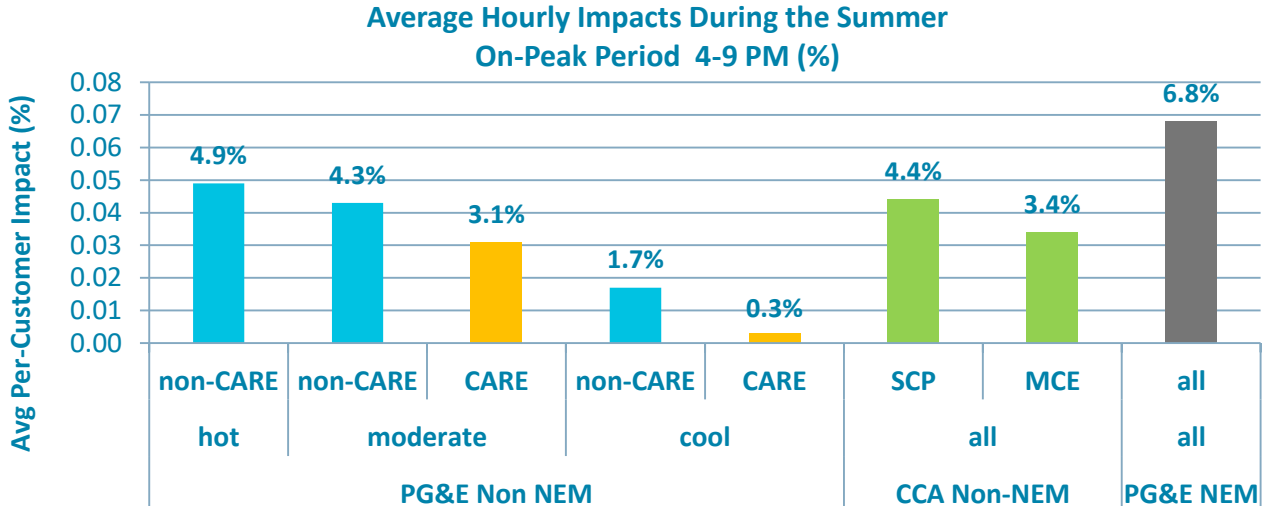
Appendix

Together, Building
a Better California

TOU Transition Phase 1 (Pilot) Overview

Load Shifts & Conservation:

- PG&E preliminary results: overall energy conservation and some load shifting
- Summer load reductions declined or remained the same
  - SCE & SDG&E showed comparable results
- Transitioned TOU rate customers averaged 0.046 kWh daily peak period reduction per customer per hour
  - 4.2% reduction - total peak load per customer per hour
  - Impacts vary across climate zones, customer segments, day types
    - Hot climate customers have highest peak load reduction; 4.9%



Residential TOU Transition Phase 1 (Pilot) Targets

CCA Transition customers responded well to the transition from start through post summer months

- Satisfaction with rate plan remains stable at **6.5**/10
- Continued high levels of awareness and understanding
- **53%** of CCA customers say they are taking actions to shift or reduce usage
- Some slight differences in actions taken to shift/reduce – likely due to climate zones

Residential TOU Transition results are encouraging

Overall

- Awareness metrics increased from baseline
  - 84% aware of TOU rate plans …. Up from 60%
  - 59% aware on a TOU rate …. Up from 10%
- Customers exceeding awareness and understanding targets set by the CPUC
  - Aware of rate choices and TOU rates
  - Understand benefits of lowering/shifting electricity use
- 78% understand their bill is based on how much energy they use and when they use it
- PG&E's results are comparable or higher than other California IOUs

Residential TOU Transition Phase 1 (Pilot) Targets

Transition customers continue to exceed goal metric target levels

		Wave 2	Baseline	Goal
1	Rate plans are available that give you more control over your bill	46%	-	-
2	Customers know where to go to get info about how to manage their electricity use	52%	52%	66%
3	Customers understand how energy use can impact bills	▲ 6.7	5.1	6.5
4/5	Customers understand the benefits of lowering/shifting their electricity use	▲ 6.9	6.4	7.2
6	Customers are aware that PG&E provides rebates, energy efficiency programs & tips	▲ 70%	64%	72%
7	Customers feel that they were provided useful information explaining their bills	▲ 7.5*	7.0	7.2
8	Customers are aware of TOU rates	▲ 81%	60%	68.8%
9	Customers are aware of rate choices	▲ 52%	35%	47.5%
10	Customers have an optimal experience (satisfaction with products and services)	7.6	7.5	7.3

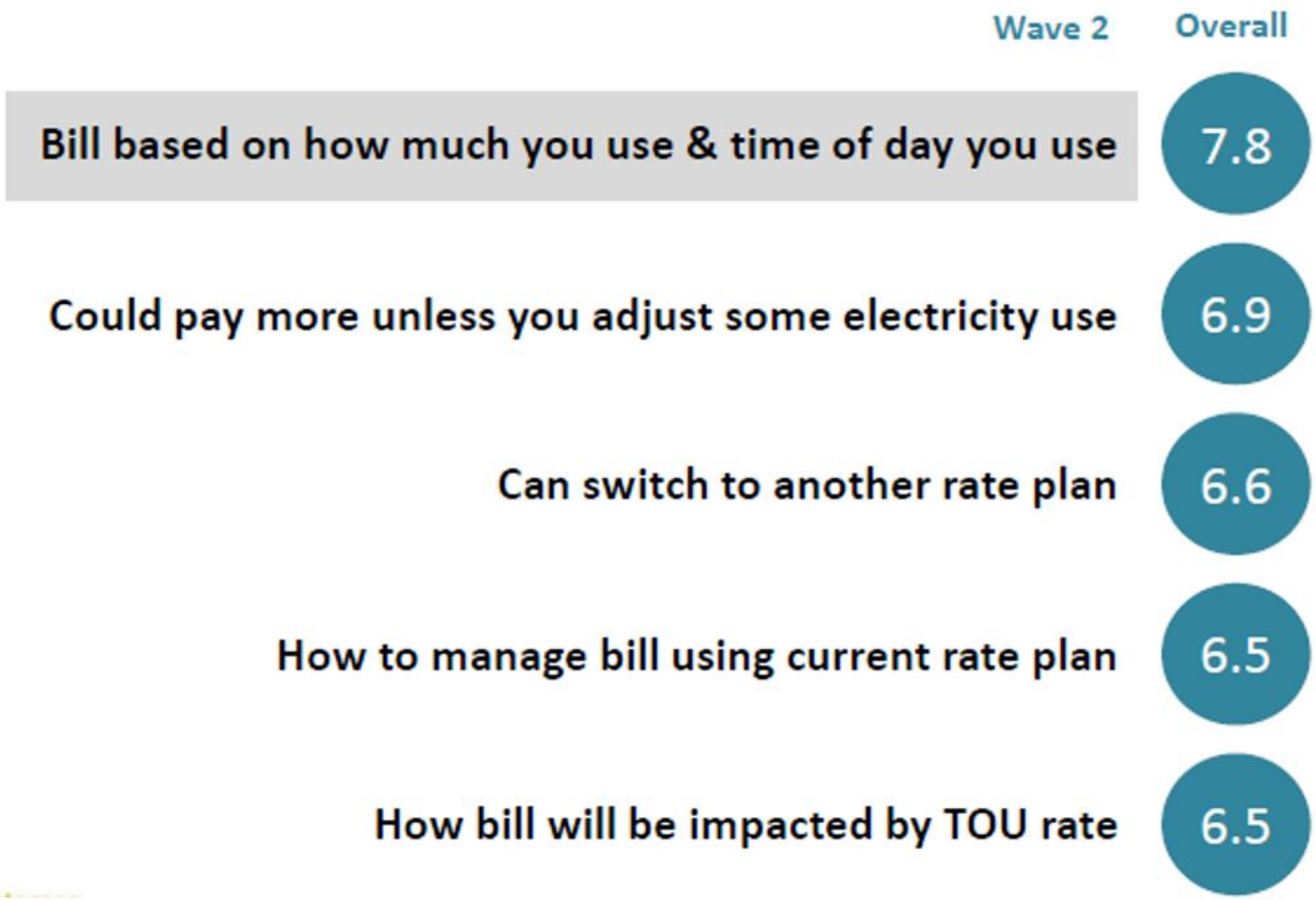
▲ Significantly higher than baseline

* Wave 1, not asked in Wave 2

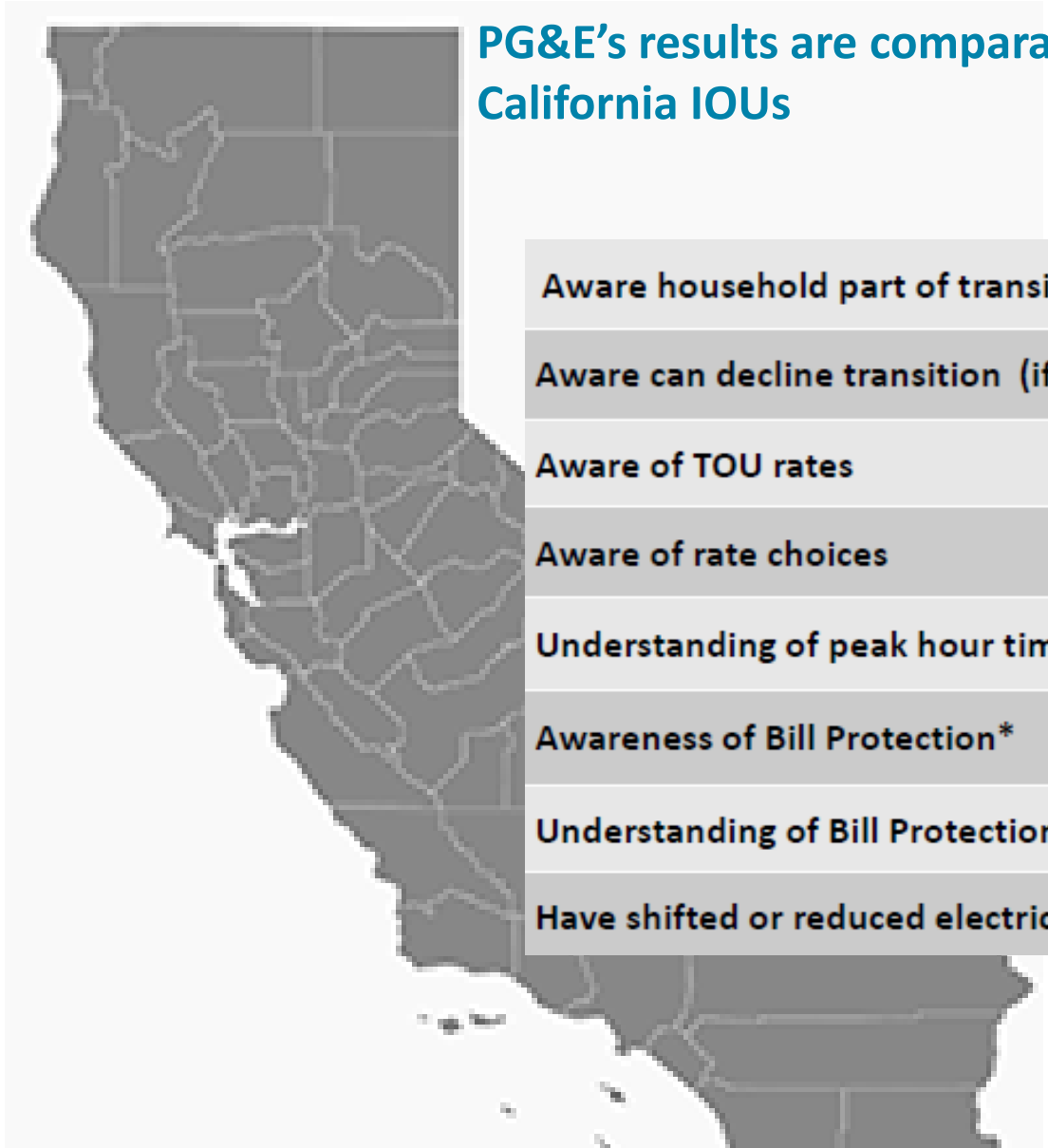
Residential TOU Transition Phase 1 (Pilot) Targets

Transition customers continue to have a good understanding of basic TOU rate details

- Baseline average 4.7



Residential TOU Transition Phase 1 (Pilot) Targets



PG&E's results are comparable or higher than other California IOUs

Wave 2	PG&E	SCE	SDG&E
Aware household part of transition	62%	48%	59%
Aware can decline transition (if aware)	64%	60%	69%
Aware of TOU rates	81%	73%	81%
Aware of rate choices	52%	48%	52%
Understanding of peak hour times	62-76%	41-61%	60-72%
Awareness of Bill Protection*	22%	17%	23%
Understanding of Bill Protection	28%	17%	23%
Have shifted or reduced electricity	47%	40%	50%

*SDG&E: 'No-risk pricing'

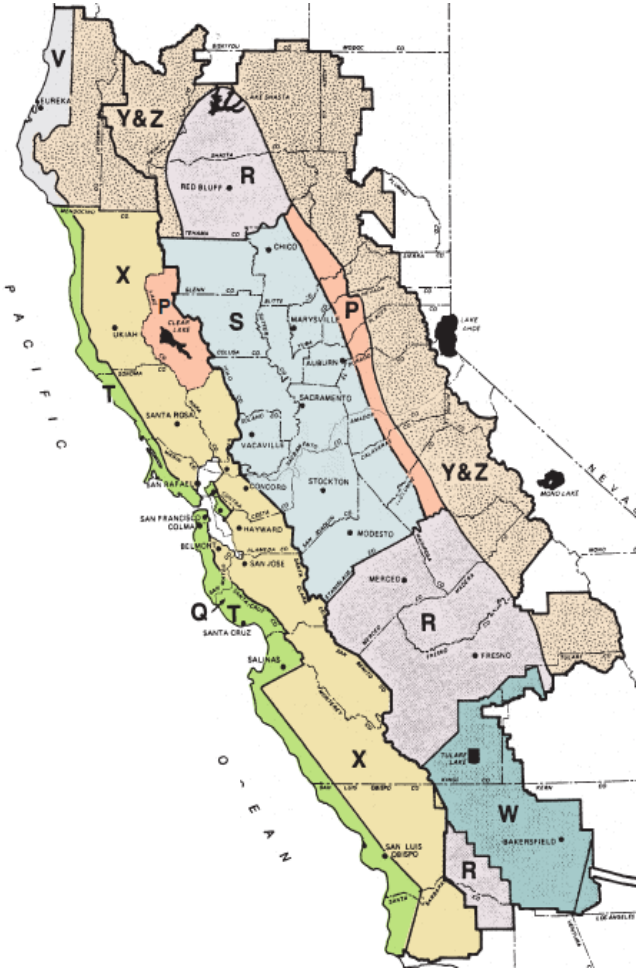
Residential TOU Full Transition – Guiding Principles

- Geographic rollout by **County**
  - Hottest areas well in advance of summer
  - Enables targeted media/community outreach
  - Except NEM: transition in true-up month
- Transition during months customers **do not experience their highest bills**

Months Acceptable for Transition by Baseline Territory

	Hot				Moderate			Cool		
	P	S	R	W	Q	X	Y	T	V	Z
Oct	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Nov	N	Y	Y	Y	N	N	Y	Y	Y	Y
Dec	N	Y	Y	Y	N	N	Y	Y	Y	Y
Jan	N	Y	Y	Y	N	N	Y	Y	Y	Y
Feb	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mar	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Apr	Y	Y	Y	Y	N	Y	Y	Y	Y	Y
May	Y	N	N	N	N	Y	Y	Y	Y	Y
Jun	N	N	N	N	N	N	Y	Y	Y	Y
Jul	N	N	N	N	Y	N	Y	Y	Y	Y
Aug	N	N	N	N	Y	N	Y	Y	Y	Y
Sep	Y	N	N	N	Y	Y	Y	Y	Y	Y

Baseline Territories in PG&E Service Area



Item 11 – Local Energy and Efficiency Programs

Information presentation on potential
local energy and efficiency programs

Presented by CAC Member David Springer

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CLEAN ENERGY

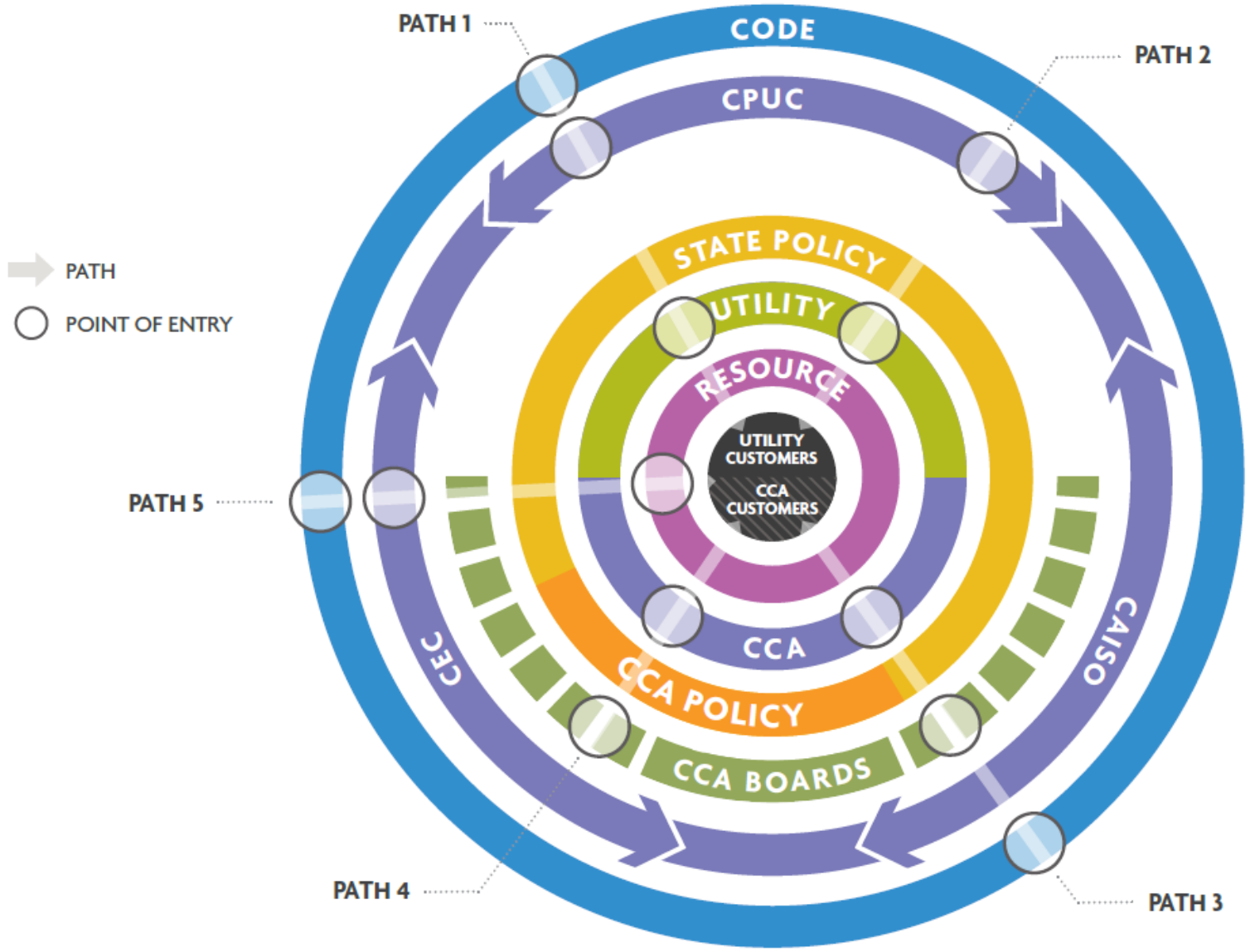
PRESENTATION OVERVIEW – EE PROGRAMS

- Program paths for CCAs (ATA, ETA, IOU, self-funded)
- CPUC methods for adopting measures
- Measure types & deployment methods
- Third party programs
- PG&E offerings
- What other CCAs are doing
- VCE opportunities & discussion

Information assembled with the assistance of Frontier Energy staff

HOW CALIFORNIA CLEAN ENERGY POLICY IS MADE GOING FORWARD

Credit: Gridworks



Apply to Administer and Elect to Administer Programs - General Requirements

- Comply with CPUC policies, procedures, auditing and reporting requirements
- Conform to CPUC evaluation, measurement, and verification protocols (Standard Practice Manual)
- Must include performance metrics
- Efficiency measures must pass cost-effectiveness test of 1.0 for first three years and 1.25 thereafter

Apply to Administer

- Advantages
  - Can serve all customers, including opt-outs and customers outside CCA service territory
  - Provides the CCA with access to all IOU non-bypassable charges
- Disadvantages
  - Lumped into rolling portfolio timeline after initial application
  - Requires a large, detailed business plan which is a component of the application (MCE's is 36 pages)
  - Must define sectors, requires extensive analysis and market segmentation, proof that administration is highly qualified

Elect to Administer

- Advantages
  - After checking off boxes can be approved through Tier 2 advice filing within 60 days (in theory)
  - Can be implemented anywhere in a program cycle
  - Provides the CCA with access to certain IOU non-bypassable charges
  - Provides the CCA with access to IOU non-bypassable charges
- Disadvantages
  - Excludes access to non-bypassable charges for statewide and regional programs authorized by the CPUC
  - Limited to CCA customers – not opted out customers

Existing IOU Programs

- Advantages
  - Range of offerings for residential and commercial sectors
  - Three methods of deployment
  - Measures documented by work papers
- Disadvantages
  - Limited scope
  - Low uptake due to small incentives
  - Tailored to meet needs of entire service area

Programs Funded from CCA Reserves

- Advantages
  - Not restricted to deemed measures
  - New measures do not have to be developed using the CPUC work paper process nor must they meet CPUC cost-effectiveness tests
  - EM&V methods do not have to follow the Standard Practice Manual
  - Can run in parallel with IOU programs
  - No “double-dipping” restrictions
- Disadvantages
  - No access to non-bypassable funds
  - Must develop discretionary procedures for evaluating and proving cost-effectiveness, measure adoption, incentive levels, and other program details

CPUC Process for Developing EE Measures

- Work Papers
  - Technical engineering documents that prescribe pre-determined values for energy savings, measure costs, and other ex ante (predetermined) values
  - Typically developed by program administrators, more rarely third parties
- DEER & eTRM
  - Database for Energy Efficiency Resources (“DEER”) maintains ex ante values
  - DEER is very challenging to navigate, difficult to find supporting documentation
  - DEER is actively being transitioned to an electronic technical reference manual (eTRM) under development by the California Technical Forum (CalTF)

CPUC/IOU Measure Types & Deployment

- Deemed measures
  - Use values from DEER or CPUC approved work papers
  - Used for homogenous, high volume interventions
- Deployment methods for deemed measures
  - Upstream: To manufacturers. Must be statewide.
  - Midstream: To distributors, suppliers, retailers. Must be statewide.
  - Downstream: To end use customers, or a qualifying customer segment such as multifamily renters. By service territory.
  - Direct install: To contractor. By service territory.
- Custom measures
  - Developed for measures not specifically included in DEER
  - Require work papers
  - Normalized meter-based energy consumption (NMEC) verification is an option

Third Party Programs

- Under Decision 18-01-004 the CPUC required IOU's to allocate 60% of energy efficiency funds to third-party designed and delivered programs by the end of 2022
- IOUs have issued RFAs targeted at the residential, commercial, industrial, agricultural, and public sectors (vary by utility)
- Proposals cannot include programs that overlap with or duplicate program offerings from IOUs, CCAs, and RENs
- Programs that go beyond EE and include demand response will not be considered part of the third party 60% requirement*

*Per the Conclusion of Law: 27. This round of strategic energy management programs and the staff-proposed programs for limited integration of energy efficiency and demand response should not count towards the third party percentage requirements ordered in this decision.

PG&E Program Overview

SINGLE FAMILY	MULTIFAMILY	COMMERCIAL	CROSS-CUTTING
Advanced Home Upgrade	Multifamily Upgrade	HVAC Optimization	Energy Advisor
California Advanced Homes	Multifamily EE Rebates	Savings by Design	Calc/Deemed Incentives
Energy Savings Assistance	CA Multifamily New Homes		Direct Install
Plug Loads & Appliances			Continous Improvement
Residential HVAC			On-Bill Financing
			Codes and Standards

PG&E Downstream Residential Program Offerings

Rebate Code	Description	Rebate
HV359	**ENERGY STAR® Smart Thermostat** replacing manually operated thermostat	**$50/ household**
HV360	**ENERGY STAR Smart Thermostat** replacing programmable thermostat	**$50/ household**
BW031	**ENERGY STAR High-Efficiency Electric Heat Pump Storage Water Heater** Uniform Energy Factor (UEF) of 3.09 or greater and/or Energy Factor (EF) of 3.24 or greater	**$300/unit**

PG&E Midstream Residential Program Offerings

- Full ACCA Standard 4 HVAC System Assessment with Condenser Coil Cleaning - $40 initial
  Refrigerant Charge Adjustment - $50
- Efficient Fan Delay Rebate - $70
- Replacement Blower Motor Rebate - $220
- Additional Incentive (Must complete any two of the following: Refrigerant Charge Adjustment, Efficient Fan Delay, and Blower Motor Replacement) - $100

Other Residential Programs

- Energy Upgrade California
  - Energy assessment by selected contractor
  - Select improvements
  - Rebates up to $5,500
- Energy Savings Assistance Program
  - Must meet income qualifications
  - Covers attic insulation, lighting, weather stripping, appliance replacement, building sealing, water heater blankets
- CAHP & CMFHP
  - For new single & multifamily residential buildings
  - Incentives based on Delta EDR (> 3.0)

What other CCAs are doing

- Marin Clean Energy: Apply to Administer
  - Residential: Energy Upgrade California, Advanced Energy Rebuild Napa
  - Multifamily: Energy assessments, rebates, technical assistance, loans
  - Commercial: Energy assessments, rebates, project management, financing
- Lancaster Choice Energy: Elect to Administer
  - Lancaster Choice Energy is a member of CalChoice
  - Energy Advisor program – personalized energy advice for residential customers
  - Small Commercial Direct Install program – free or low-cost retrofits
- Sonoma Clean Power: funded through reserves
  - Lead Locally: CEC EPIC funding, brick and mortar Advanced Energy Center
  - Induction cooling: “borrow a cooktop”
  - Advanced Energy Rebuild: Help for rebuilding efficient, sustainable homes

VCE Residential Program Opportunities

- Electrification
- Tailored EE improvements
  - Duct leakage testing & sealing
  - Attic/duct insulation
  - HVAC tune-ups – coil cleaning, duct upgrades & airflow improvements
  - Window replacement & shading
- Indoor air quality improvements
  - Sealing at garage walls
  - Eliminate indoor combustion appliances
  - Mechanical ventilation
- Food for thought
  - How to return savings to the program so that they can be used to fund additional incentives
  - Partnering with third party programs

Item 12- Local Energy Production related to IRP Update

Does Local Energy Production Strengthen Local Economies?

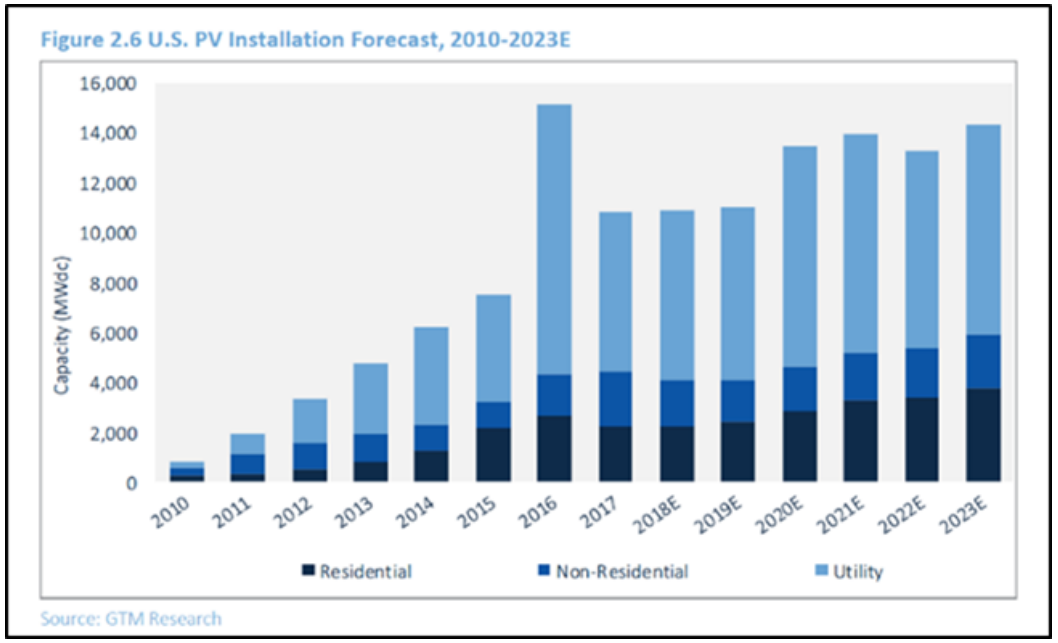
Review of Yolo County, California Statistics

G. Braun

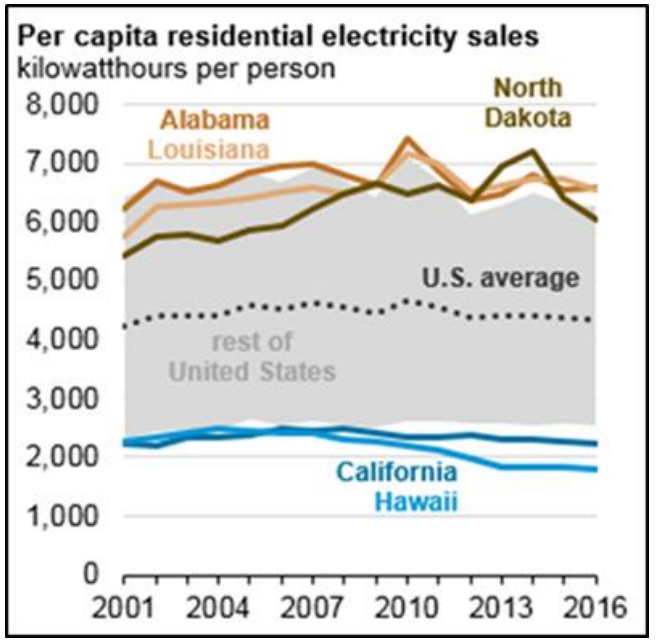
May 23, 2019

NEM Solar US Overview

NEM Solar continues to claim a significant share of the US PV Market



NEM Solar deployment in high electricity cost states materially has reduced demand for carbon based electricity.



Yolo County Energy Overview

Usage

Together Yolo County NEM Solar customers and VCE provide nearly 50% of the electricity consumed in Yolo County. The amount of solar electricity generated on-site under non-NEM tariffs may substantially increase this share.

Annual Electricity and NG				
County Electricity Usage (GWH)	NEM Solar Share of Total (2)	VCE Electricity Supply (GWH)	VCE Share of Total	County Natural Gas Usage (Million Therms)
1749	9%	682	39%	59.8

Supply

Yolo County-based NEM Solar and Utility Scale RE projects account for more than 50% of Yolo County electricity supply

Renewable Electricity Supply (GWh)				
Local		Imports (1)		Total
NEM Solar	PG&E Purchases from Utility-scale Projects (est.)	VCE (42%)	PG&E (33%)	Total
165	273	286	79	804
21%	34%	36%	10%	100%

Carbon

GHG emissions displacement (MTCO2) depends on the energy usage that is displaced

	Grid electricity	Natural gas	Gasoline
Davis	7742	16073	39328
Woodland	14714	30549	74747
West Sacramento	7483	15536	38013
Other	4652	9659	23634
Total Yolo County	34591	71818	175723

Energy and Non-energy Benefits

- Avoided annual electricity import costs:
  - Current Annual NEM Solar: $23 million

- Direct, indirect and induced job creation:
  - NEM Solar: 282 (est.)
  - Utility Scale Renewables: Comparable to NEM Solar
  - Estimated combined annual benefit to County economy: >$60 million
- Avoided imbedded carbon costs:
  - @ $20 per metric ton: $2 million
  - @ $200 per metric ton: $20 million
  - @ $400 per metric ton: $100 million

County-Wide Electricity Usage and Production

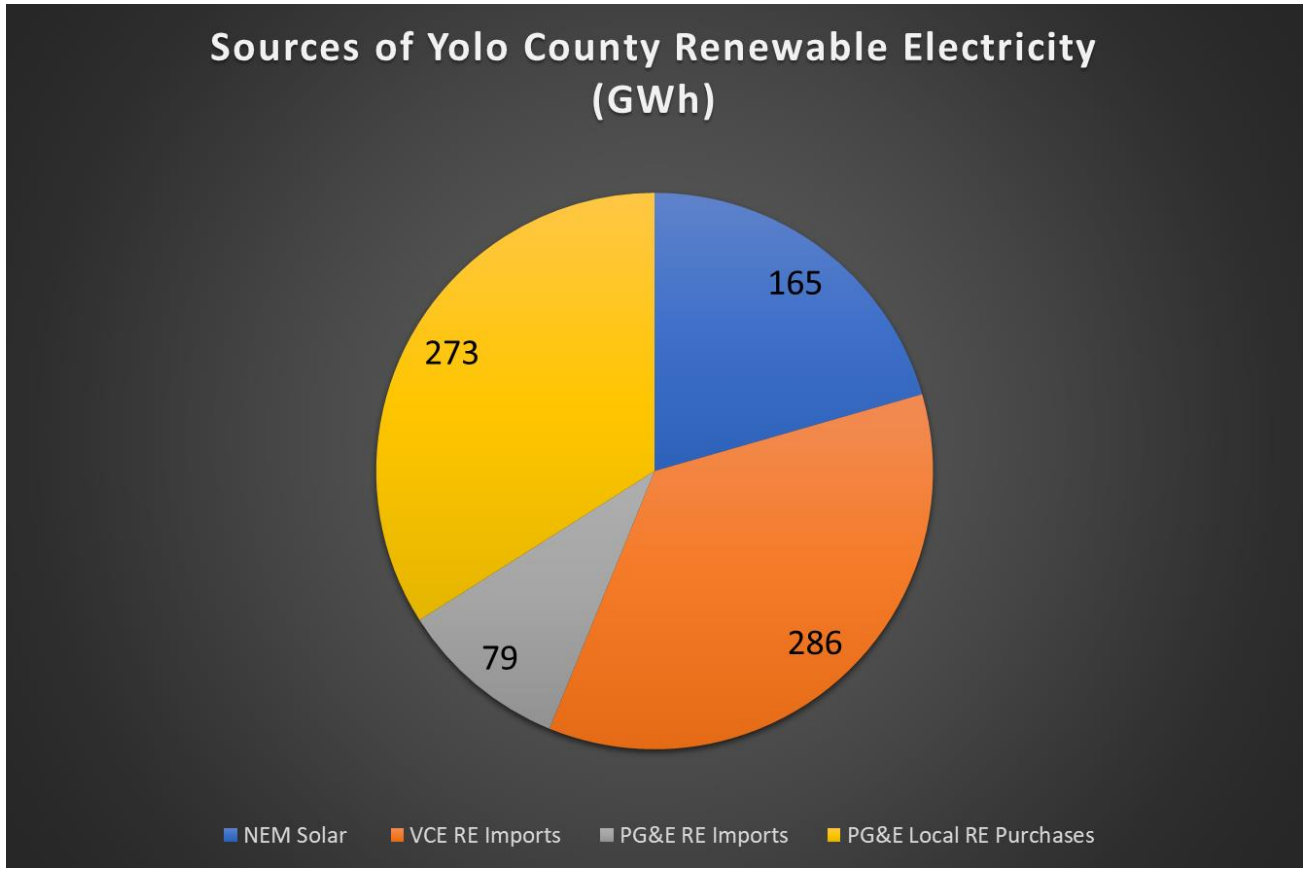
Usage: 1,750 GWH/year

GHG Emissions Attributable to Energy Utility Service: 693200 MTCO2/year

Electricity: 53%

Natural Gas: 47%

Usage Served by Locally Produced and Imported Renewable Electricity: 46%



Does Local Energy Production Strengthen Local Economies?

- It does now in California.
- 10 per cent of the potential has been tapped so far in Yolo County. This result has been accomplished relatively quickly, relying on citizen and business decisions and investments.
- Close collaboration will be required between local governments in Yolo County, and local energy service providers, e.g. VCE and PG&E, to accelerate/maximize the benefits, while addressing siting, safety and consumer protection issues.
- A first step will be a long term Integrated Local Resource Plan addressing both electricity and gaseous fuels (esp. renewable natural gas and hydrogen), plus both building and transportation energy uses.