Affordability Staff Proposal

R. 18-07-006

August 26, 2019

Jefferson Hancock, Water Division
Jeremy Ho, Water Division
Bridget Sieren-Smith, Energy Division
Emma Tome, Energy Division
Nina Enriquez, Communications Division
Wylen Lai, Communications Division

Overview

- Definitions: Affordability and Essential Service
- Essential Service Quantities
  - Water
  - Telecommunications
  - Energy
- Metrics
- Examples
  - Essential Service Bills (Rate x Quantity)
  - Water
  - Telecommunications
  - Energy
- Metric Summary

Framework and Principles: Affordability

- **Affordability:** the degree to which a household can regularly pay for *essential service* of each public utility type on a full and timely basis without substantial hardship.

- The more that a bill for essential service reduces a household's ability to pay for other essential needs, the less affordable the utility service.

Framework and Principles: Essential Service

- **How affordable are essential utility services?**

- **Essential utility service:** service that meets a household's basic needs and is reasonably necessary for that household's health, safety, and full participation in society.

Water Essential Service
Selected value: 50 gallons per capita per day

- What does “Essential Indoor Usage” mean and for whom?
- Feinstein 2018: 43 gpcd*
- Conservation as a Way of Life: 55 gpcd -> 50 gpcd

*52 incl. leaks

Telecommunications Essential Service

- Fixed Broadband
  - 20 Mbps down/3 Mbps up;
  - 1024GB
- Mobile Broadband
  - 3G, 8.75GB
- Mobile Voice
  - 1000 minutes
- Fixed Voice
  - unlimited local calling

- Determination
  1. Service Provider Data Request
  2. Federal Lifeline Minimum Service Standards
  3. California Benchmark

1. Service Provider Data Request

- Household Broadband Guide

	Light Use (Basic functions: email, browsing, basic video, VoIP, Internet radio)	**Moderate Use** (Basic functions plus *one* high-demand application: streaming HD video, multiparty video conferencing, online gaming, telecommuting)	**High Use** (Basic functions plus *more than one* high-demand application running at the same time)
1 user on 1 device	Basic	Basic	Medium
2 users or devices at a time	Basic	Medium	Medium/Advanced
3 users or devices at a time	Medium	Medium	Advanced
4 users or devices at a time	Medium	Advanced	Advanced

Basic Service = 3 to 8 Mbps
Medium Service = 12 to 25 Mbps
Advanced Service = More than 25 Mbps

- Broadband Speed Guide

Activity	Minimum Download Speed (Mbps)
General Usage	
General Browsing and Email	1
Streaming Online Radio	Less than 0.5
VoIP Calls	Less than 0.5
Student	5 - 25
Telecommuting	5 - 25
File Downloading	10
Social Media	1
Watching Video	
Streaming Standard Definition Video	3 - 4
Streaming High Definition (HD) Video	5 - 8
Streaming Ultra HD 4K Video	25
Video Conferencing	
Standard Personal Video Call (e.g., Skype)	1
HD Personal Video Call (e.g., Skype)	1.5
HD Video Teleconferencing	6
Gaming	
Game Console Connecting to the Internet	3
Online Multiplayer	4

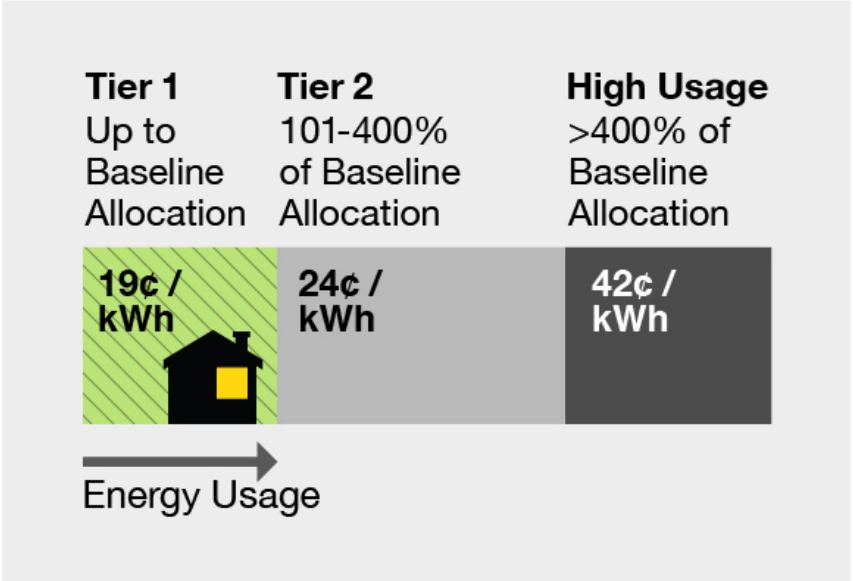
Source: fcc.gov

2. Federal Lifeline Minimum Service Standards
   - “substantial majority”

3. California Benchmark
   - iteration of Federal Lifeline with California data

Energy Essential Service
Provisional value: Tier 1 / baseline quantities

- The quantity "necessary to supply a significant portion of the reasonable energy needs of the average residential customer."
- Based on: Utility, Climate Zone, Season, Fuel Type
- Electric: 50% to 60% of average residential consumption of electricity
- All-electric and Gas: 60% to 70% of average residential electric or gas consumption during the winter heating season



https://www.sce.com/residential/rates/Standard-Residential-Rate-Plan

Energy Essential Service
Recommended value: Essential Use Study results

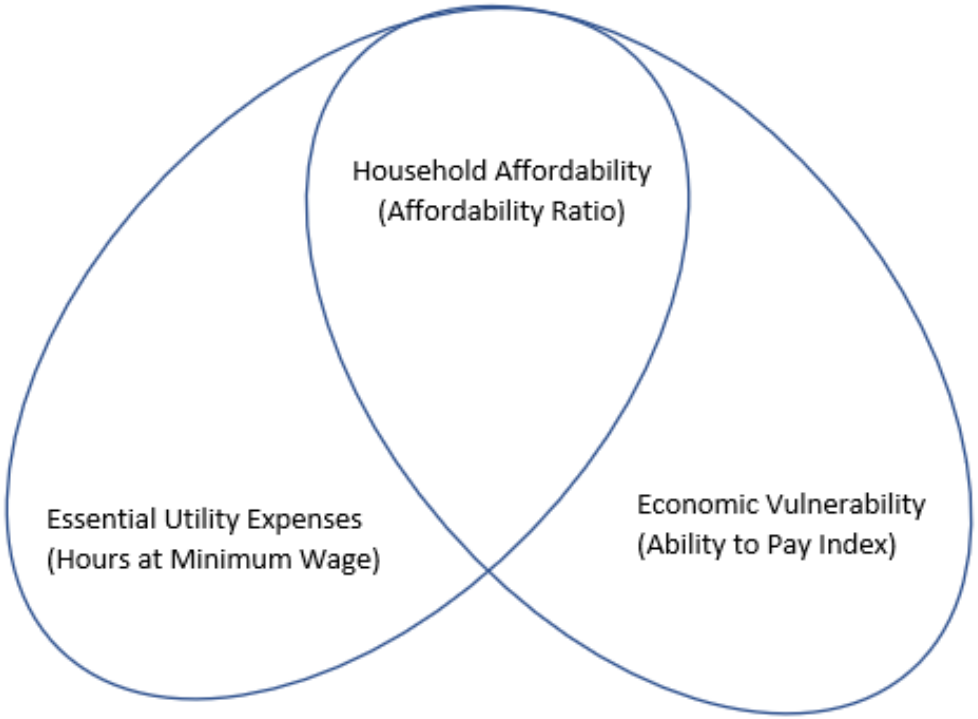
- PG&E (D.18-08-013) and SCE (D.18-11-027) general rate case proceedings ordered Essential Use Studies.
- After these studies are complete, essential use quantities could be informed by household type, building features, insulation, and appliances.
- Methodology could be applicable to SDG&E, SCG, and Small Multi-Jurisdictional Utilities (SMJUs), and we recommend that these utilities also develop essential use determinations.

Affordability Metrics

Hours at Minimum Wage

Affordability Ratio

Ability to Pay Index



Hours at Minimum Wage (HM)

How long does an individual need to work to afford utilities?

$$HM = \frac{W_{ES} + E_{ES} + T_{ES}}{M}$$

- Straightforward, intuitive metric: how long would I need to work to pay for my utility bill?
- Sensitive to municipal policy variations.

Minimum Wage Rate in California (as of July 1, 2019)	
Statewide	$12 / hour
26 local minimum wage ordinances	> $12 / hour
21 in Bay Area counties	Up to $15 / hour
5 in So. California counties	Up to $14.25 / hour
Figures above based on minimum wage for employers with 26 or more employees (56 or more for Emeryville, CA)	

Affordability Ratio (AR)

How much of a household's income after housing costs is spent on utilities?

$$\boldsymbol{AR} = \frac{W_{ES} + E_{ES} + T_{ES}}{IAHC}$$

- IAHC = Income After Housing Costs, or Annual Income – Annual Cost of Housing

- Public Use Microdata Samples provide household-scale data for approximately 776k households in California, each assigned to a Public Use Microdata Area (PUMA).

1. Compute AR (sample households)

HH Size[1]	Annual Income[2]	Annual Housing Cost[3]	Annual IAHC[4]	Annual $W_{ES} + T_{ES} + E_{ES}$	AR
1	$ 31,752.93	$ 3,449.50	$ 28,303.43	$ 2,542.95	**8.98**
4	$ 47,525.88	$ 19,200.00	$ 28,325.88	$ 2,799.72	**9.88**
1	$ 32,115.63	$ 3,749.50	$ 28,366.13	$ 2,542.95	**8.96**
3	$ 40,447.56	$ 12,000.00	$ 28,447.56	$ 2,712.75	**9.54**
1	$ 82,340.56	$ 53,854.32	$ 28,486.24	$ 2,542.95	**8.93**
1	$ 49,404.34	$ 20,838.70	$ 28,565.63	$ 2,542.95	**8.90**
6	$ 48,850.67	$ 20,237.09	$ 28,613.58	$ 2,973.66	**10.39**
5	$ 50,125.03	$ 21,501.91	$ 28,623.13	$ 2,886.69	**10.09**

2. Aggregate for presentation by income band or other threshold

PUMS fields:

1. Number of persons in household (NP)
2. Household income (past 12 months) = (HINCP)*(ADJINC)
3. Monthly Rent (RNTP)*(ADJHSC)*12
   - OR - Monthly Mortgage Payment (MRGP)*(ADJHSC)*12 + Property Tax (midpoint of range given in TAXP)
4. Annual Household Income – Annual Housing Cost

Aggregating AR

1. Compute AR for every representative household in the area of interest.

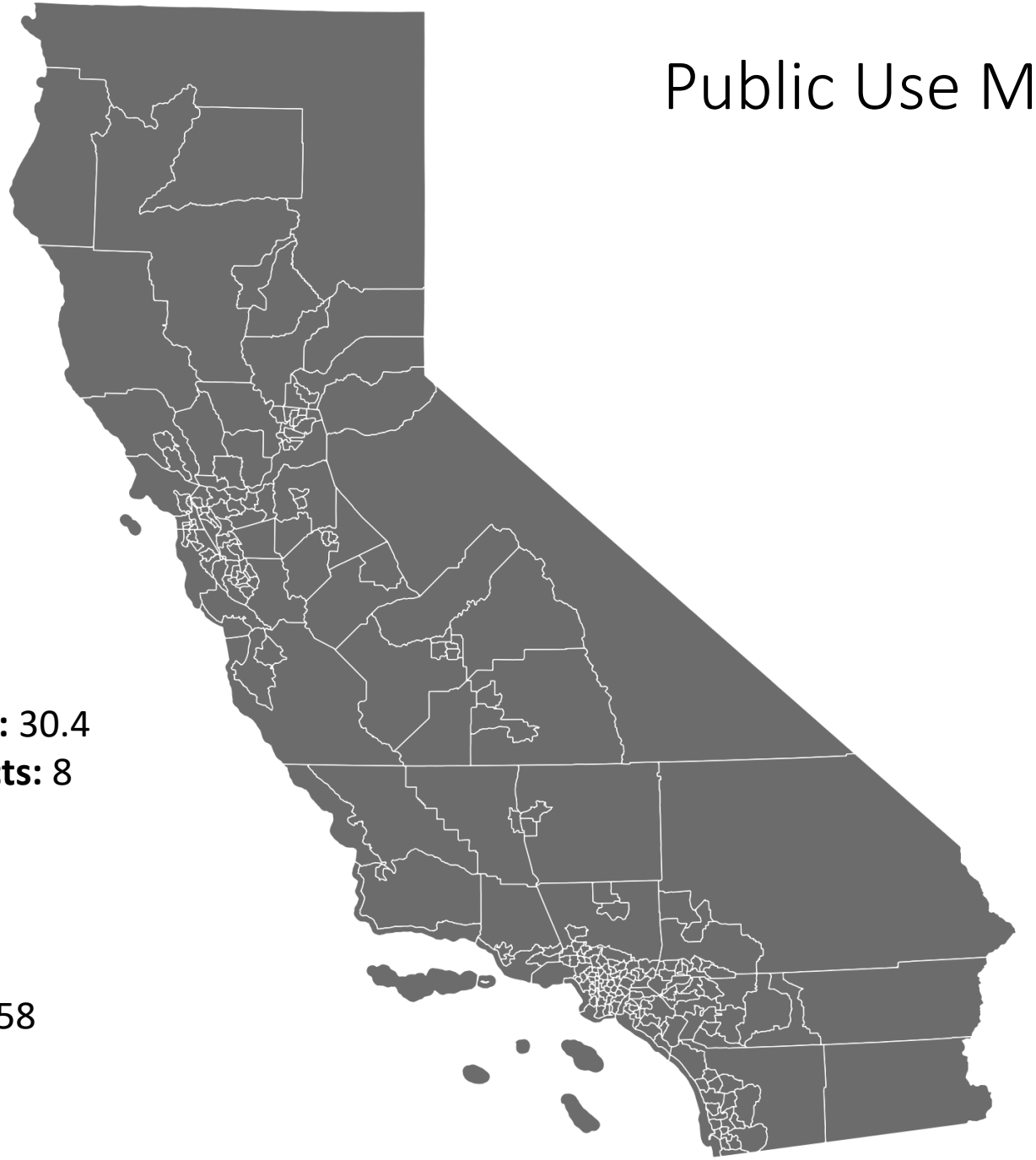
HH Size	Annual Income	Annual Housing Cost	Annual IAHC	AR
1	$ 31,752.93	$ 3,449.50	$ 28,303.43	**8.98**
4	$ 47,525.88	$ 19,200.00	$ 28,325.88	**9.88**
1	$ 32,115.63	$ 3,749.50	$ 28,366.13	**8.96**
3	$ 40,447.56	$ 12,000.00	$ 28,447.56	**9.54**
1	$ 82,340.56	$ 53,854.32	$ 28,486.24	**8.93**
1	$ 49,404.34	$ 20,838.70	$ 28,565.63	**8.90**
6	$ 48,850.67	$ 20,237.09	$ 28,613.58	**10.39**
5	$ 50,125.03	$ 21,501.91	$ 28,623.13	**10.09**

2. Group by criteria of interest and take average. Here, the AR for 1-person households:

$$AR_{HH1} = (8.98 + 8.96 + 8.93 + 8.90) / 4 = \mathbf{8.94}$$

In practice, we use thousands of households, and create groups and averages by income buckets.

Public Use Microdata Areas

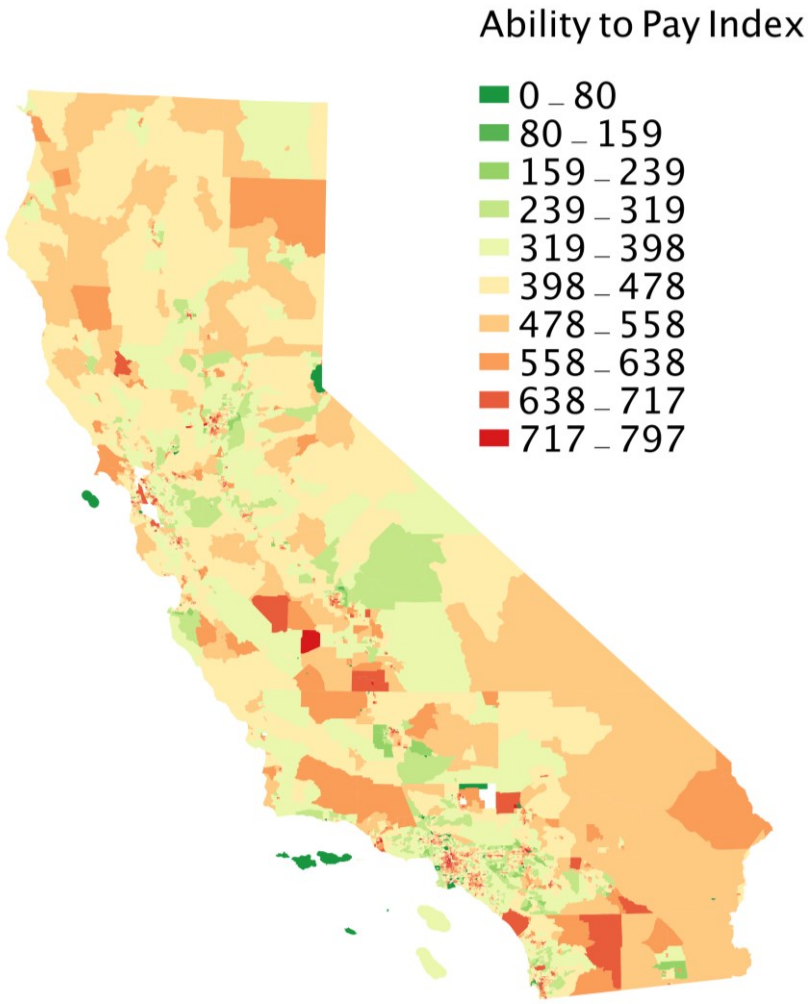


PUMAs in CA: 265
Mean # of tracts in PUMA: 30.4
Standard deviation of tracts: 8
Min # of tracts: 14
25% 25
50% 29
75% 35
Max # of tracts in PUMA: 58

Ability to Pay Index (API)

How vulnerable is this geography to high utility expenses?

- Assign a vulnerability score by household type: income as a % of area median income, and percent of income spent on housing, as reported in the American Community Survey
- API: weighted average of vulnerability scores based on household types in a census tract.



API Hierarchical Weighting Process

1. Group by income…

Income Level (AMI definition)
Extremely Low (<30% of Area Median Income)
Very Low (30 - 50% of Area Median Income)
Low (50 - 80% of Area Median Income)
Moderate (80 - 120% of Area Median Income)
Non-LMI (>120% of Area Median Income)

2. Then by percent of income spent on housing.

% of Income Spent on Housing
> 50%
40 - 49%
35 - 39%
30 - 34%
25 - 29%
20 - 24%
0 - 20%

3. Assign score from 0 – 1000, where 1000 is most economically vulnerable, e.g.:

- Extremely Low Income, 20 – 24% of income spent on housing = **881.9**
- Non-LMI, 40 – 49% of income spent on housing = **149.4**

(5 income groups x 7 housing groups = 35 categories total)

4. Tract API is a **weighted average** of scores for households in the tract.

Detailed in Lin (2018), computed API scores are publicly available at maps.nrel.gov/solar-for-all (Customer Cost Burden).

API Scoring

Income Level	Percent of Income Spent on Housing						
	0 - 20%	20 - 24%	25 - 29%	30 - 34%	35 - 39%	40 - 49%	> 50%
Extremely Low	862	881.9	901.9	931.4	951.8	970.7	1,001.10
Very Low	720.2	740	761.1	791.7	811.5	831.6	861.4
Low	579.6	599.6	619.2	649.4	669.7	689.4	720
Moderate	309.9	349.4	389.9	429.1	469	509.3	550.5
Non-LMI	33.1	43.4	50.8	58.7	100.4	149.4	199

Essential Service Bills

Calculating $W_{ES} + E_{ES} + T_{ES}$

Why Proxy Bills?:
The Utility Assignment Problem

- When analyzing one utility, hold the other two constant
- AR uses household-level data. Where is each household located in a given geography?
  - Specifically, who provides utility service to each household?
- Q: For geographies where a given household could be served by multiple utilities, how do we determine that household's bill?
- A: Use a bill that is generally representative of that geography.

Water: Proxy bill estimation approach

- For other utilities requiring a water bill, PUMS data was used to determine the household sizes within the PUMA. Household sizes that had less than 10 datapoints were not considered.
- Bills calculated based on household size for all water utilities (CPUC regulated and municipal). A weighted average was used to obtain a proxy value for the entire PUMA

- Data Used: State Water Resource Control Board – Electronic Annual Report (EAR)
  - Rate structure for all community water systems statewide
  - Challenge: Utilities entered information into the EAR database and some of the values did not accurately depict the rates. Incorrect rates were removed from the analysis

Water: Rate Analysis

- CPUC regulated utilities were chosen for the analysis in each PUMA using 50 gallons per capita daily
  - Rural Example
    - Water bills were calculated for a household of 2 and 4.
  - Urban Example
    - PUMS dataset has household size within the PUMA.
    - Water bills calculated based on household sizes within the PUMA

Telecommunications Essential Service Bills

- Rate Analysis
  - Rural Example
    - California Advanced Service Fund (CASF) Grant
    - Essential service at household level
  - Urban Example
    - Rate Analysis
    - Essential service at household level
- Proxy Bill Estimate Approach
  - Service territories shared between carriers
  - Majority of the PUMA served

Energy Essential Service Expenses
Rates ⇢ Annual bills

Rates ($/kWh) are applied to baseline quantities (kWh/month) and season durations (months/year) to estimate an annual bill.

For evaluating an energy rate change:

- We use rates from the utility application requesting a rate change.
- Estimated bills are computed annually, assuming that each rate under evaluation is in effect for an entire year, using baseline quantities for the summer and winter seasons.

For developing proxy bills for use by other utilities:

- We use rates from the CPUC-regulated service provider with the greatest number of residential ratepayers in the geography of interest.
- These baseline rates ($/kWh) are from standard residential rate schedules, and are annualized averages weighted to take rate changes throughout the year into consideration.
- Estimated bills are computed annually for the year under consideration, using baseline quantities for the summer and winter seasons.

Applying Affordability Metrics: Rural and Urban Case Studies

Water: General Rate Cases

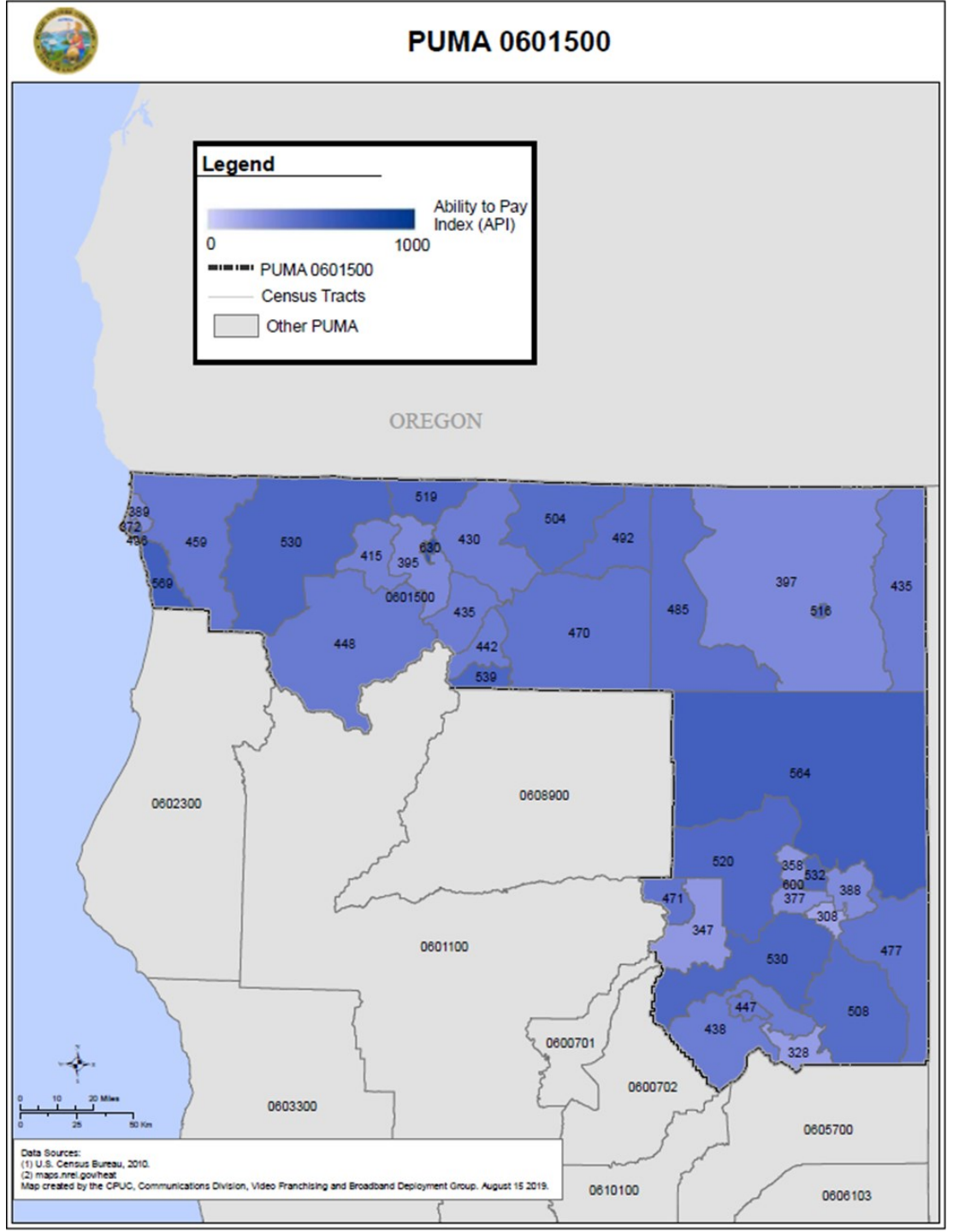
Telecommunications: Grant Request

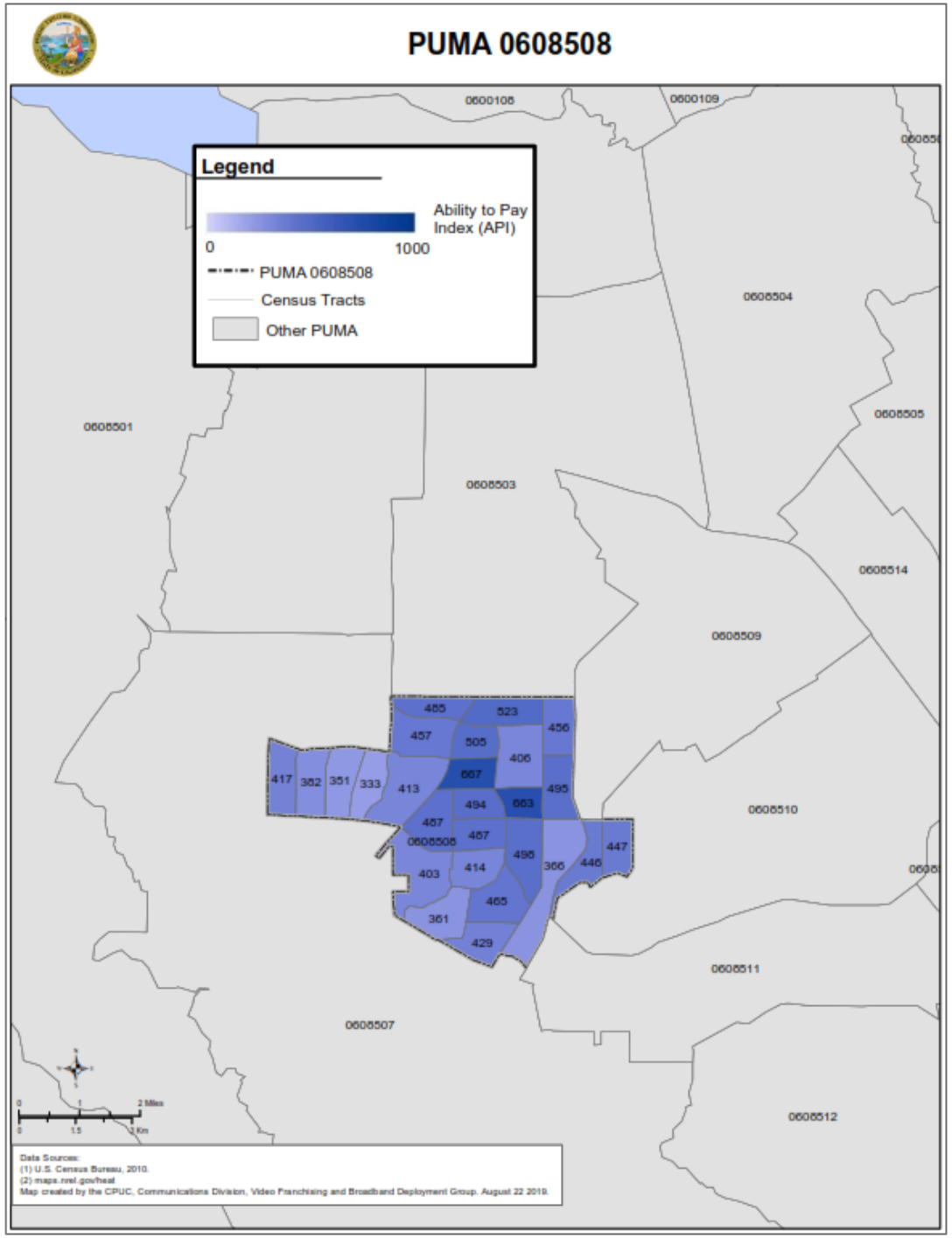
Energy: Catastrophic Event Memorandum Account

Rural Example: PUMA 0601500

Del Norte, Lassen, Modoc, Plumas, and Siskiyou Counties

	Annual	Monthly	Statewide rank
Median household income	$44,391.20	$3,699.27	239/265
Median cost of housing	$6,525.95	$543.83	264/265
Median income after housing costs	$37,737.10	$3,144.76	220/265





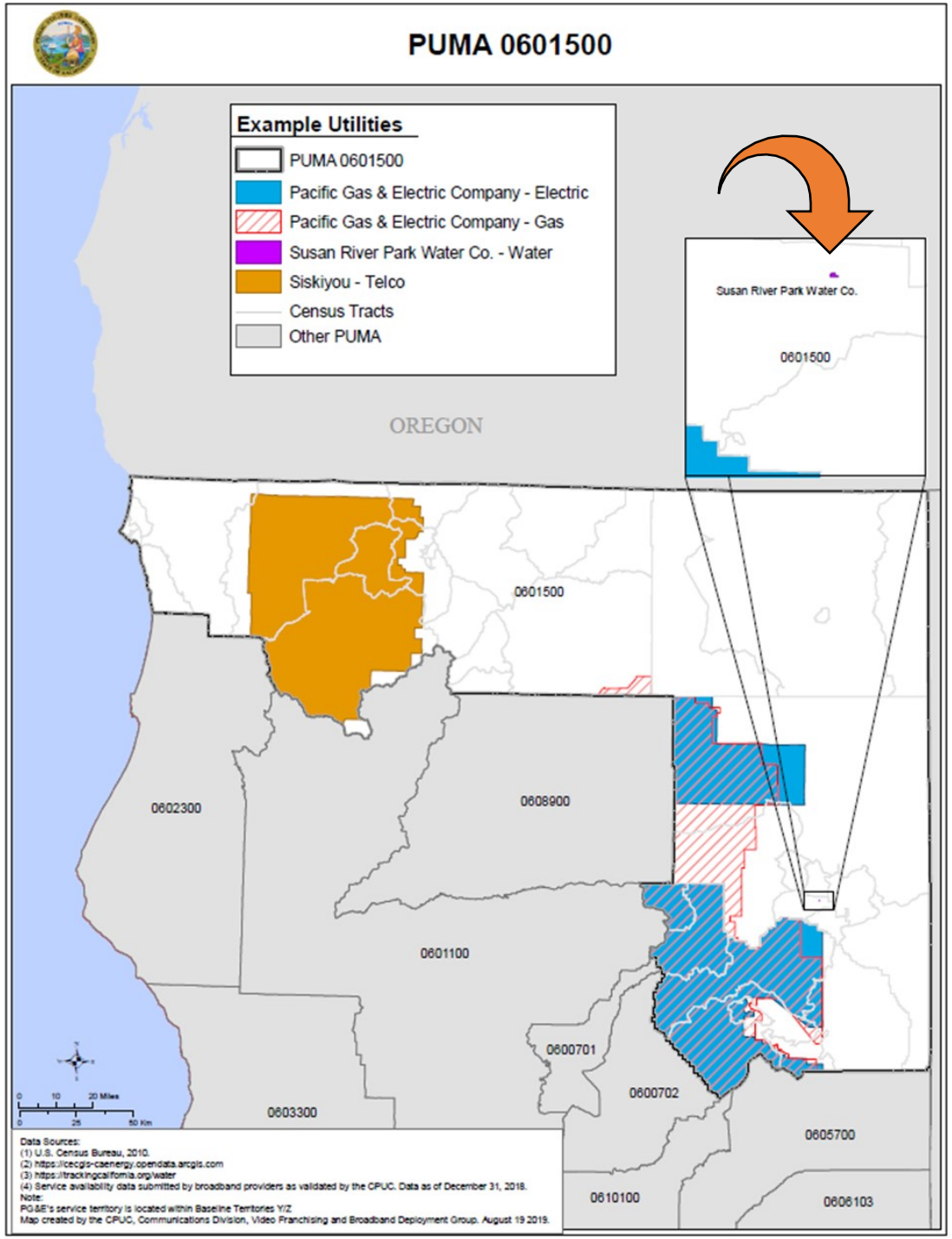
Urban Example: PUMA 0608508

Santa Clara County (Central) -- San Jose (West Central) & Campbell Cities

	Annual	Monthly	Statewide rank
Median household income	$119,914.31	$9,992.86	16/265
Median cost of housing	$9,992.86	$1,984.65	19/265
Median income after housing costs	$94,381.10	$7,865.09	19/265

Water

Single and Cumulative Rate Increases



Rural PUMA - Small Water GRC

- Susan River Park Water Company (SPRWC) - Class D
- Filed for rate increase in 2017 from $72 to $113.48
  - 58% increase
  - Last rate increase occurred in 1996
- PUMA-scale proxy bills for Energy and Telecommunications

Rural PUMA Water Affordability Analysis

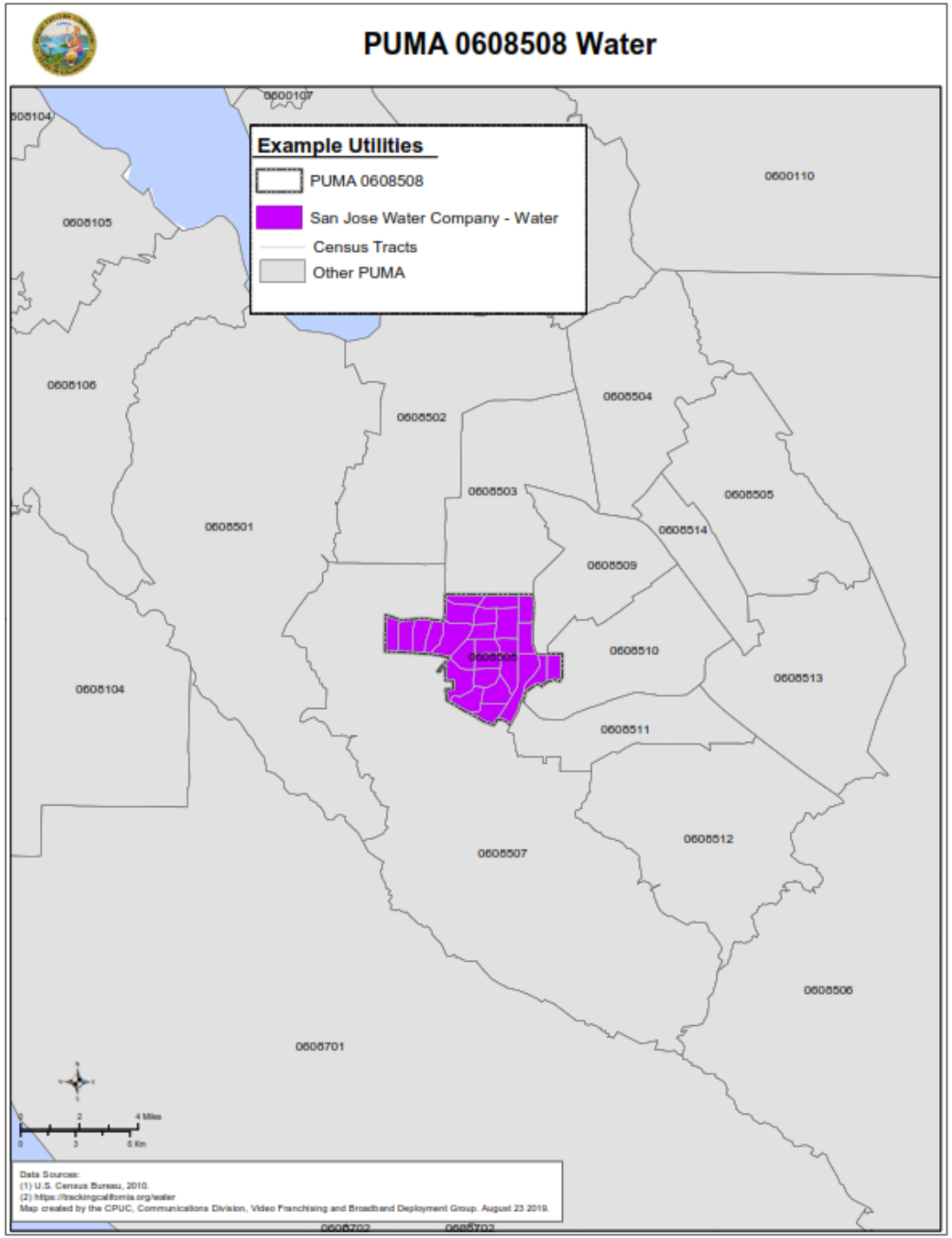
	2-Person Household			4-Person Household		
	Original Rate @ $72	Adjusted Rate @ $113.48	Difference	Original Rate @ $72	Adjusted Rate @ $113.48	Difference
HM (hours)	31.25	34.75	3.5	31.25	34.75	3.5
AR_{20}	21.47%	23.84%	2.38%	20.77%	23.07%	2.30%
AR_{50}	8.24%	9.15%	0.91%	7.58%	8.42%	0.84%
API	377					

- Households at 20th percentile spend over 20% of income after housing costs on utility bills even in areas with low API
- SPRWC is located within one census tract, so the API value for that tract was used

Rural PUMA Isolated Analysis

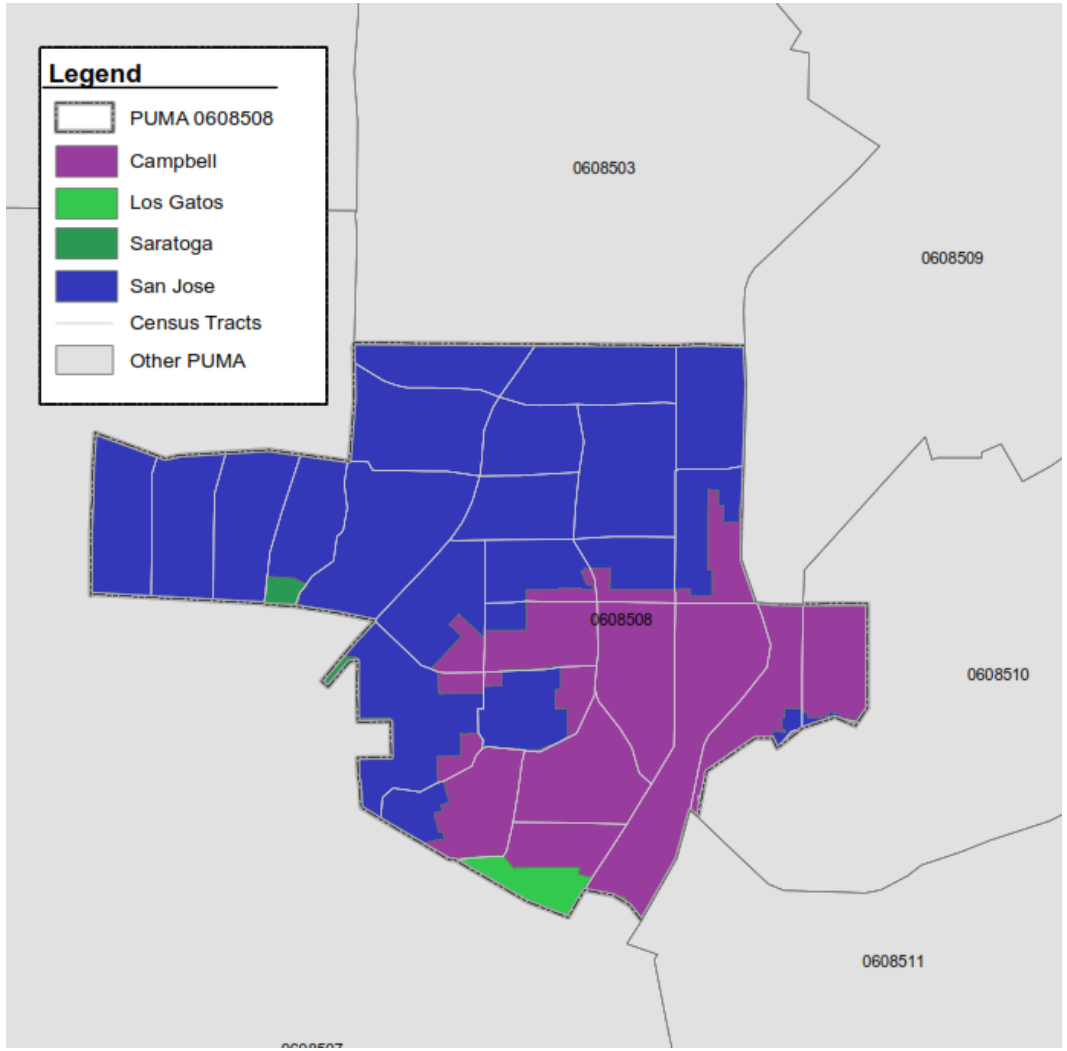
	2-Person Household			4-Person Household		
	Original Rate @ $72	Adjusted Rate @ $113.48	Difference	Original Rate @ $72	Adjusted Rate @ $113.48	Difference
HM_W (hours)	6	9.46	3.5	6	9.46	3.5
$AR_{20, W}$	4.12%	6.50%	2.38%	3.99%	6.29%	2.30%
$AR_{50, W}$	1.58%	2.49%	0.91%	1.46%	2.29%	0.84%
API	377					

- Shows that water utilities are a small component when isolating the values from other utilities.
- SRPWC has a flat rate structure, so water affordability isn't directly affected by household size



Urban Example

- San Jose Water Company services the entire PUMA
- Compared 2018 GRC rate change with 2015 rate increase
  - 9 rate changes between the 2015 rate increase and 2018 GRC rate change



Hours at Minimum Wage

- $15/hour
  - San Jose

$12/hour

- Los Gatos
- Campbell
- Saratoga

	2-Person Household			4-Person Household		
	Original Rate @ $34.49	Adjusted Rate @ $54.19	Difference	Original Rate @ $48.99	Adjusted Rate @ $73.68	Difference
HM @ $12/hr (hours)	23.78	25.43	1.64	24.99	27.1	2.06
HM @ $15/hr (hours)	19.03	20.34	1.31	19.99	21.6	1.65

Water Affordability Analysis – Bundled Bills

San Jose Water Company

	2-Person Household			4-Person Household		
	Original Rate @ $34.49	Adjusted Rate @ $54.19	Difference	Original Rate @ $48.99	Adjusted Rate @ $73.68	Difference
HM @ $12/hr (hours)	23.78	25.43	1.64	24.99	27.1	2.06
HM @ $15/hr (hours)	19.03	20.34	1.31	19.99	21.6	1.65
	Original Rate		Adjusted Rate		Difference	
AR_{20}	9.43%		10.33%		0.9%	
AR_{50}	2.91%		3.19%		0.3%	
API	456					

Susan River Park Water Company

	2-Person Household			4-Person Household		
	Original Rate @ $72	Adjusted Rate @ $113.48	Difference	Original Rate @ $72	Adjusted Rate @ $113.48	Difference
HM (hours)	31.25	34.75	3.5	31.25	34.75	3.5
AR_{20}	21.47%	23.84%	2.38%	20.77%	23.07%	2.30%
AR_{50}	8.24%	9.15%	0.91%	7.58%	8.42%	0.84%
API	377					

Urban vs Rural Comparison

- API calculated by averaging all API in PUMA since SJWC's territory fills the entire PUMA
- Urban PUMA is generally more affordable compared to rural PUMA even with the difference in API
- Calculated differently to obtain data for AR

Water Affordability Analysis – Water Alone

San Jose Water Company

	2-Person Household			4-Person Household		
	Original Rate @ $34.49	Adjusted Rate @ $54.19	Difference	Original Rate @ $48.99	Adjusted Rate @ $73.68	Difference
HM @ $12/hr (hours)	2.87	4.52	1.64	4.08	6.1	2.06
HM @ $15/hr (hours)	2.30	3.61	1.31	3.27	4.9	1.65
	Original Rate		Adjusted Rate		Difference	
AR_{20}	1.57%		2.46%		0.9%	
AR_{50}	0.52%		0.81%		0.3%	
API	456					

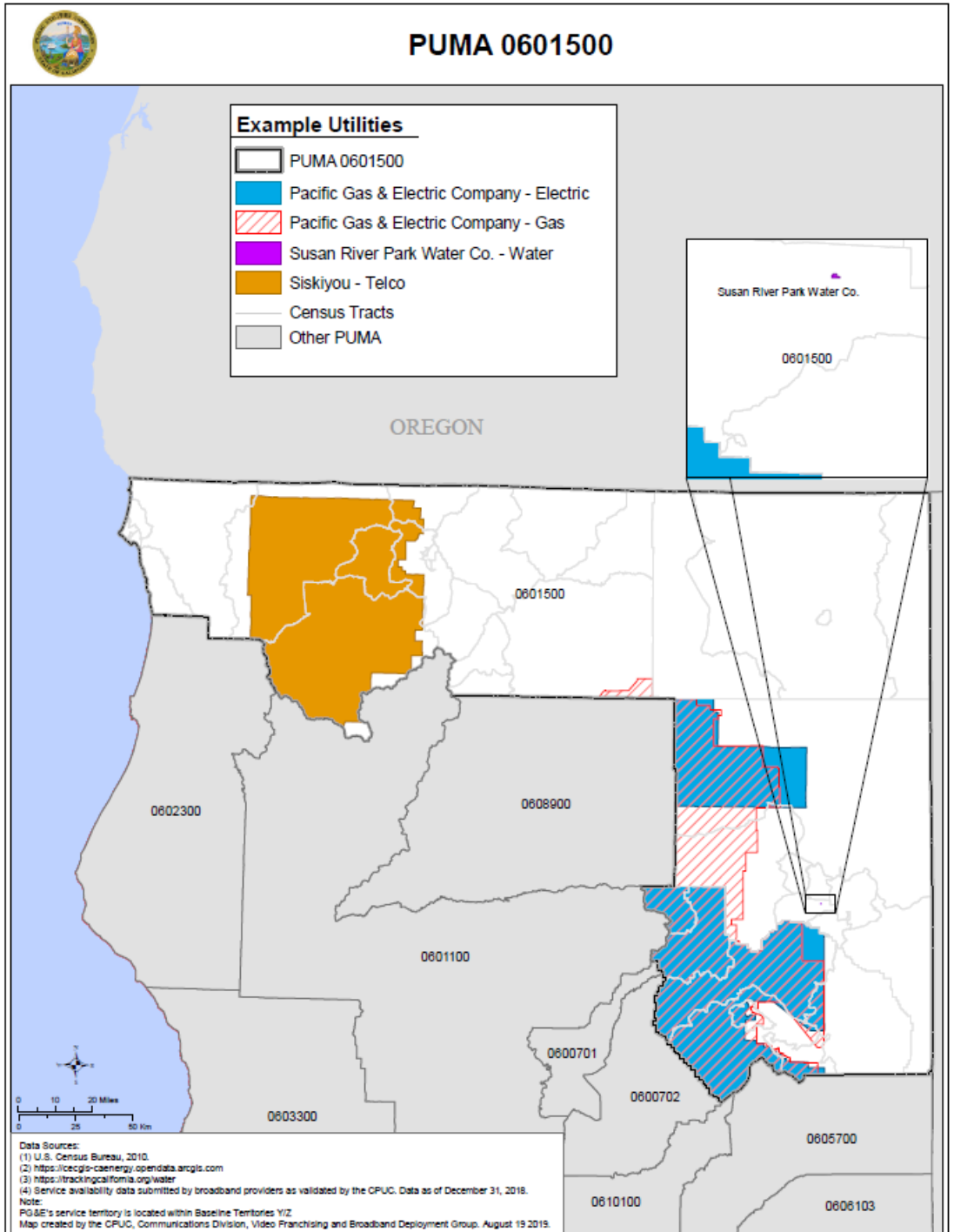
Susan River Park Water Company

	2-Person Household			**4-Person Household**		
	Original Rate @ $72	Adjusted Rate @ $113.48	Difference	Original Rate @ $72	Adjusted Rate @ $113.48	Difference
HM_W (hours)	6	9.46	3.5	6	9.46	3.5
$AR_{20, W}$	4.12%	6.50%	2.38%	3.99%	6.29%	2.30%
$AR_{50, W}$	1.58%	2.49%	0.91%	1.46%	2.29%	0.84%
API	377					

Telecommunications

California Advanced Services Fund Grant Analysis

Urban Rate Analysis



Rural PUMA: CASF Grant

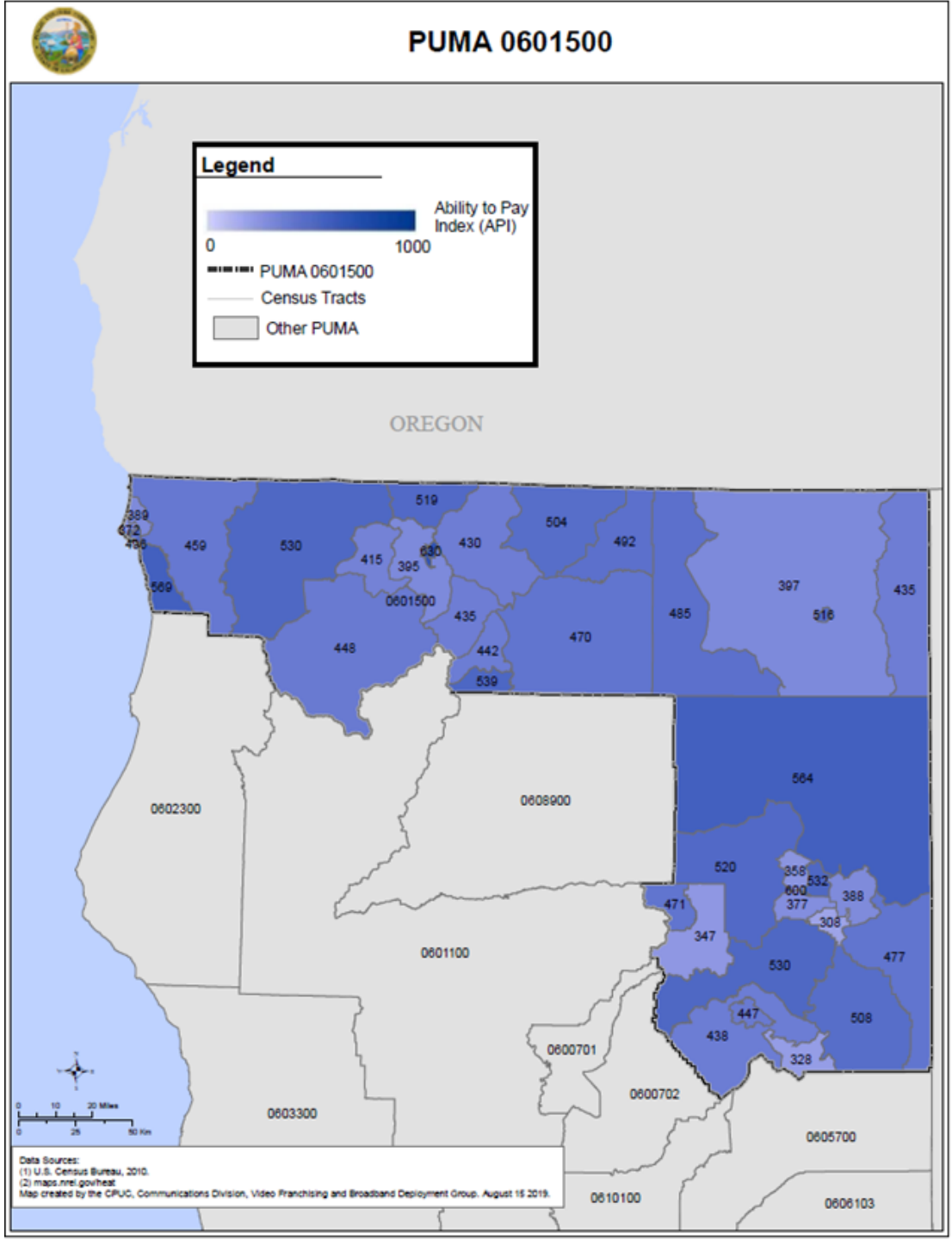
Broadband + Voice = $173.95

AGGREGATE BILLS	2-Person Household	4-Person Household
HM (hours)	29.4	29.7
AR_{20}	20.22%	19.56%
AR_{50}	7.75%	7.13%
API	530	

INDIVIDUAL	2-Person Household	4-Person Household
HM (hours)	14.5	14.5
$AR_{20,T}$	9.96%	9.64%
$AR_{50,T}$	3.82%	3.52%
API	530	

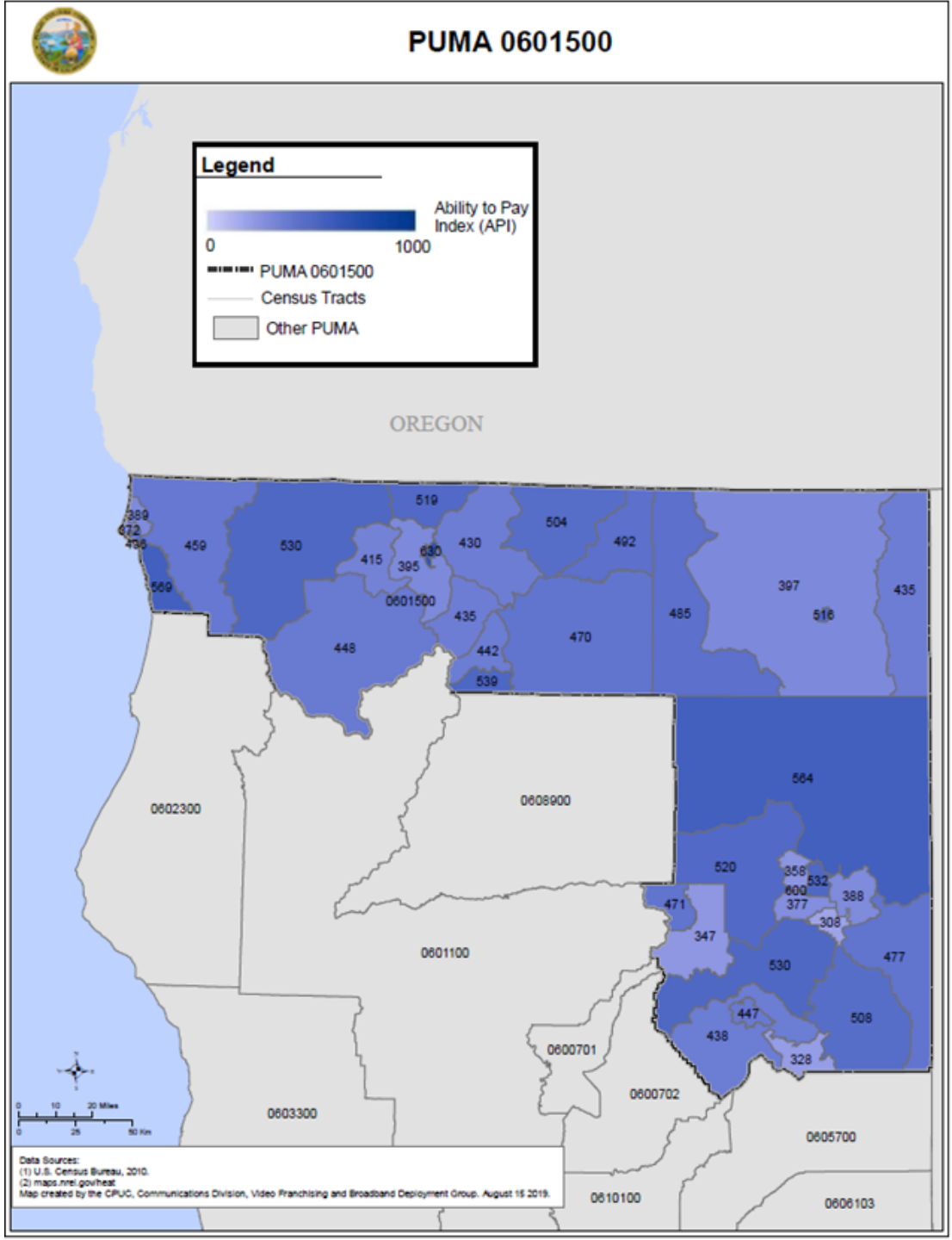
Ability-to-pay index: Spatial context for AR

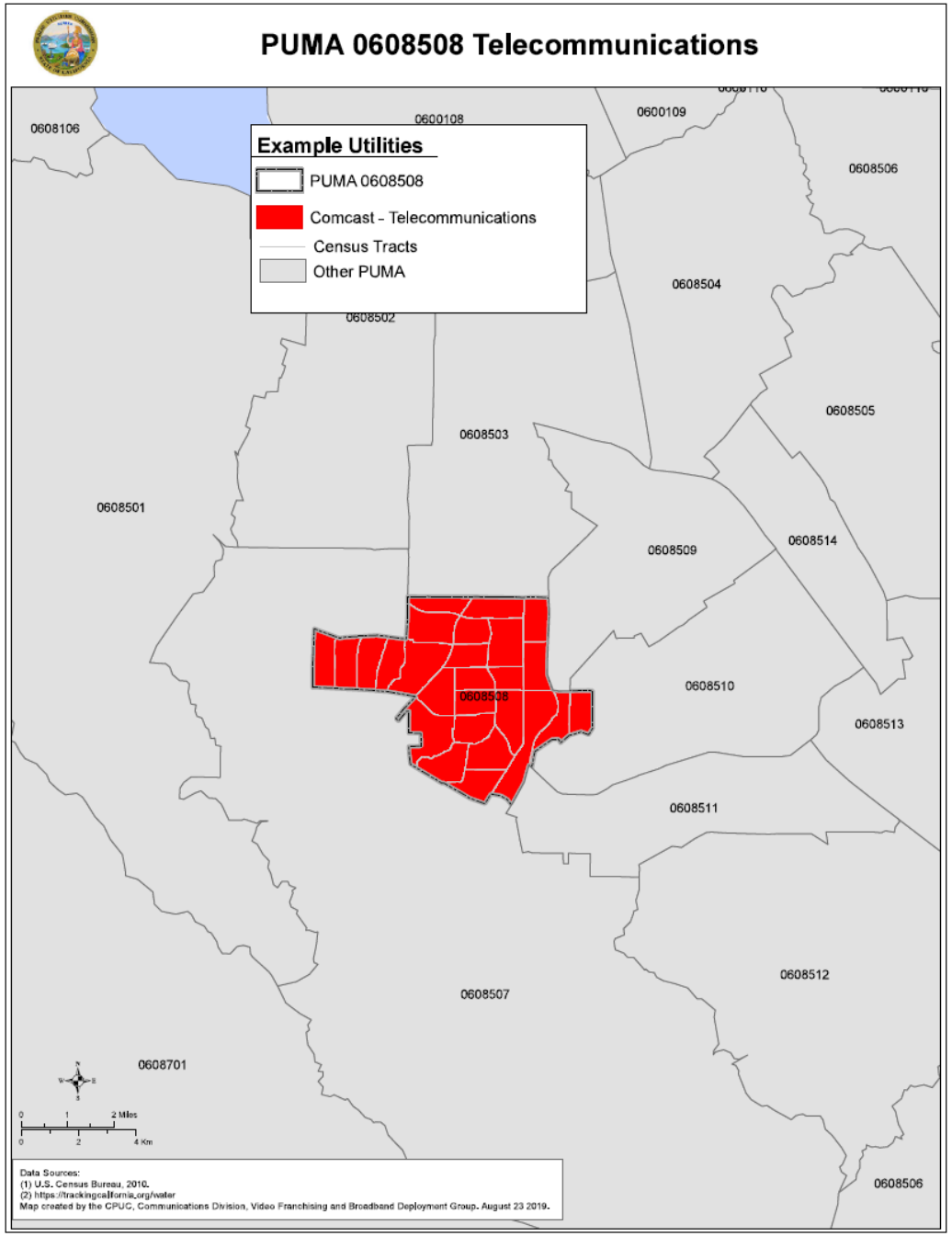
- Grant service area covers only part of the PUMA from which households are drawn to compute AR.
- Since we do not know where these households are located inside of a PUMA location, we can't determine how reflective PUMA-wide AR are for the households affected by this rate change.
- We can use a tract-scale index (API) to compensate for this shortcoming.



Ability-to-Pay Index

- Average API in Grant Area: 530
- Average API in PUMA: 468.92
- The households served by this company, are, on average, more economically vulnerable than those households sampled for AR.





Urban PUMA: Bill Analysis

Broadband + Voice = $69.95

AGGREGATE BILLS	2-Person Household	4-Person Household
HM @15 (hours)	20.34	21.64
HM @12 (hours)	25.43	27.05
AR_{20}	9.43%	
AR_{50}	2.91%	
API	456	

INDIVIDUAL	All Households
HM @15 (hours)	4.66
HM @12 (hours)	5.83
$AR_{20,T}$	3.03%
$AR_{50,T}$	.92%
API	456

Energy

Catastrophic Event Memorandum Account:
Urban and rural rate change comparison

PG&E Catastrophic Event Memorandum Account (CEMA), January 2019

- PG&E requested $550 million residential class revenue increase to cover costs due to catastrophic events and tree mortality/fire risk reduction, half in 2019 and half in 2020.
- What impact does the 2019 portion ($275 million) of this request have on residential ratepayers?

Application: http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M212/K642/212642657.PDF

Line No.	Customer Class	Proposed Revenue Increase (000's)	Present Rates ($/kWh)	Proposed Rates ($/kWh)	Percentage Change
	Bundled Service*				
1	Residential	$ 177,729	$ 0.20143	$ 0.21112	4.8%
2	Small Commercial	$ 49,974	$ 0.23599	$ 0.24617	4.3%
3	Medium Commercial	$ 31,554	$ 0.21265	$ 0.21902	3.0%
4	Large Commercial	$ 33,619	$ 0.18398	$ 0.18908	2.8%
5	Streetlights	$ 950	$ 0.23095	$ 0.23634	2.3%
6	Standby	$ 1,342	$ 0.17169	$ 0.17589	2.4%
7	Agriculture	$ 43,432	$ 0.20053	$ 0.20875	4.1%
8	Industrial	$ 19,634	$ 0.14901	$ 0.15166	1.8%
9	Total	$ 358,234	$ 0.19545	$ 0.20292	3.8%
	Direct Access and Community Choice Aggregation Service**				
10	Residential	$ 96,987	$ 0.15239	$ 0.16280	6.8%

	Proposed Revenue Increase (000's)	Percentage change
Residential Bundled	$177,729	4.8%
Residential Unbundled	$96,987	6.8%

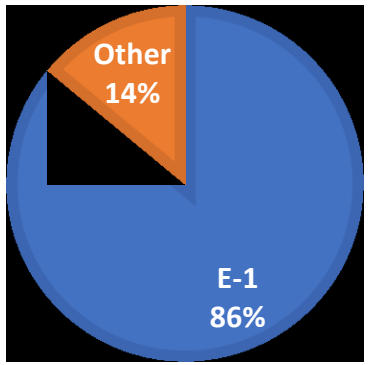
Revenue Requirement ⇢ Rates ⇢ Annual Bill

PG&E CEMA, January 2019

Estimating a percent change to E-1 rate:

- Application did not provide rate impacts below the residential average rate level (RAR).
- Standard rate increase was estimated based on standard rate share of revenue requirements in PG&E's 2019 consolidated revenue requirement advice letter (AL 5444-E).

Assume share of rev. req = share of residential class standard rate change



4.095% increase

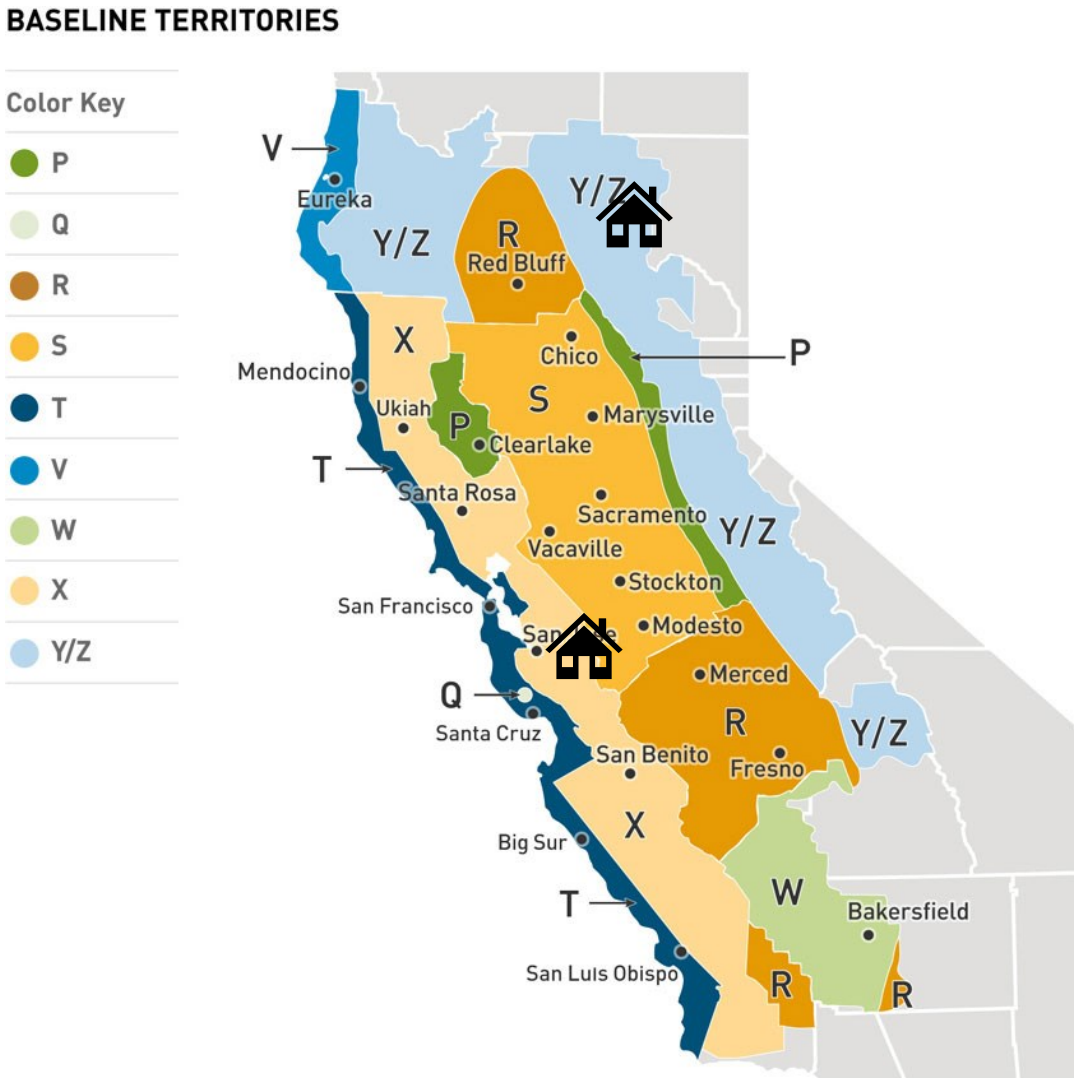
E-1 Tier 1 Baseline Rate	$/kwh
Rate effective January 1, 2019	0.21183
Estimated rate proposed in CEMA Application	*0.22050*

Advice Letter: https://www.pge.com/tariffs/assets/pdf/adviceletter/ELEC_5444-E.pdf

Comparing Baseline Territories

PG&E CEMA, January 2019

Baseline Territory	X	Y
Summer Tier 1 baseline quantity (kWh/day)	9.9	10.7
Winter Tier 1 baseline quantity (kWh/day)	10.7	12.7
Annual Electric Essential Service Bill (Before CEMA)	$798.60	$907.10
Annual Electric Essential Service Bill (After CEMA)	$831.24	$944.23
Change (4.1%)	$31.91	$37.12



Affordability Ratios: Urban and Rural Cases

PG&E CEMA, January 2019

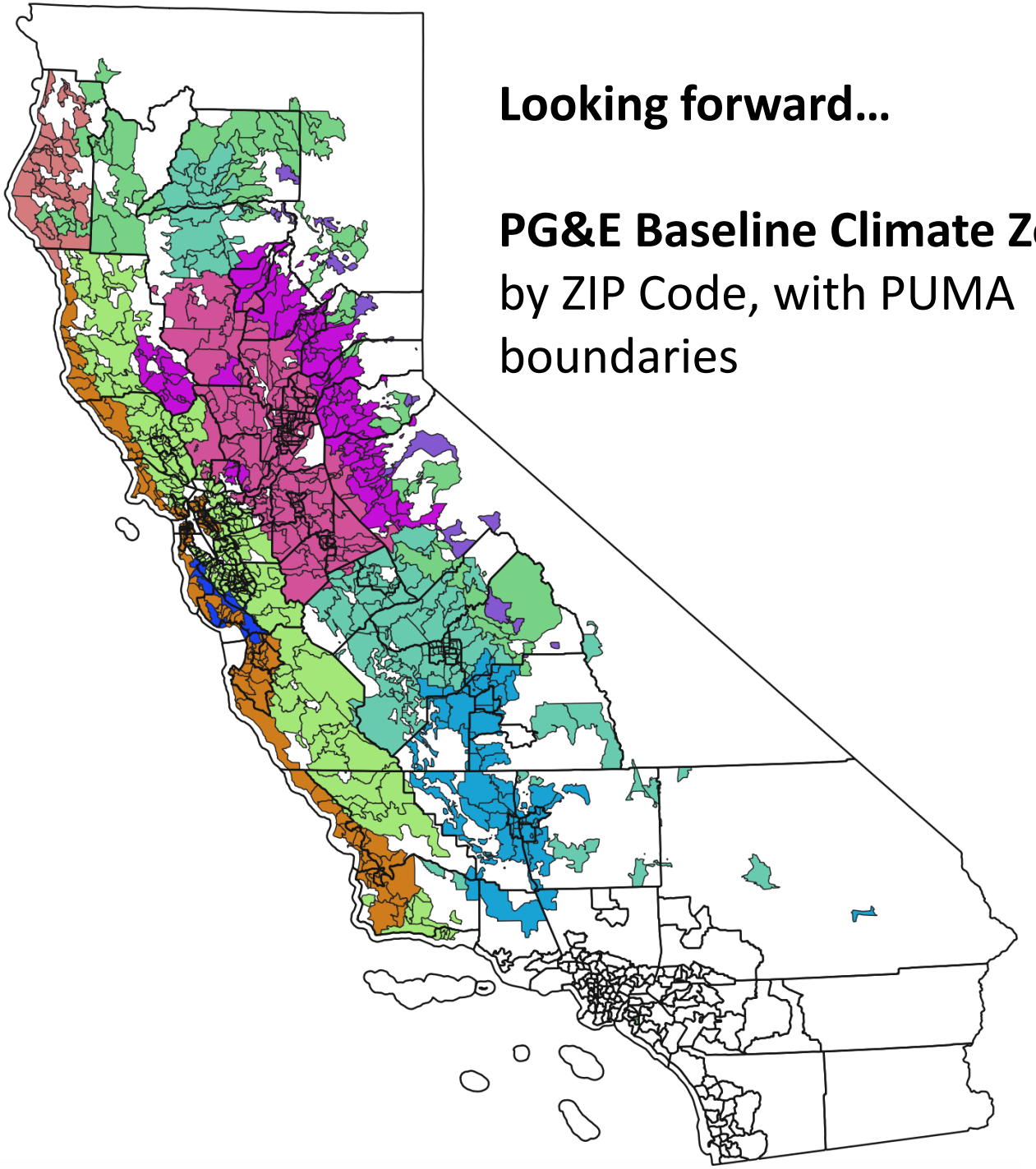
Santa Clara, San Jose, Campbell (Baseline Territory X)

	Income	Monthly Energy Bill (% of all utilities)	Monthly Utility Bills (% change)	AR (change)
AR_{20}	**$48,537** *($37,413 -- $59,337)*	$114.37 (48%)	$240.56 (1.11%)	9.55% (+.12)
AR_{50}	**$119,914** ($106,197 --$133,803)			2.94% (+.03)

Del Norte, Plumas, Lassen Siskiyou (Baseline Territory Y)

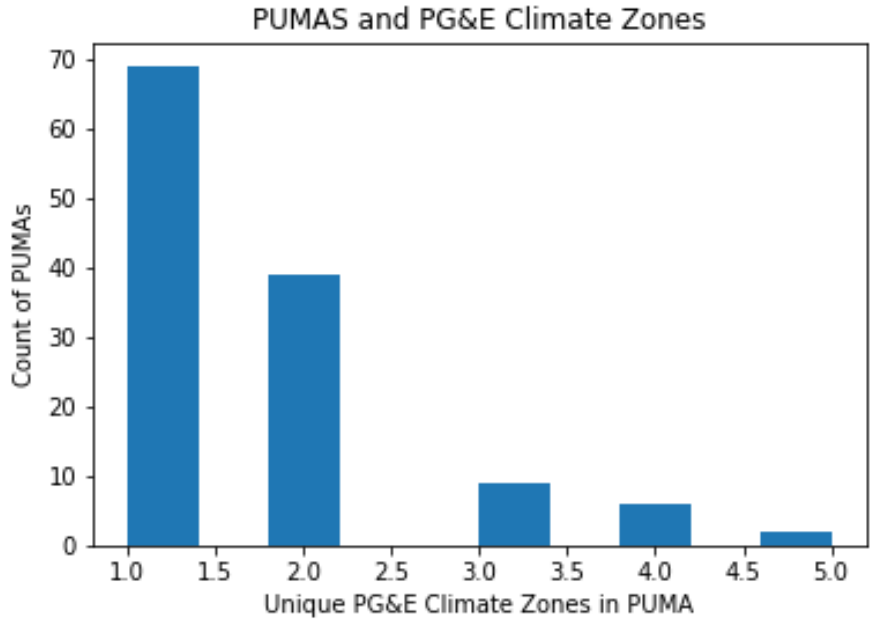
Income	Monthly Energy Bill (% of all utilities)	Monthly Utility Bills (% change)	AR (change)
$19,274 ($15,637 -- $22,661)	$139.01 (38%)	$365.67 (.85%)	34.55% (+.30)
$45,390 ($40,039 -- $51,433)			12.57% (+.11)

- Under the same rate increase, 20th income percentile households in the rural case experience a budgetary impact (AR+.3) about **3 times greater** than 20th percentile income ratepayers in the urban case (+.12), and **ten times greater** than 50th income percentile ratepayers in the urban case (+.03).



Looking forward…

PG&E Baseline Climate Zones by ZIP Code, with PUMA boundaries



Unique climate zones	Count of ZIP codes with…	Count of PUMAs with…
1	874	69
2	154	39
3	12	9
4	-	6
5	-	2

	Affordability Ratio (AR)	Hours at Minimum Wage (HM)	Ability to Pay Index (API)
What question does the metric answer?	After a household covers its housing expenses, how much of its remaining income goes to utilities?	How long does an individual need to work to afford basic utility services?	How economically vulnerable is a community (census tract) to high utility expenses?
Metric units	Percent of income after housing expenses that is spent on utility services.	Hours	0-1000 index of weighted tract-level distribution of income and housing burden
Strength	Sensitive to specific household income levels and budgets	Easy to understand	Provides relative spatial and historic context for affordability
Weakness	Available household-scale data compromises geographic resolution. Requires assumptions about household utility subscribership.	Adds little relevant information beyond the price of essential service, insensitive to household budgets	Insensitive to price of essential service, unit-less and not household-specific.

Thank you!
Questions?

1. Do the proposed affordability metrics adequately assess affordability? If not, how should the metrics be changed?

2. Are the proposed sources of data for household-level information acceptable for constructing affordability metrics?

3. What regulatory, operational, and/or resource considerations might be necessary to effectively implement affordability metrics?

a. How should the Commission monitor and track affordability on a recurring basis, outside of specific proceedings?

4. What is the most effective way to utilize affordability metrics in Commission decisions and program implementation?

a. What is the most effective way to use or interpret the resulting values from affordability metrics in proceedings?

b. What is the most effective way to use affordability metrics to prioritize or design ratepayer programs?

c. In which types of proceedings should the Commission assess affordability? What criteria should be used to determine if a proceeding requires an affordability assessment?