

CRYPTOCURRENCY RATE

Nov. 7 Public Information Meeting



CHELAN COUNTY
www.chelanpud.org

AGENDA

- What has changed since September?
- Proposed rate schedule
- How to calculate new cost
- Upfront cost
 - Capacity Review
- Next steps

WHAT HAS CHANGED SINCE SEPTEMBER?

- Widened the range of customers eligible for the periodically set energy rate (vs. daily market variable energy rate) to 3 MW and less
- Updated estimate for set energy rate based on current market conditions
 - increase ~0.2 cents/kWh
- Addition of demand exceedance charges in lieu of higher customer charge
- No change to:
 - Tiered customer charge
 - Previously proposed demand charges
 - Phase-in proposal
 - Updated upfront charges

WHY DEVELOP A NEW RATE?

In the winter of 2017-2018,
Chelan PUD experienced
significant interest in power for
cryptocurrency - in excess of
system, energy and customer
service capacity

**21 operating
cryptocurrency
services
~7 aMW**

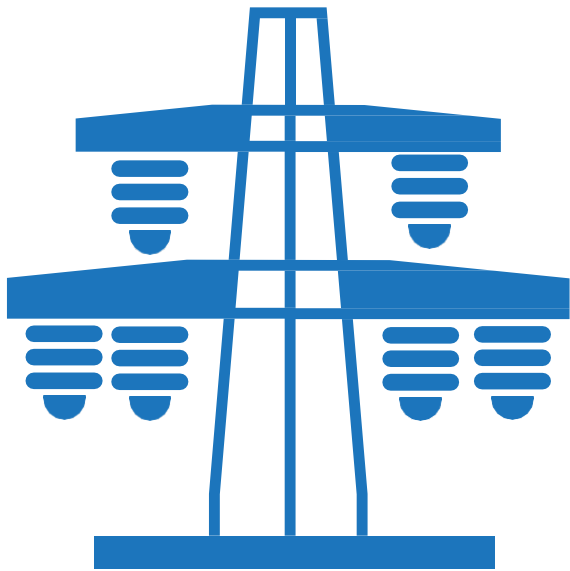
**Requests for
cryptocurrency
service over
200 MW**

WHY DEVELOP A NEW RATE?

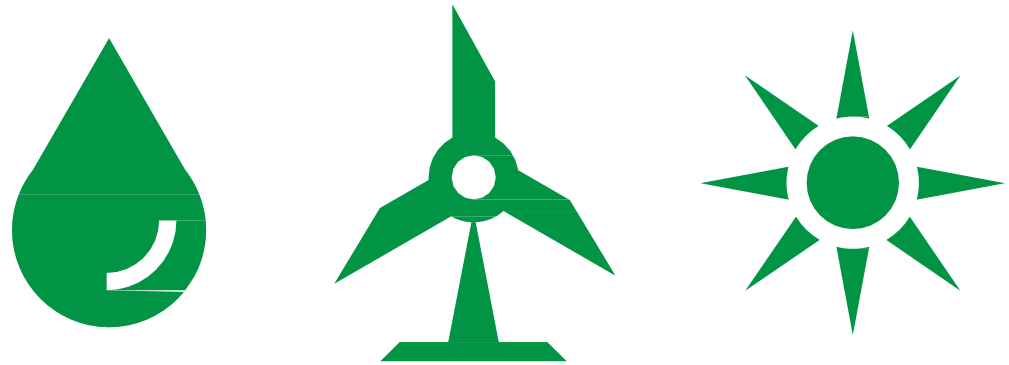
Dramatic increases bring new and accelerated cost:



**CUSTOMER
SERVICE**



**SYSTEM
INFRASTRUCTURE**



**MARKET POWER
PURCHASES**

PROPOSED RATE SCHEDULE 36

CRYPTOCURRENCY PROCESSING; BLOCKCHAIN PROCESSING; AND SIMILAR LOADS

This Schedule applies to any customer involved in computing or data processing load related to cryptocurrency mining, Bitcoin, blockchain, proof-of-work or other loads having, in the District's determination, similar characteristics including any of the following: high energy use density, high load factor, need for more than routine alterations to the District's Electric Service Facilities in order to maintain safety, load that is portable and distributable, highly variable load growth or load reduction as an individual customer and/or in aggregate with similar customers in the District's service area, able to relocate quickly in response to short-term economic signals, high sensitivity to volatile commodity or asset prices, or part of an industry with potential to quickly become a large concentration of power demand in the District's service area.



PROPOSED RATE SCHEDULE 36

Effective 4/1/2019:

| Basic Charge: | Per month per meter |
|-------------------------------------|-------------------------|
| Up to 300 kW | \$130 |
| 300 kW to < 1 MW | \$560 |
| 1 MW to ≤ 3 MW | \$860 |
| Monthly Demand Charge | \$5.50 per kW of Demand |
| Energy Charge, total billed: | 5.31¢ per kWh |
| Consists of: | |
| Market energy¹: | 3.00¢ per kWh |
| Other²: | 2.31¢ per kWh |

Effective 4/1/2020:

| Basic Charge: | Per month per meter |
|---|--------------------------|
| Up to 300 kW | \$130 |
| 300 kW to < 1 MW | \$560 |
| 1 MW to ≤ 3 MW | \$860 |
| Monthly Demand Charge, Residential | \$15 per kW of Demand |
| Monthly Demand Charge, Non-Residential | \$5.50 per kWh of Demand |
| Energy Charge, total billed: | 5.31¢ per kWh |
| Consists of: | |
| Market energy¹: | 3.00¢ per kWh |
| Other²: | 2.31¢ per kWh |

¹**Market Energy Rate** For authorized connections less than 3 MW, the market energy portion of the rate will be charged at a fixed rate which is reviewed by the District on at least an annual basis. The fixed market rate will be established using the average flat price as calculated using the Mid-C Peak and Off-Peak Futures as published daily by the Intercontinental Exchange (ICE) for the applicable 12 month period with a 6% administrative fee added.

Current Estimates Fixed Energy Rate 4/1/2019-3/31/2020: \$0.02827 / kWh + 6% admin fee = \$0.03/kWh (estimate as of 10/23/18)

²**Other** Includes costs such as, but not limited to: environmental attributes, scheduling, risk, overhead, public utility tax

PROPOSED RATE SCHEDULE

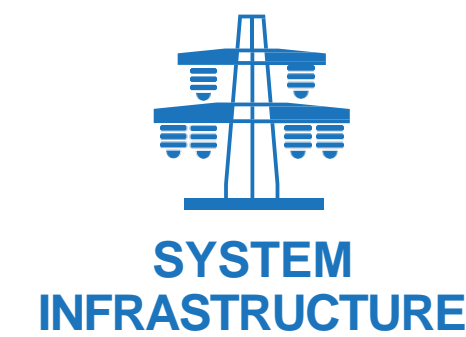
DEMAND EXCEEDANCE¹

Exceedances of the Demand limit shorten the lifespan of District's Electric Service Facilities and may damage the same and create safety hazards to persons and property. In addition to all other rates and charges, **in each month Demand exceeds the Customer's maximum authorized Demand, Customer will be assessed a \$150 fee plus a daily charge of 1.5 times the applicable demand rate on the exceedance in each day it occurs.**



¹This charge is in addition to, not exclusive of, the District's rights to require additional protective measures, recover for damages sustained to the Electric Service Facilities, disconnect Service, terminate this any Service Contract, or take any other remedial action available to recover losses and prevent future exceedances.

PROPOSED RATE SCHEDULE



PROPOSED RATE APPLIES TO SERVICES AUTHORIZED AT 3 MW AND LESS

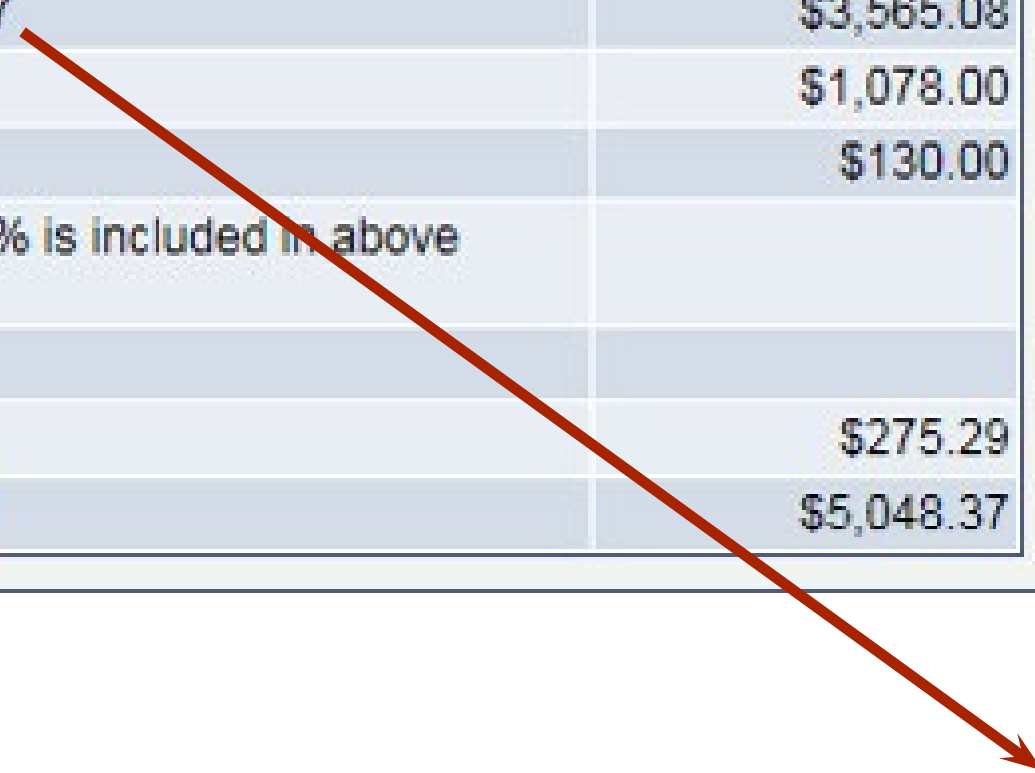
Services over 3 MW would have a contract rate that may also include:

- Energy at daily market prices
- Minimum demand charges
- Ancillary energy services (load following, energy imbalance, etc.)
- Other

HOW TO CALCULATE NEW COST – NON-RESIDENTIAL

| Schedule 35 - High Density Load Rate | | \$5,048.37 |
|---|--|-------------------|
| Bill Lines Personalize Find First 1-7 of 7 Last | | |
| 132,040 Kilowatt Hours @ \$0.027 | | \$3,565.08 |
| 196 Demand @ \$5.50/KW | | \$1,078.00 |
| Basic Charge | | \$130.00 |
| State Public Utility Tax of 3.8734% is included in above charges | | |
| - approx. \$184.88 | | |
| City Tax - 6% | | \$275.29 |
| Total High Density Load Amount | | \$5,048.37 |

} Current (before City tax)
 Approx. 3.6 cents/kWh
 ~94% load factor



Increases to \$0.0531 on 4/1/2019
 132,040 kWh @ \$0.0531 = \$7,011.32
 Demand – no change = \$1,078.00
 Basic – no change = \$130.00

 New total (before City tax) = \$8,219.32
 Approx. 6.2 cents/kWh

HOW TO CALCULATE NEW COST – RESIDENTIAL

| Schedule 35 - High Density Load Rate | | \$661.05 |
|--|--|-----------------|
| 12,539 Kilowatt Hours @ \$0.027 | | \$338.55 |
| 35 Demand @ \$5.50/KW | | \$192.50 |
| Basic Charge | | \$130.00 |
| State Public Utility Tax of 3.8734% is included in above charges | | |
| - approx. \$25.61 | | |
| Total High Density Load Amount | | \$661.05 |

Current
Approx. 5.3 cents/kWh
~50% load factor

Increases to \$15/kW on 4/1/2020

| | | |
|-----------------------|----------|-------------------|
| 12,539 kWh @ \$0.0531 | = | \$665.82 |
| 35 Demand @ \$15/kW | = | \$525.00 |
| Basic – no change | = | \$130.00 |
| New total | = | \$1,320.82 |

Approx. 10.5 cents/kWh

Increases to \$0.0531 on 4/1/2019

| | | |
|-----------------------|----------|-----------------|
| 12,539 kWh @ \$0.0531 | = | \$665.82 |
| Demand – no change | = | \$192.50 |
| Basic – no change | = | \$130.00 |
| New total | = | \$988.32 |

Approx. 7.9 cents/kWh

UPFRONT COST

\$325/kW in Wenatchee corridor, where capacity is available

- Comprised of \$270/kW distribution and \$55/kW transmission
- Includes substations in Monitor, Olds Station, Wenatchee, and Malaga

\$720/kW in other areas where capacity is available

- Comprised of \$270/kW distribution and \$450/kW transmission
- Excluded substations, where HDL and cryptocurrencies are not authorized, include Berne, Coles Corner, Plain, Lake Wenatchee and Summit

Connection requests over 5 MW at actual cost

REQUIRED CAPACITY REVIEW

Load type:
Residential,
Commercial,
Industrial

System capacity
allowing 5-year growth
of traditional load

Impact to
operating
characteristics,
reliability, asset
longevity

Diversity of feeder
and substation (unless
customer built)

Related efforts
with County and
Municipalities may
impact capacity review

NEXT STEPS

Public Rate & Moratorium Hearings, Nov. 19, 1 p.m.

- Consideration of Moratorium Recommendation
- Consideration of Rate Recommendation, effective April 1, 2019
- Fees and Charges Update

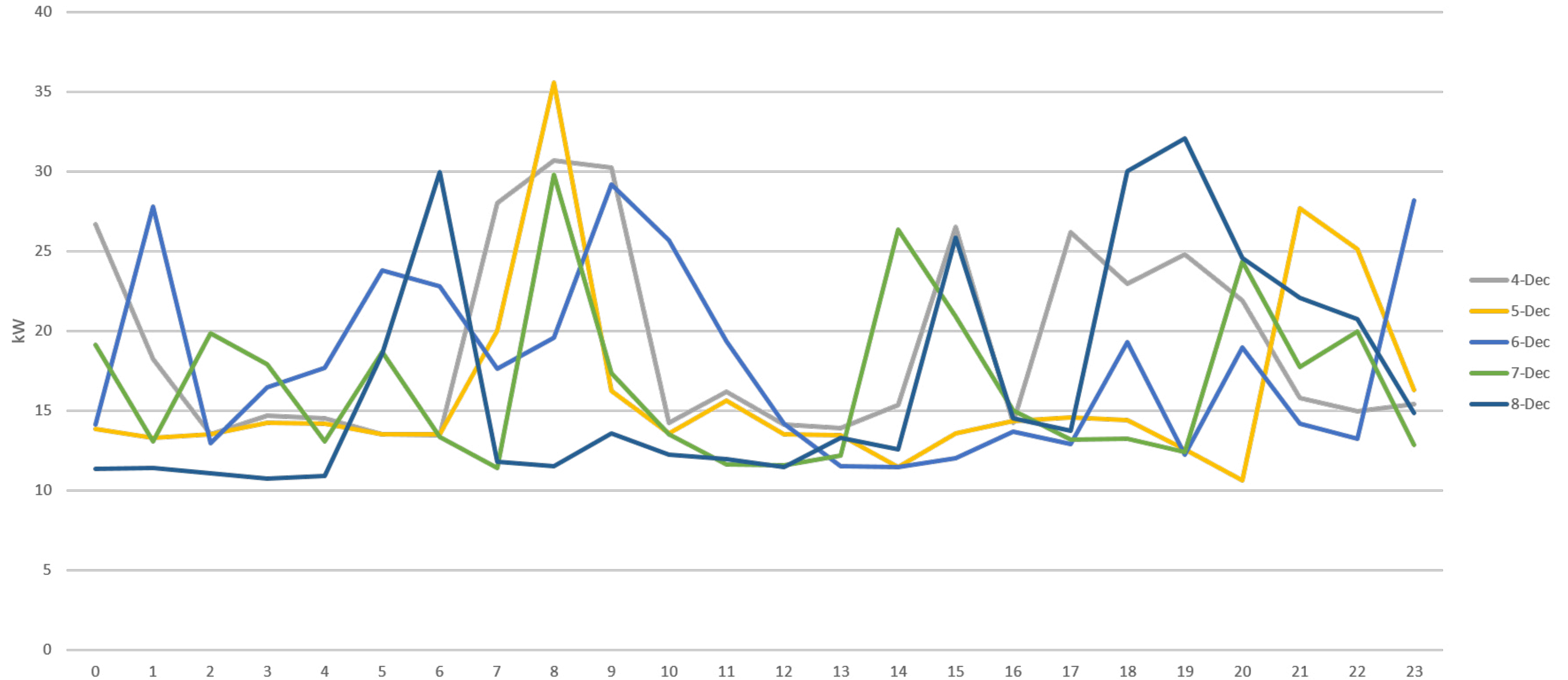
Other staff efforts necessary to implement rate

- Drafting new customer agreements
- Updating application process
- Updating associated policy and regulation

APPENDIX

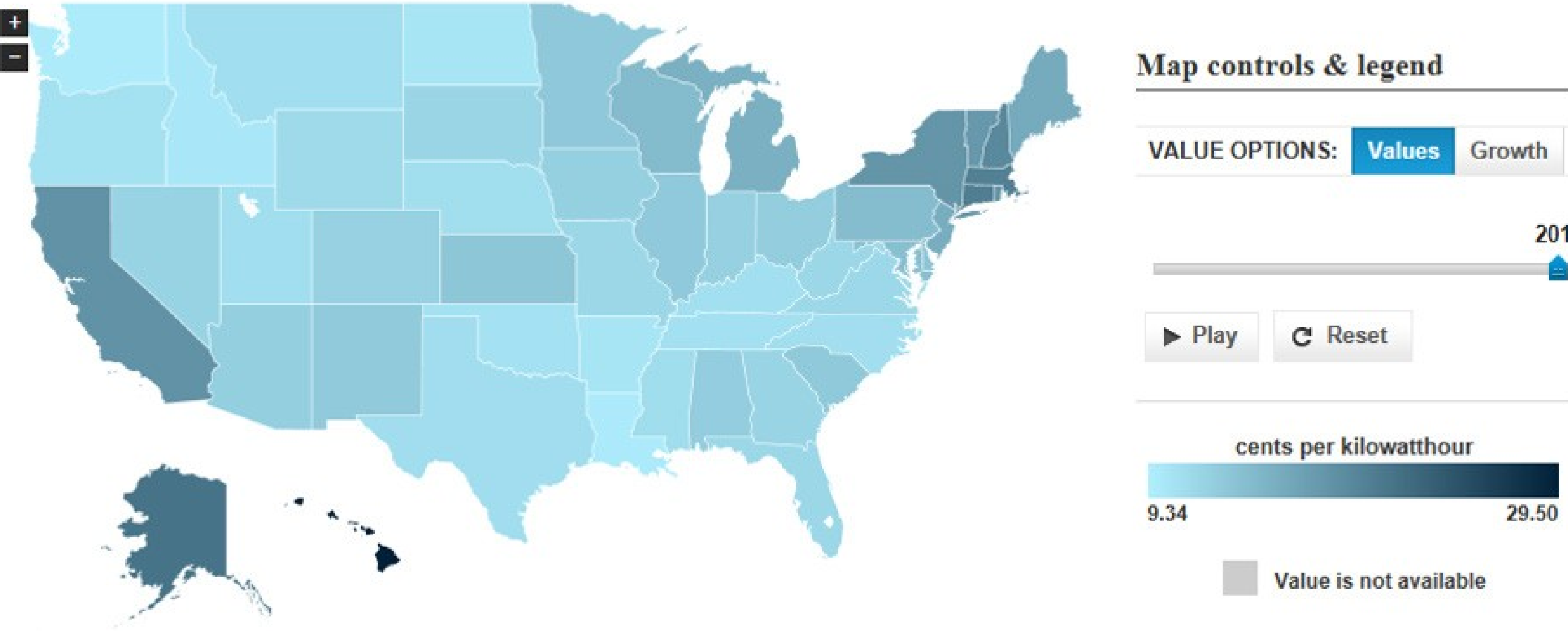
WHY ARE THE EFFECTIVE RATES SO DIFFERENT?

Example Residential Mixed Use



EIA 2017 AVERAGE PRICE OF ELECTRICITY – RESIDENTIAL

Average retail price of electricity : residential 2017



EIA 2017 AVERAGE PRICE OF ELECTRICITY – COMMERCIAL

Average retail price of electricity : commercial 2017

