



# CRYPTOCURRENCY RATE

Board preview of  
Nov. 7 Public Information Meeting



CHELAN COUNTY  
[www.chelanpud.org](http://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?

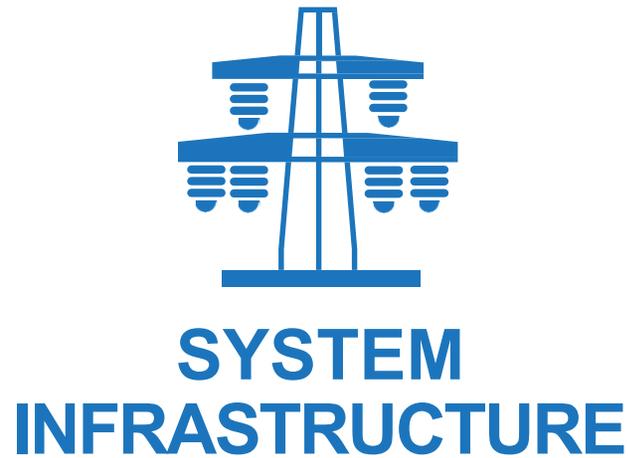
In the winter of 2017-2018, Chelan PUD experienced significant interest in power for cryptocurrency - in excess of system, energy and customer service capacity

**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:



# **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
<b>Monthly Demand Charge</b>	\$5.50 per kW of Demand
<b>Energy Charge, total billed:</b>	<b>5.31¢ per kWh</b>
<b>Consists of:</b>	
<b>Market energy<sup>1</sup>:</b>	3.00¢ per kWh
<b>Other<sup>2</sup>:</b>	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
<b>Monthly Demand Charge, Residential</b>	\$15 per kW of Demand
<b>Monthly Demand Charge, Non-Residential</b>	\$5.50 per kWh of Demand
<b>Energy Charge, total billed:</b>	<b>5.31¢ per kWh</b>
<b>Consists of:</b>	
<b>Market energy<sup>1</sup>:</b>	3.00¢ per kWh
<b>Other<sup>2</sup>:</b>	2.31¢ per kWh

<sup>1</sup>**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)

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

# PROPOSED RATE SCHEDULE

## DEMAND EXCEEDANCE<sup>1</sup>

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.**



<sup>1</sup>This 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
<b>Bill Lines</b>	Personalize   Find      	First <input type="text" value="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
<b>Total High Density Load Amount</b>		<b>\$5,048.37</b>

} 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
<b>New total (before City tax)</b>	=	<b>\$8,219.32</b>

Approx. 6.2 cents/kWh

# HOW TO CALCULATE NEW COST – RESIDENTIAL

Schedule 35 - High Density Load Rate		\$661.05
Bill Lines	Personalize   Find	First 1-6 of 6 Last
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
<b>New total</b>	<b>=</b>	<b>\$1,320.82</b>

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
<b>New total</b>	<b>=</b>	<b>\$988.32</b>

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

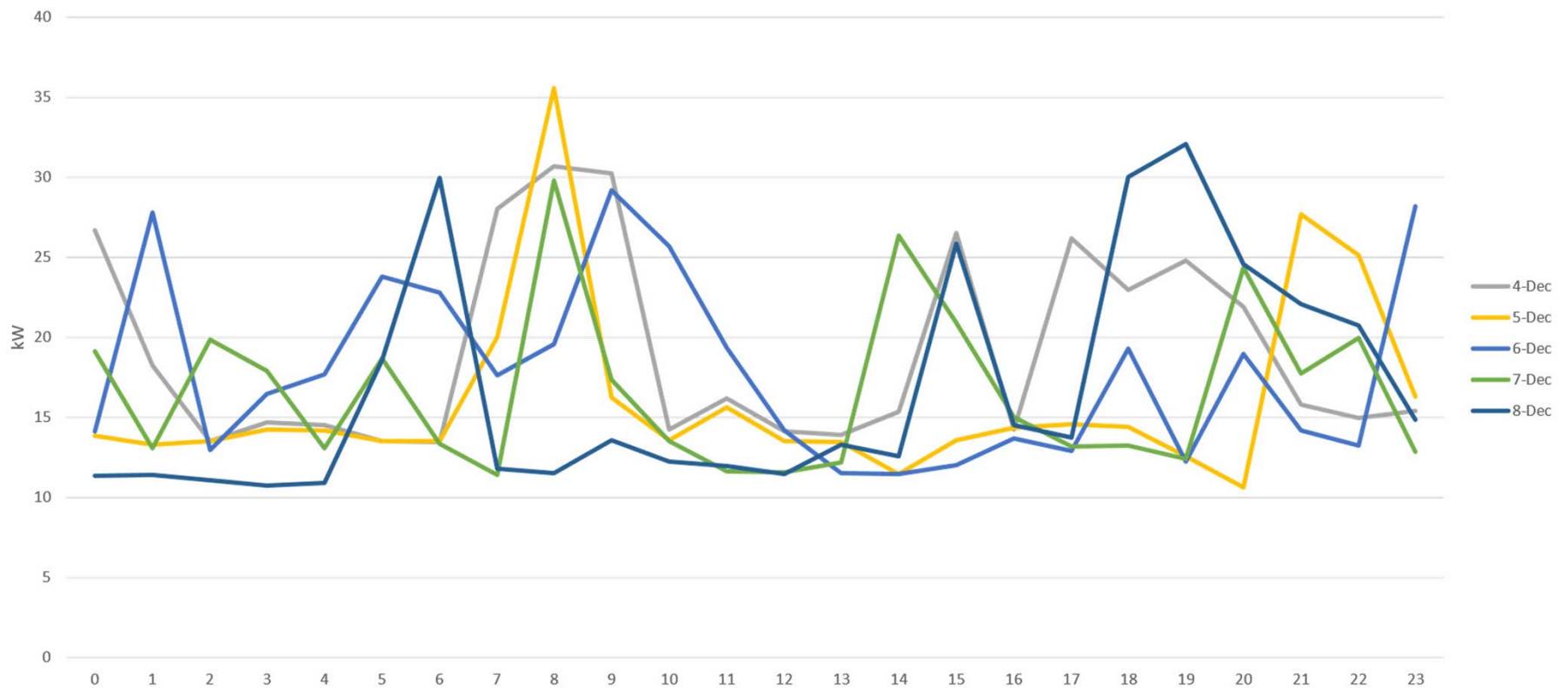
## **Other staff efforts necessary to implement rate**

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

# APPENDIX

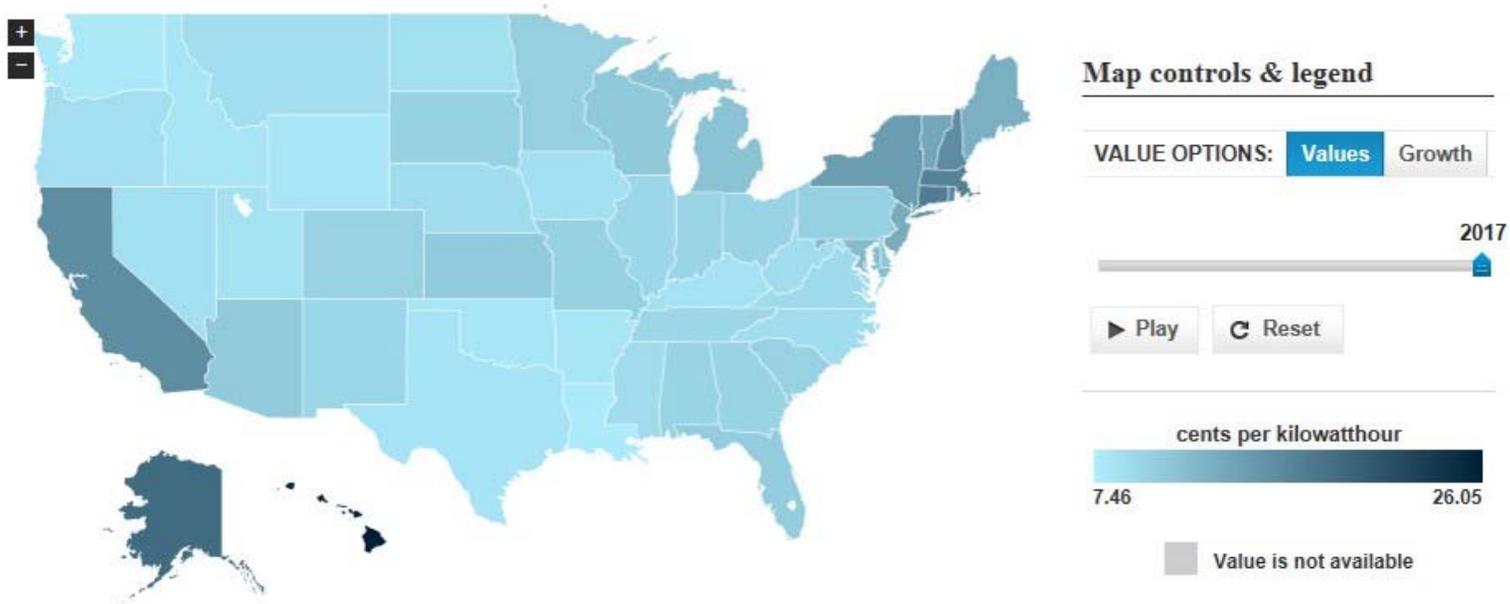
# WHY ARE THE EFFECTIVE RATES SO DIFFERENT?

## Example Residential Mixed Use



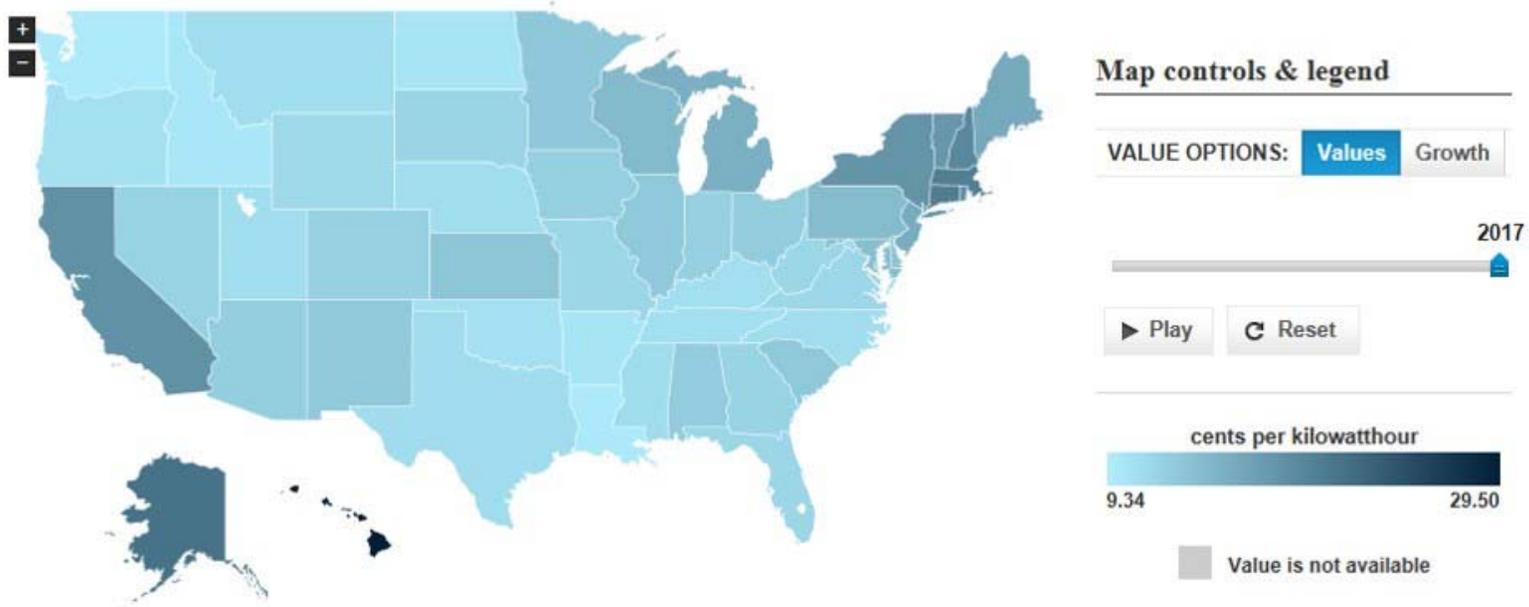
# EIA 2017 AVERAGE PRICE OF ELECTRICITY – ALL CLASSES

Average retail price of electricity : all sectors 2017



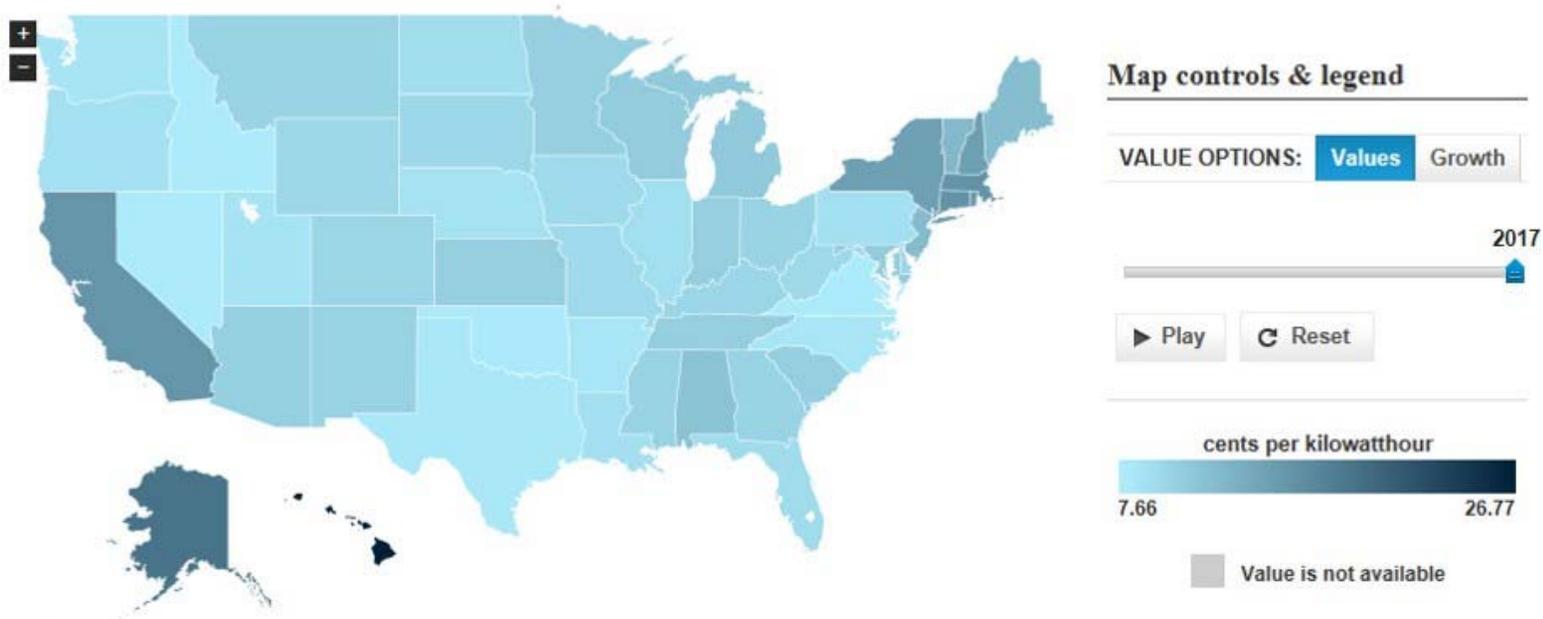
# EIA 2017 AVERAGE PRICE OF ELECTRICITY – RESIDENTIAL

Average retail price of electricity : residential 2017



# EIA 2017 AVERAGE PRICE OF ELECTRICITY – COMMERCIAL

Average retail price of electricity : commercial 2017



# EIA 2017 AVERAGE PRICE OF ELECTRICITY – INDUSTRIAL

Average retail price of electricity : industrial 2017

