

**PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY  
327 N WENATCHEE AVENUE  
WENATCHEE WA 98801**

**REGULAR COMMISSION MEETING**

**DECEMBER 3, 2018**

**STUDY AND BUSINESS SESSION**

**9:30 AM**

1. Pledge of Allegiance and Safety Minute – Glen Copeland
2. Approval of the Agenda  
*Any item on the Consent Agenda shall be subject to transfer to the Regular Agenda upon request of any Commission member*
3. Public Hearing – Cryptocurrency Moratorium
4. A RESOLUTION ESTABLISHING A NEW RATE SCHEDULE AND NEW RATE FOR ELECTRICITY SERVICE TO CRYPTOCURRENCY PROCESSING AND BLOCKCHAIN PROCESSING AND SIMILAR LOADS
5. Public Hearing –CTC Condominium Unit Surplus
6. A RESOLUTION DECLARING CONFLUENCE TECHNOLOGY CENTER (CTC) UNITS LL1, 201 AND RELATED LIMITED COMMON ELEMENTS, ALONG WITH TWO GENERATORS, TWO COOLING TOWERS AND APPURTENANCES, SURPLUS TO DISTRICT NEEDS AND AUTHORIZING THE GENERAL MANAGER TO EXECUTE TWO PURCHASE AND SALE AGREEMENTS WITH PORT OF CHELAN COUNTY FOR THE SURPLUSED PUD CTC PROPERTY, PORT’S HORAN PROPERTY, AND OTHER RELATED AGREEMENTS
7. A RESOLUTION APPROVING THE ISSUANCE OF A REQUEST FOR PROPOSAL FOR ADVANCED METERING INFRASTRUCTURE (“AMI”) SYSTEM AND AUTHORIZING THE GENERAL MANAGER OF THE DISTRICT TO PUBLISH NOTICE INVITING SEALED PROPOSALS FOR THE AMI SYSTEM PROJECT
8. A RESOLUTION APPROVING THE 2019 DISTRICT BUDGETS FOR THE FIBER NETWORK, WATER, WASTEWATER AND INTEGRATED ELECTRIC (DISTRIBUTION, TRANSMISSION, COLUMBIA RIVER-ROCK ISLAND HYDRO-ELECTRIC, LAKE CHELAN HYDRO-ELECTRIC, ROCKY REACH HYDRO-ELECTRIC SYSTEMS, TREASURY SERVICES, INTERNAL SERVICE SYSTEM AND FINANCING FACILITIES) BUSINESS LINES
9. Election Update and Pre-Legislative Update

10. Strategic Planning Outreach Process

**STUDY AND BUSINESS SESSION**

**1:00 PM**

**Consent Agenda**

11. Minutes of the November 19, 2018 Regular Meeting and the November 20, 2018 Tri-Commission Meeting

12. Vouchers: Accounts Payable Summary Report dated November 28:

- a. Vouchers totaling \$15,372,968.50;
- b. Approval of Customer Deposit Returns and Conservation Incentive payments for the period November 14, 2018 through November 27, 2018 in the amount of \$1,684.63;
- c. Approval of the net Payrolls, Warrant Nos. 236253 through 236272 and Advice Nos. 663625 through 664394 for the pay period ending 11/11/2018 in the amount of \$2,060,968.00;
- d. Approval of Warrant Nos. 25008 through 25093 totaling \$26,815.11 for claim payments from the workers' compensation self-insurance fund for the period ending November 26, 2018.

13. Charge-Offs to Uncollectible Accounts over \$1,000.00 for October 2018 in the amount of \$2,100.00.

**Regular Agenda**

14. A RESOLUTION AUTHORIZING AMENDMENT NO. 10 TO SERVICES AGREEMENT (SA-TA NO. 15-133) WITH ASPECT CONSULTING LLC TO PROVIDE TECHNICAL ASSISTANCE REGARDING THE DISTRICT'S WATER RIGHTS AND WATER RESOURCES PROGRAM

15. A RESOLUTION AUTHORIZING THE GENERAL MANAGER TO ENTER INTO A RELIABILITY COORDINATION SERVICES AGREEMENT WITH THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION TO RECEIVE RELIABILITY COORDINATION SERVICES

16. A RESOLUTION DECLARING OSISOFT, INC OF SAN LEANDRO, CA AS THE SOLE SOURCE SUPPLIER OF PI VISUALIZATION SUITE

17. Manager Items

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18. Commission Items

19. Commissioner Travel

20. Follow-up on Delegation of Action Items from Previous Board Meeting

21. Delegation of Action Items

22. Additional Public Comment

*Members of the public are encouraged to ask specific questions after each item presented. This agenda item is for additional comments/questions related to matters not on the agenda.*

23. Matters of general business as may necessarily come before the Commission

24. Executive Session: To discuss with legal counsel agency enforcement actions, litigation, potential litigation to which the District or its board is, or is likely to become, a party, and/or legal risks, as authorized by RCW 42.30.110(1)(i).

This agenda and resolutions (if any) may be revised by the Commission as appropriate.

## RESOLUTION NO. \_\_\_\_\_

## A RESOLUTION ESTABLISHING A NEW RATE SCHEDULE AND NEW RATE FOR ELECTRICITY SERVICE TO CRYPTOCURRENCY PROCESSING AND BLOCKCHAIN PROCESSING AND SIMILAR LOADS

**FACTUAL BACKGROUND AND REASONS FOR ACTION**

The District has the authority to create rate classes and to establish and modify rates. The District, if it has revenue obligations outstanding, is required to establish, maintain, and collect rates or charges for electric energy and water and other services, facilities, and commodities sold, furnished, or supplied by the District in compliance with RCW 54.24.080. The rates and charges must be fair, nondiscriminatory and adequate to provide revenues sufficient for the payment of the principal of and interest on such revenue obligations for which the payment has not otherwise been provided and all payments which the District is obligated to set aside in any special fund or funds created for such purpose, and for the proper operation and maintenance of the public utility and all necessary repairs, replacements, and renewals thereof. This resolution addresses the creation of a new retail electric rate class for cryptocurrency customers.

In response to a dramatic increase in inquiries for new electric service for computing and data processing related to virtual or cryptocurrency mining, bitcoin or similar purposes, on March 19, 2018, the Commission adopted a moratorium on accepting or processing applications for new or increased service of this type. Since the adoption of the moratorium, the Commission has heard numerous public presentations from staff and has held public meetings on the subject of the new rate class. On September 17, 2018, the Commission established a public outreach plan and directed staff to initiate a rate hearing and propose a rate class and rate.

The Commission directed staff to propose a cryptocurrency customer rate classification and associated rate applicable to 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 as a means to mitigate operational and financial costs associated with serving these energy intensive loads. Staff presented proposals in a November 19, 2018 Rate Hearing, and made public the *Draft Cryptocurrency Staff Report* November 26, 2018 through the District's website. The *Final Cryptocurrency Staff Report* ("Staff Report") is attached hereto as Exhibit B. Consistent with Board guidance, staff designed its recommended cryptocurrency rate based on the District's current cost of service analysis and, for the energy supply component, based on expected costs, financial impacts, and increased risks to serve them in order to recover through the cryptocurrency rate the full

costs of serving cryptocurrency or similar customers and to protect the District from the risks and uncertainties of cryptocurrency loads and to keep the District's other customers financially neutral. The recommended cryptocurrency rate is set forth in Exhibit A to this resolution.

Staff recommends that the Board of Commissioners adopt the Staff Report and the cryptocurrency rate schedule as new Schedule 36.

The General Manager has reviewed staff's recommendations and concurs in the same.

## **FINDINGS**

After fully considering the public presentations by staff on and after March 2018, comments from members of the public including cryptocurrency customers, and the Staff Report, the Commission makes the following findings:

- The Commission concurs with and adopts the Staff Report, including the factual determinations and recommendations made therein.
- The characteristics of cryptocurrency loads are distinguishably different from the characteristics of the District's other loads.
- Cryptocurrency loads put unique strains on the District's transmission and distribution system and on the District's management of its energy resource portfolio because of their portability and ability to be distributed, high sensitivity to volatile commodity and asset prices, highly variable rate of load growth and reduction, potential to be a large concentration of power demand, high energy use intensity, high load factor, and their effect of lowering the energy diversity factor which require extraordinary alterations and/or upgrades to the District's distribution system.
- Residential cryptocurrency customers create additional strains above and beyond other cryptocurrency customers because residential areas of the distribution system are designed for load with very different characteristics.
- Cryptocurrency loads, regardless of the amount of energy requested, present the costs, risks and challenges identified in the Staff Report.
- Accommodating cryptocurrency loads imposes costs, risks and challenges that differ in type and in magnitude from the costs, risks and challenges of serving the District's other customers.
- Because of the higher costs and risks and the magnitude of cryptocurrency loads, rate action now is necessary and appropriate.
- The District has experienced cryptocurrency customers seeking to evade identification. Further, technologies associated with cryptocurrency

processing, blockchain processing, and similar loads described herein are continuously evolving. For these reasons, the definition of the cryptocurrency class should be broad and adaptable and should provide flexibility for the District in determining whether an individual customer appropriately falls within the cryptocurrency class.

- The cost and risk analysis and rate design in the Staff Report is fair, reasonable and not discriminatory. A base and demand charge based on the High Density Load rate and a market energy charge is a reasonable for a cryptocurrency rate until additional information is gathered. A demand charge specific to residential cryptocurrency loads is reasonable and appropriate.
- It is reasonable and appropriate to apply the upfront capital charge to this rate class due to the risks of accelerated expansion of the District's transmission and distribution system and of not recovering those costs over time through rates. On March 19, 2018, the Board adopted a moratorium which amongst other things, halted the processing of existing applications for cryptocurrency service in part in order to ensure the upfront capital charge was updated, if needed, and applied to those applications. It is reasonable and appropriate to apply the updated upfront capital charges presented to the Board on November 19, 2018 to existing applicants who choose to continue with the application process.

### **ACTION**

IT IS RESOLVED BY THE COMMISSION OF PUBLIC UTILITY DISTRICT NO.1 OF CHELAN COUNTY, WASHINGTON as follows:

Section 1. Requirements for meetings and notices as established by Resolution No. 18-14256 have been met and exceeded.

Section 2. The electric rate classification, rates, and terms set forth in the rate schedule attached hereto as Exhibit A are determined to be fair, reasonable, necessary and not discriminatory. The *Final Cryptocurrency Staff Report* attached hereto as Exhibit B is hereby adopted by the Board together with this resolution as the Board's record of decision. The classification, rates, and rate schedule set forth in Exhibit A are effective April 1, 2019.

Section 3. The updated upfront capital charges, as presented to the Board on November 19, 2018, shall apply to existing applicants for service subjected to the moratorium adopted on March 19, 2018 who continues to pursue the application process after the lifting of the moratorium, and such updated upfront capital charges shall be in effect immediately for such applicants.

Section 4. The adoption of this rate resolution is not a major action under the State

Environmental Policy Act, and as such is categorically exempt under S.E.P.A. guidelines, WAC 197-11-800(14)(i).

Section 5. This resolution rescinds and supersedes prior resolutions and Commission actions that are inconsistent with this resolution and exhibits. This resolution shall not render invalid any previous action by this Commission regarding rates, service regulations, policies, fees, charges or agreements except as specifically included in this resolution and exhibits.

DATED this 3rd day of December 2018.

\_\_\_\_\_  
President

ATTEST:

\_\_\_\_\_  
Vice President

\_\_\_\_\_  
Secretary

\_\_\_\_\_  
Commissioner  
Seal

\_\_\_\_\_  
Commissioner

**EXHIBIT A**

# **Cryptocurrency Processing; Blockchain Processing; and Similar Loads**

## **Schedule 36**

**AVAILABILITY:**

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.

This rate schedule is available throughout the District's service area with the exception of the Stehekin area and new or expanded service in the areas north and northwest of Leavenworth served by the Anderson Canyon-Summit transmission line.

Service under this schedule requires a power sales Contract between the Customer and the District prior to connection of service. Changes in Load, as defined in Utility Service Regulation 41, require a new service application to be submitted to the District to evaluate the impact of that changed load to existing Electrical Service Facilities.

Customers subject to the terms and conditions of Schedule 36 must meet the following characteristics:

- Be served at one Premise through a single Point of Delivery as defined in the District's Service Regulations;
- Be in compliance with Chapter 296-46B WAC electrical safety standards, administration and installation; and
- Maintain satisfactory Power Factor determined in Schedule 24.

Customers with multiple locations and Energy loads will not be aggregated for billing purposes unless the District, in its sole discretion, determines the Customer is circumventing the size cap to meet the load requirements of a common Premise. A Customer with measured total connected loads may be required to be served under the rates and terms applicable to such total size.

**UPFRONT CAPITAL CHARGE:**

Prior to approval of service or increase in capacity, Customers to be served under this Schedule must pay an Upfront Capital Charge based upon the requested size of the new or increased amount of electric load. The Upfront Capital Charge does not apply to load amounts approved by the District prior to the effective date of this Schedule where: (1) the Customer has properly obtained District approval of the load prior to the effective date of this Schedule; (2) the load has not changed materially in load factor, size, or otherwise from the load approved by the District; (3) the Customer has fully complied and continues to fully comply with the District's rules, policies, and regulations; and (4) the load is



transferred onto this Schedule as of the effective date of the Schedule. Current amounts are included in the District's Fees and Charges schedule. Additional state and local taxes may apply. Additional charges may apply, including Line Extension costs.

**RESIDENTIAL:**

For purposes of the Demand Charge under this rate schedule, residential means premises located in areas of the distribution system that have been designed and constructed for loads with residential characteristics, such as high load diversity and low load size.

**CHARACTER OF SERVICE:**

Service to be furnished under this schedule may be either:

- Three phase, sixty hertz alternating current at primary voltage, or
- Secondary power single phase, three phase or four wire three phase, 60 cycle, alternating current at available phase and voltage up to 1 MW.

**RATES:**

	<b>3 MW and less</b>	
<b>Basic Charge:</b>		<b>Per month per meter</b>
Up to 300 kW		\$130
300 kW to < 1 MW		\$560
1 MW to ≤ 3 MW		\$860
<b>Monthly Demand Charge, Residential:</b>	\$5.50 per kW of Demand (effective prior to 4/1/2020) \$15 per kW of Demand (effective 4/1/2020)	
<b>Monthly Demand Charge, Non-Residential:</b>	\$5.50 per kW of Demand	
<b>Energy Charge:</b>	2.31¢ per kWh + market energy charge	
<b>Upfront Capital Charge:</b>	<b>Per kW of new or expanded Electric Service under this schedule</b>	
	Amount of upfront capital charge is set forth in the District's <a href="#">Fees and Charges Schedule</a>	
	<b>Over 3 MW</b>	

Service will require a Contract between the Customer and the District prior to connection of Service that will address any special circumstances and conditions applicable to the Customer's needs.

Contracts will address any terms and conditions considered appropriate by the District, which may include but are not limited to scheduling, maintenance and decommissioning of infrastructure, load balancing, ancillary services, transactional costs, security, and financial risk.

**MARKET ENERGY CHARGE:**

The market energy charge portion of the Energy Charge will be fixed as of December 15 of each year by the District at the average flat price of the Mid-C Peak and Off-Peak Futures as published daily by the Intercontinental Exchange (ICE) for the 12-month period starting on April 1 of the following year plus a 6% administrative fee. If ICE futures are not published on December 15, they will be fixed as of the next following date they are published. If ICE Mid-C Peak and Off-Peak Futures cease to be published, the District, in its reasonable discretion, may select a replacement source of futures for the purpose of fixing the market energy charge.

**DEMAND EXCEEDANCE:**

In addition to all other rates and charges, in each billing period in which Demand exceeds the Customer's maximum authorized demand, Customer will be assessed \$150 plus, in each day an exceedance occurs, 1.5 times the applicable monthly demand charge on the amount by which the highest Demand in the day exceeded the maximum authorized demand. 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 any Contract, or take any other remedial action available to recover losses and prevent future exceedances.

**TAX ADJUSTMENT:**

The amount of any tax levied by any city or town in accordance with R.C.W. 54.28.070 of the laws of the State of Washington, will be added to all charges for electricity sold within the limits of any such city or town.

**SERVICE POLICY:**

Service under this schedule is subject to the rules and regulations as defined in the District's [Utility Service Regulations](#).

EFFECTIVE: **APRIL 1, 2019**

**EXHIBIT B**

**FINAL CRYPTOCURRENCY STAFF REPORT**

# Final Cryptocurrency Staff Report

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## Executive Summary

District staff proposes a cryptocurrency customer rate classification and associated rate as a means to mitigate the identified operational and financial costs and risks associated with serving these loads. Staff's recommendation is the product of lengthy fact finding by staff, several public presentations by staff to the Board, and public input including input from cryptocurrency customers.

Consistent with that guidance, staff has designed its recommended cryptocurrency rate to recover the total costs that are expected to be incurred by the District from serving cryptocurrency customers. The rate includes monthly customer, delivery and supply charges, which is the same rate structure as is used in the District's commercial and industrial rates. Because of the cost characteristics of cryptocurrency customers, the customer and delivery charges are based on the cost to serve the District's commercial and industrial customers. The basic and demand charges are the same as the High Density Load (HDL) rate, Rate Schedule 35, except for in residential areas. In residential areas, the demand charge is updated to reflect the increased costs of the demands imposed on the electric system by cryptocurrency customers in parts of the District's distribution system that were designed and built for the load characteristics of residential customers. The energy charge is based on the cost of purchasing energy from the wholesale market due to the aggregate size of the class and the highly variable load growth and load volatility of the class. The volatility creates uncertainty in cryptocurrency load forecasting, which prevents the District from managing its resource portfolio in the typical manner with respect to these customers. Serving cryptocurrency with the production cost based rate in the HDL rate would jeopardize the District's ability to manage the resource portfolio in a manner that returns substantial value to the rest of the District's customer classes and stabilizes the District's finances. This would shift costs and financial risk to the other District customer classes. Serving cryptocurrency load with market power, rather than District-generated power, creates the flexibility needed to meet load and protects the District against the volatility of the class. Like the HDL rate, the cryptocurrency rate includes an upfront charge to address the District's increased capital expense for electrical system assets and increased risk of stranded assets associated with cryptocurrency customers. The upfront capital charge would be due prior to connection of service.

Staff's rate recommendation has its genesis in March 2018 when, in response to a dramatic increase in inquiries for new service for loads for cryptocurrency operations, the Board imposed a moratorium on accepting or processing applications for new or increased cryptocurrency loads. In September 2018, the Board directed staff to prepare a rate proposal. This report provides staff's recommendation. Section 1 of this report describes the cost characteristics of cryptocurrency loads as customers of the District and the need for rate action. Section 2 summarizes the criteria applicable to this classification and rate setting action. Section 3 describes the procedural history related to the rate recommendation. Section 4 explains staff's recommended definition of the cryptocurrency class. Section 5 provides the cost analysis and rate design in support of staff's rate recommendation.

### **Summary of Staff's Recommendation**

#### **Staff's Recommended Rate Class Definition:**

**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.

**Summary of Staff's Recommended Cryptocurrency and Blockchain Processing Rate:**

<b>3 MW and less</b>	
<b>Basic Charge:</b>	<b>Per month per meter</b>
Up to 300 kW	\$130
300 kW to < 1 MW	\$560
1 MW to ≤ 3 MW	\$860
<b>Monthly Demand Charge, Residential:</b>	\$5.50 per kW of Demand (effective prior to 4/1/2020) \$15 per kW of Demand (effective 4/1/2020)
<b>Monthly Demand Charge, Non-Residential:</b>	\$5.50 per kW of Demand
<b>Energy Charge:</b>	2.31¢ per kWh + market energy charge*
<b>Upfront Capital Charge:</b>	<b>Per kW of new or expanded Electric Service under this schedule</b>
Amount of upfront capital charge is set forth in the District's <a href="#">Fees and Charges Schedule</a>	
<b>Over 3 MW</b>	
Service will require a Contract between the Customer and the District prior to connection of Service that will address any special circumstances and conditions applicable to the Customer's needs. Contracts will address any terms and conditions considered appropriate by the District, which may include but are not limited to scheduling, maintenance and decommissioning of infrastructure, load balancing, ancillary services, transactional costs, security, and financial risk.	

\*Estimated market energy charge for the period 4/1/2019-3/31/2020: 2.847¢/kWh + 6% admin fee = 3.02¢/kWh (estimate as of 11/15/18).

A draft rate schedule containing staff's recommendations is attached as Appendix A. Upfront charges will be set by staff in accordance with District policies.



## Section 1 – Cryptocurrency Customers

### Overview

In 2015-2016, the District undertook an effort to identify and classify a group of customers interested in service that was of a very different profile than any existing customer class. From this effort, the High Density Load (HDL) class was established and a new rate (HDL rate or Schedule 35) went into effect January 1, 2017. As the HDL customer class has grown, the District has gained a better understanding of their energy needs as well as a better understanding of the subsequent impact to the District's delivery and energy systems. The experience has validated prior assumptions (profiles, mobility, energy use intensity) and identified areas needing additional measures (relation between cryptocurrency value and its electricity demand, equipment sizing and capacity needs for safe, reliable operation.)

In late 2017, a rapid increase in the value of the cryptocurrency bitcoin led to an equally rapid influx of inquiries and electric service requests ranging from a few kilowatts to a gigawatt. Most service requests come with expectations to be up and running in just a few months. By early 2018, the District had received formal applications for over 200 MW of service and inquiries for much more. As a public utility with about 50,000 electric customers and an average load just reaching 200 aMW, this increase effected the regular course of business and threatened the District's historic cost and financial models.

Due to the high reliance on the price of the cryptocurrency mined, the cryptocurrency operations also can have unpredictable electrical use fluctuations in the affected areas of the electrical system, which can cause considerable stress to the transmission and distribution system that was designed to handle traditional, predictable residential and commercial loads. The same unpredictability makes it difficult if not impossible to manage the District's resource portfolio in a predictable way and also serve cryptocurrency customers from the District's hydroelectric resources in the same manner as other customers. Unlike cryptocurrency customers, traditional retail customers of the District, in the aggregate, have fairly predictable loads on the District's planning horizons. In sum, cryptocurrency loads have the potential to drastically change the configuration of the District's transmission and distribution infrastructure and the way the District manages its power resource portfolio.

As mentioned, the District received applications for service from cryptocurrency miners at such a high rate that, by early 2018, if all such requests were served, the added load would have doubled the District's current total retail load. If all of the additional inquiries, above the actual applications, were served, the added load could increase the District's retail load by several multiples. The District recognized that serving this rapidly growing type of customer load under existing rate schedules, which assume the use and cost of District generated energy, was unreasonable and unsustainable from an operational and financial perspective. The District is currently well positioned to serve the forecasted needs of its historical customers and new customers with similar characteristics. However, despite the currently good finances and substantial generating portfolio of the District, it cannot reasonably ignore the potential magnitude of cryptocurrency loads and the cost of serving such loads. The reasonable long-term solution for serving these customers is to develop a new rate designed to recover the costs and address the risks of serving such loads with an energy rate based on the cost of purchasing market power in order to protect the stability of the District finances and generation portfolio management and keep the District's other customers financially neutral to cryptocurrency customers, including their risks and uncertainties.

Over the course of a lengthy fact finding by staff, numerous presentations to the Board, and discussion with the public, including cryptocurrency customers, the Board directed staff to recommend a new rate class and rate for all sizes of cryptocurrency mining operations. This section summarizes the reasons underlying staff's recommendations in this report.

## **Key Characteristics of Cryptocurrency Load**

The cryptocurrency loads share many characteristics with high density loads (HDL) discussed in Section 1 of the District's *Final High Density Load Staff Report (2016)* ("HDL Staff Report").<sup>1</sup> The shared characteristics include high energy use intensity, high load factor and low diversity factor, and magnitude of load plus the additional class characteristics of unprecedented mobility and the unpredictability of forecasting the load. Cryptocurrency loads are similar to the loads described in the HDL staff report but exhibit extreme versions of certain characteristics. Indeed, cryptocurrency loads have proven to be significantly more mobile and less predictable in their use and ramping than typical server farms or other high density loads. Cryptocurrency loads also have a higher potential to become a large portion of the District's load within a short period of time. Because of these outlier characteristics, described in more detail below, the HDL rate schedule would not adequately recover the costs incurred by the District to serve cryptocurrency loads.

## **Extra Alterations to District Service Facilities Required**

Due in part to their high load factor, cryptocurrency loads often require extraordinary alterations and upgrades to the District's transmission and distribution facilities in order to maintain safety. High load factor loads require a significant de-rating of infrastructure in order to avoid overheating, which shortens the lifespan of equipment, leads to service interruptions for other customers, and, in the worse cases, creates fire hazards.<sup>2</sup> Much of the District's system is designed and engineered for residential and commercial loads which have low load factors. Cryptocurrency loads often site in these places because they are more accessible, particularly for smaller operations. Adding a cryptocurrency load to a residential distribution feeder may require alterations to expand and reinforce the District's facilities in order to prevent overheating and to maintain safety and reliability.

## **Portable and Distributable**

Cryptocurrency mining operation systems are portable and distributable to a much greater degree than traditional server farms. Each specialized mining computer is physically self-contained in about the size of a shoe box.<sup>3</sup> Within the global cryptocurrency networks in which they participate, their function is distributable across the participating computers without regard to location. This means that they perform their tasks with equal effect whether there are 1000 computers in a single warehouse or the same number spread across 100 residences.

## **High Sensitivity to Volatile Commodity or Asset Prices**

Spikes up or down in cryptocurrency prices directly result in a dramatic upswing or drop-off in demand for power from cryptocurrency miners. Preceding the moratoriums established by the Board in December 2014 and in March 2018, a spike in the price of bitcoin led to a spike in requests to the District for new electricity service. The pattern is clear: higher cryptocurrency values lead to higher volumes of mining.<sup>4</sup>

<sup>1</sup> In Resolution No. 16-14059, the Board adopted the HDL Staff Report as a basis for the HDL rate.

<sup>2</sup> In early 2018, the District strengthened enforcement rules related to unauthorized cryptocurrency mining because of chronic unauthorized mining activity, often discovered in residential areas such as apartments, which endangered neighbors by creating fire hazards.

<sup>3</sup> The Antminer S9j ASIC Bitcoin Miner consumes 1.35 kW and has the dimensions 13.8 x 5.3 x 6.2 inches.

<sup>4</sup> The cost of mining a cryptocurrency is the cost of computer hardware, power, and overhead. The earning of mining is the cryptocurrency. Increases in the price of bitcoin are supportive of increased mining and can also support increased power consumption to run the mining operations worldwide.



Figure 1: Bitcoin prices over a two-year period, including the price spike in late 2017.

Specialized mining machines and concentrated mining existed in 2014, which in part drove the search for cheaper power by the mining industry. By the next major bitcoin price spike, in late 2017, the mining industry had further matured with significantly more specialized mining computers, larger operations, and more available capital. This meant that the District saw a near immediate jump in service requests following the bitcoin price rise.

### Highly Variable Load Growth and Load Reduction

Many factors affect the growth and reduction of cryptocurrency within the District's service area. In brief, the portable and distributable nature of cryptocurrency computing combined with high sensitivity to the prices of cryptocurrencies, which are themselves volatile, create the potential for massive load swings over the course of days, months, or a few years. Limited governmental regulation of the industry,<sup>5</sup> competition amongst miners, comparative electricity prices elsewhere, global scale of exposure,<sup>6</sup> and changes in cryptocurrency technologies also contribute to the potential for high variability in cryptocurrency load.<sup>7</sup>

### Potential to be Large Concentration of Power Demand

In the few months preceding the March 2018 moratorium, the District received over 200 MW of applications for cryptocurrency mining load. That amount of load, if added to the system, would double the District's average annual load. Had the District not instituted a moratorium and prepared responsive policies, the volume of applications in 2018 likely would have been much larger. The potential for a large concentration of retail load in a single industry compounds the other characteristics. The District's current load is diverse, and no single foreseeable economic event would lead to a 50% load reduction in a year. In contrast, it is foreseeable that 200 MW of cryptocurrency load (if added to the system) could

<sup>5</sup> Governmental regulators for the most part have not settled on regulatory regimes for bitcoin and other cryptocurrencies, which is a source of considerable uncertainty. Where they have developed regulations, different jurisdictions go in different directions, which creates a patchwork of regulation around the world.

<sup>6</sup> Larger cryptocurrency loads choose from locations all around the world with relative ease.

<sup>7</sup> In addition to changes to the hardware used for mining, the energy intensive nature of mining can change with a revision to a cryptocurrency's protocol. Indeed, many cryptocurrencies already operate without the energy intensive mining protocol relied upon by bitcoin.

leave or shut down in less than a year in response to cryptocurrency prices or for a number of other reasons discussed in this report. In short, a large concentration coupled with exposure to volatile commodity prices creates substantial risk.

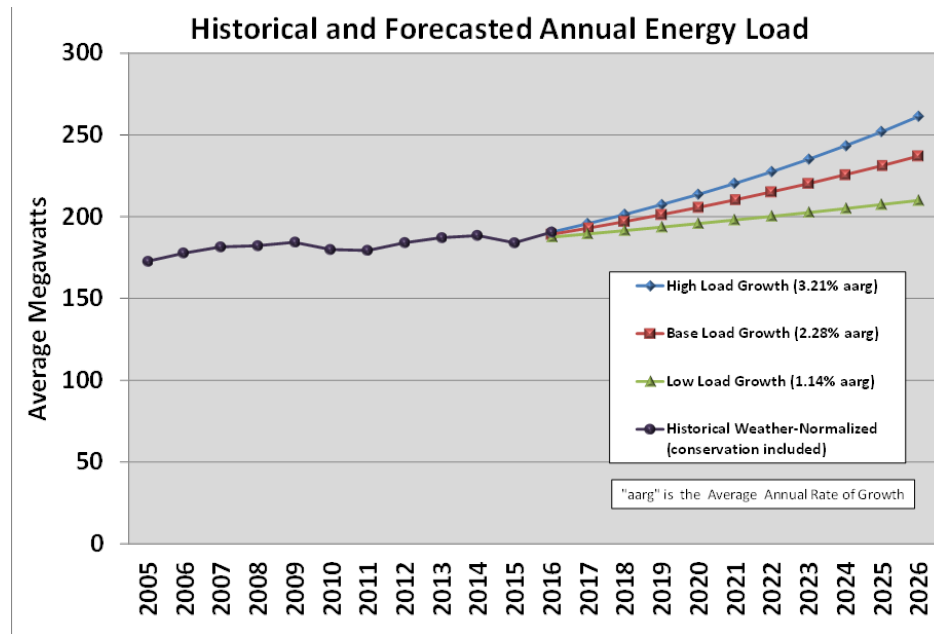
**Cost and Risk Characteristics**

The District incurs operational, financial, safety, and reliability, risks and costs because of the above described characteristics of cryptocurrency loads. Cryptocurrency shares many of the same cost and risk characteristics as HDL loads described in HDL Staff Report, including safety and reliability risks, accelerated capital investment, risks of cost recovery over time and stranded assets, increased demands on customer service, and cost of uncertainty in energy planning. This section describes additional risks and costs of service to cryptocurrency customers that differ from typical HDL loads like server farms, largely relating to the potential for massive swings in load and requests for load. In short, serving cryptocurrency customers imposes unique costs on the District’s electric system and financial models and affects the District’s ability to efficiently and economically serve current loads. Such costs are not reflected in the District’s existing rates.

**Uncertainty in Capital Investment and Resource Portfolio Management**

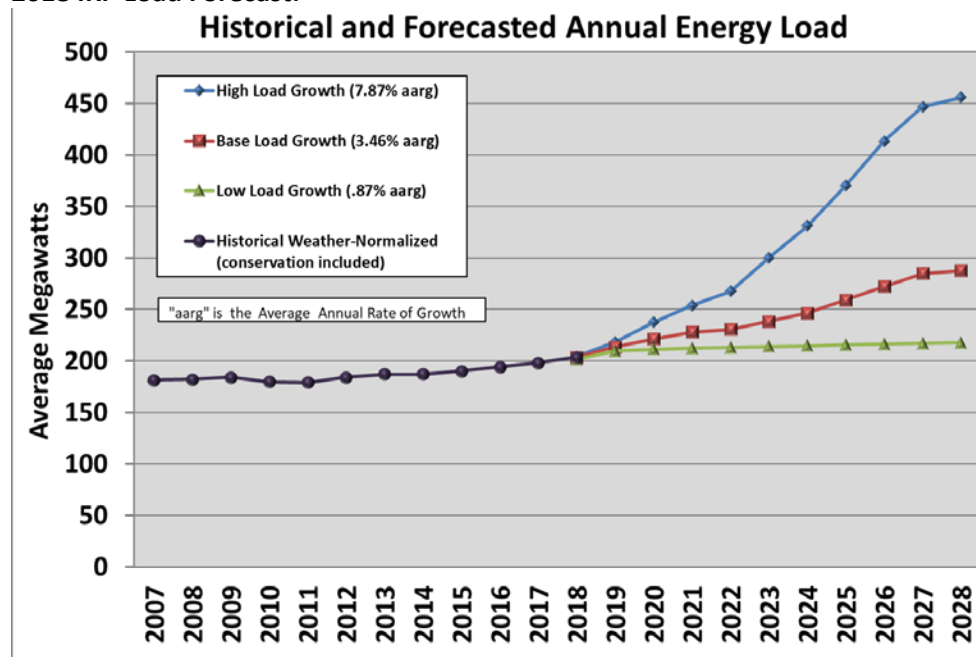
The 2016 IRP was the first District Integrated Resource Plan (IRP) to forecast HDL load growth.

**2016 IRP Load Forecast:**



Two years later, the District’s 2018 IRP Progress Update showed not only a dramatic increase in the “High Load Growth” forecast, but wide ranges between the “High”, “Base”, and “Low” forecasts.

## 2018 IRP Load Forecast:



The forecast represents current policy and known service inquiries and applications and an estimate of potential effects of changes to rates and policies. Forecasting cryptocurrency load is challenging due to the mobility of cryptocurrency loads, and the overall size and inherent volatility of the cryptocurrency industry, discussed above. The flexibility of cryptocurrency operations allows them to install large amounts of load wherever they can connect to the system. They appear to have little infrastructure requirements other than electricity, protection from the elements, and high-speed internet. In contrast, other energy intensive customers typically make substantial investments in infrastructure, equipment, and workforce with long-term plans. When making inquiries to the District, prospective cryptocurrency customers often ask where there is available capacity on the system. The cryptocurrency customers often seek to use all available capacity all the time even though the District may have intended that capacity for multiple years of historical growth. This leaves the District at risk of being unable to serve other future customers and requires accelerated investment in system upgrades. In addition, the expansion of the District's transmission and distribution system that would be necessary to serve 200 MW of cryptocurrency exposes the District to stranded asset risks. If cryptocurrency loads were to shut down or relocate after substantial expansion of the District's system, the system would be substantially overbuilt for the remaining customers.

The increased uncertainty also has implications for the District's resource planning. To meet compliance requirements and prudent utility practices, the District must closely balance the power needs of its customers – based on forecasted load – with the output of its hydroelectric projects both in the short and long term. Excess generation is committed for terms of years through long-term contracts in a manner designed to protect the District from streamflow and operational risks and to reduce the District's exposure to fluctuations in the market prices of power. In accordance with current hedging policies, the District has hedged an amount of energy in 2019 through 2021 equal to the District's maximum hedge target. After serving forecasted load, this leaves approximately 24 aMW of surplus energy in an average water year. In a low water year, the District would likely need to purchase additional energy to serve its forecasted load. Similarly, the District may have to purchase energy if

unplanned loads exceed the load forecast under normal operating conditions. Rapid and volatile changes in cryptocurrency load disrupt the hedging program, forcing the District to buy or sell additional energy unexpectedly.<sup>8</sup> Unexpected power transactions, and the consequent inability to balance closely the power needs of customers over time, increases the District's financial exposure to market volatility.

### **Cost Recovery through Rates**

Schedule 35 was adopted in 2016 and designed for HDL loads. Unless the District creates a new rate class, cryptocurrency loads would fall under Schedule 35. Schedule 35 was not designed to and does not cover the cost or risk of serving cryptocurrency customers, and therefore, the District cannot serve cryptocurrency customers under this rate schedule without incurring the additional costs and risks described in this report. As staff evaluated the cryptocurrency industry, the approach to mitigating the impacts of this particular class of customers with unique characteristics has evolved. After considering public input from cryptocurrency customers and others, staff proposes a rate structure for cryptocurrency service that includes an upfront capital charge to recover the incremental cost of system capacity required to serve the cryptocurrency customer, coupled with monthly charges to recover the expected ongoing cost of serving the customer.

### **Ongoing Monthly Rates**

Staff recommends that the Board establish a rate schedule for cryptocurrency customers based on the District's current cost of service analysis and, for the energy supply component, expected costs, financial impacts, and increased risks to serve them. A cost of service analysis is a tool for tracking revenue requirements and attributing them to customers.<sup>9</sup>

Defining what is to be included in the costs for a customer class includes many decisions based on the business judgment of the District. The Board, staff, and the public had significant discussions regarding the rate design during staff presentations, informational meetings, and the rate hearing process.

The District typically analyzes the cost of serving load in three components, customer, delivery, and energy. Energy can be priced at the cost of producing or purchasing the energy, or it can be priced at the market prices to reflect the value or "opportunity cost" of the energy. Depending on how often the rate is updated to market prices, market pricing leads to less stable customer rates compared with cost of production pricing. Staff recommends basing the energy charge in the cryptocurrency rate on the cost of purchasing the energy in order to protect the District from the risks and uncertainties of cryptocurrency loads and to keep the District's other customers financially neutral. This is similar to the approach proposed by the New York Municipal Power Agency (NYMPA) and approved by the New York Public Service Commission earlier this year in which NYMPA created a special rate largely for cryptocurrency operations that assigned the cost of purchasing incremental power for the class directly to the class, in part because doing otherwise would have significantly increased rates for other customers of NYMPA.<sup>10</sup>

For the customer and delivery costs, the District's existing cost of service model categorizes the cost of existing customer classes but not the cryptocurrency class. The District lacks sufficient historical information for the new cryptocurrency class to be added into the cost of service model. Until the rate is

<sup>8</sup> An example of an unexpected purchase occurred in early 2018, when, due to an unexpected increase in the load forecast, the District purchased 16 aMW, 5 aMW, and 8 aMW for 2019, 2020, and 2021, respectively, in order to comply with current hedging policy.

<sup>9</sup> Cost of service is discussed at length in Section 5.

<sup>10</sup> *Tariff Filing by the New York Municipal Power Agency to Implement a New Rider A - Rates and Charges for High Density Load Service*, New York Public Service Commission, Case 18-E-0126, "Order Approving Tariff Amendments with Modifications", 3 (March 19, 2018).

revisited after additional information is gathered, staff recommends following the method in Schedule 35 and using a cryptocurrency rate based on the cost to serve commercial and industrial customers. Staff recommends that the heightened costs of delivery to cryptocurrency loads in residential areas be addressed through a demand charge designed specifically for residential cryptocurrency.

### **Upfront Capital Charge**

As with Schedule 35, staff recommends applying upfront capital charges to cryptocurrency customers in order to address incremental infrastructure costs and the risk of not recovering these costs over time through rates.

### **Demand Exceedance Charge**

As described in this section, cryptocurrency customers often seek to use all the capacity available at a location. Thus the maximum usage allowance for a cryptocurrency customer is often the upper edge of what the engineer determines to be acceptable in terms of public safety and equipment degradation. Usage levels in excess of the safe limits reduce safety and reliability and shorten the lifespan of equipment.

The District monitors peak usage for all cryptocurrency customers at least monthly and in some cases more often. When exceedances are identified the engineers must be consulted to determine whether the exceedance creates a public safety hazard requiring immediate disconnection or whether the customer should be notified and monitored. Typically in cases where exceedances are small or are non-recurring, the customer is notified of the exceedance and given the opportunity to decrease and monitor load. There are many off the shelf products available to monitor personal electric usage. Staff recommends a demand exceedance charge to recover estimated costs of customer service, systems and engineering review, and equipment degradation.

### **Uncertainty in Rate Development**

Staff's recommendations in this report attempt to balance the need to take rate action now to allow the District to serve cryptocurrency customers in a reasonable manner over the long-term with the desire to gather more data to gain a more complete picture of the cost characteristics of cryptocurrency load before taking action. Due to the rapid influx of cryptocurrency load and the other costs identified in this report, staff recommends acting now.

Certain additional data, if it had been available to staff, would have informed staff's recommendation. For example, staff has no way to accurately forecast the actual number and size of cryptocurrency load that will be added to the District's system. Staff's recommended cryptocurrency rate, if adopted, will likely affect the growth rate of cryptocurrency load, but again there is no way to meaningfully forecast or test the effect without adopting the rate. Because the rate is higher than what would be paid under Schedule 35, some argue cryptocurrency load will be less than it otherwise would have. Staff does expect the upfront capital charge to decrease the frequency with which smaller cryptocurrency customers relocate within or out of the District's system, thereby reducing the District's exposure to the risk of stranded transmission and distribution assets. However, because the proposed cryptocurrency rate is low compared with the rates generally available on a national level, such rate may have little impact on cryptocurrency load growth, and may even attract cryptocurrency customers that perceive improved rate certainty in a rate based on their load characteristics.

Another example of uncertainty is the actual cost of building and maintaining the District's transmission and distribution system to serve more high density, high load factor loads. Staff has made its best estimate based on the available information. But as described in this section and in Section 5, staff lacks adequate data to quantify precisely the cost to the system from the stresses of serving cryptocurrency

loads. If the Board creates a new cryptocurrency rate class, it will facilitate staff's accumulation of data on cryptocurrency loads, which can be used at such time as the Board revisits the cryptocurrency rate. The District retains the ability to modify any of the rate components as deemed appropriate by the Board.



## Section 2 - Criteria for Classification and Rate Setting

The Board has the authority to create rate classes and to establish and modify rates. Classifications are made based on reasonable distinctions between customers and they may rest on narrow distinctions. Classification criteria typically relate directly to the cost of serving the load. For example, the quantity of power used, the seasonality of use, or the maximum demand at any given moment are directly related to the cost of serving the load. However, other reasonable factors may be used. For example, a type of business or power use with distinct load characteristics may have its own classification. This practice is common in the utility industry, and the District currently has such classifications (e.g., frost protection, street lights, high-density load).

When setting a rate for a rate class, utilities consider, amongst other things, the impact to the utility and all its customers, the value of the service rendered, fair compensation and return on investment to the utility, and the long-term financial stability of the utility. The manner in which rates are fixed must not be arbitrary. Rates need not, and in fact cannot, be set to a mathematical certainty. Rather, rate setting is a legislative function in which reasonable considerations and philosophies are applied to generally accepted accounting principles. The District, in compliance with RCW 54.24.080 and if it has revenue obligations outstanding, is required to establish, maintain, and collect rates or charges for electric energy and water and other services, facilities, and commodities sold, furnished, or supplied by the District. The rates and charges must be fair, nondiscriminatory and adequate to provide revenues sufficient for the payment of the principal of and interest on such revenue obligations for which the payment has not otherwise been provided and all payments which the District is obligated to set aside in any special fund or funds created for such purpose, and for the proper operation and maintenance of the public utility and all necessary repairs, replacements, and renewals thereof.

By Resolution No. 80-6286 (April 28, 1980), the District adopted certain standards related to ratemaking under Section 111(d) of the Public Utility Regulatory Policies Act ("PURPA"), 16 U.S.C. § 2621(d). By Resolution No. 18-14256 (August 6, 2018), the District adopted procedures related to ratemaking. These resolutions include procedures and ratemaking considerations associated with the process of ratemaking, including use of a cost of service analysis. Section 3, *infra*, contains the procedural history of the ratemaking process to date. The cost of service is addressed in Section 5, *infra*. The Board may waive the standards and procedures in the resolutions when appropriate.

Staff's proposed tariff for the cryptocurrency mining class meets the District's criteria for classification and rate setting. Serving the proposed cryptocurrency customer class under existing rate schedules was not prudent or fair to other rate classifications. The growth of cryptocurrency customers in the District's service territory presents a type of load that is a significant departure from current and past customers and from load forecasts prior to the recent spike in applications from cryptocurrency loads. Given the stark differences between cryptocurrency customers and non-cryptocurrency customers, setting rates under currently used principles would not make good economic sense. In contradistinction, setting rates that reflect these characteristics furthers the District's ability to ensure it can serve this new type of load in a just and reasonable manner and consistently with prudent long-term planning, including protection for all non-cryptocurrency mining customers.

## **Section 3 - Notice and Procedural History**

On March 19, 2018 the Board adopted a moratorium that halted the acceptance and processing of applications related to electric services for cryptocurrency services. The Board confirmed the moratorium with Resolution No. 18-14234 on April 2, 2018. The moratorium included all new and pending applications that had not paid in full all line extension and applicable connection charges.

Written notice of the moratorium was provided to affected applicants informing them of the status of their application. The District has maintained a summary of information on cryptocurrency policy development on its website, where members of the public can view presentations, submit comments, and find media coverage.

### **Moratorium Hearings Notices**

During the moratorium, the Board held periodic public hearings to review progress towards addressing cryptocurrency services. Notice of the May 14 moratorium hearing began with display ads being placed in the Wenatchee World (April 8) and Leavenworth Echo, Lake Chelan Mirror, and Cashmere Record (April 11). Additional notices included: customer bill messages and direct mail postcards that cautioned of newly adopted fees related to unapproved mining operations. The postcard also provided customers an opportunity to self-report their unapproved mining operation in exchange for amnesty of the newly adopted fees.

Notice for the August 6 moratorium hearing included print ads in Wenatchee World (July 27) and Leavenworth Echo, Lake Chelan Mirror, and Cashmere Record (July 27). Social media and website updates informing customers of the upcoming meeting were launched August 2.

### **Rate Hearing Notices**

The Board established a public outreach plan by motion on September 17, 2018. The District mailed postcards to existing HDL and cryptocurrency customers on Monday, October 22 which included notice of the November 7 Public Information Meeting and November 19 Rate Hearing. An electronic version of the postcard was emailed to those who elected to receive news of rate related activity. Print ads were published in the Wenatchee World (Oct. 28, Nov. 2, and Nov. 4), in the weekly publications included Leavenworth Echo, Lake Chelan Mirror, and Cashmere Record (Oct. 24, Oct. 31 and Nov. 7). Legal notice, which included notice of the November 7 Information Meeting, was published in the Wenatchee World on November 2.

### **Policy Changes**

The District has changed fees and procedures throughout 2018 to address cryptocurrency mining, including new fees for unauthorized cryptocurrency mining. Additional changes are being developed in conjunction with this rate proposal.

### **Local Government and Community Outreach**

Since the adoption of the moratorium, staff met with several local groups, planning commissions, city and county officials to discuss the impacts of cryptocurrency operations and how these loads affect growth and development plans.

- March 19, 2018 - North Central Washington Association of Realtors (NCWAR) and Building North Central Washington. Approximately 125 people were in attendance.

- April 17, 2018 - Building NCW attendance included builders, developers, contractors, and suppliers. Building NCW is a trade association aimed to promote and protect the building industry in the region.

Common questions included:

- Is the District required to allow cryptocurrency mining loads?
- What will happen to the community and rates if the District allows all of these cryptocurrency customers to connect?
- Is there any benefit to the community from having more cryptocurrency mining loads?
- Even if cryptocurrency mining goes away, how is the District planning to handle the anticipated block-chain technology growth?
- What's happening with Alcoa? Could that area and/or load be used for cryptocurrency?
- Does the District collaborate with neighboring PUDs on how to handle cryptocurrency mining?
- How long will the moratorium last?

Staff was tasked with engaging the County and municipal stakeholders to encourage their development of recommendations around planning and zoning for cryptocurrency. Among the attendees, there was an understanding that electrical capacity was quickly being consumed by cryptocurrency applicants, thus, potentially obstructing new economic development. To incorporate cryptocurrency into the municipal growth planning models and comprehensive plans, proper zoning needed to be addressed. In June, staff facilitated an education seminar on cryptocurrency and the impact to the electrical system. Attending this meeting were municipal planners and utility engineers from the County and cities. At this meeting, discussion included a wide range of issues and challenges that culminated into a list of action items. The District was asked to bring information to each municipal planning commission to help inform potential change in zoning with a focus on addressing the impacts with cryptocurrency operations in traditional residential space.

On August 15, 2018, District staff continued meeting with local cities, county and municipal planning commissions. The discussions focused on the potential impacts of what widely distributed cryptocurrency residential load on the electrical distribution system. District staff also shared this with the City of Entiat, the City of Cashmere and the Chelan County Port District. Staff met with Chelan County Commissioners (September 25), and Chelan County Planning Commission (September 26).

### **Staff's Presentations to the Board in 2018**

Throughout 2018, staff has provided numerous presentations. A majority of these presentations were held during regularly scheduled Board meetings, and no action was being sought by the Board. A summary of the Board presentation dates and content presented is provided in Appendix B.

### **Public Comments**

Information meetings and rate hearings provide opportunities for the members of the public to voice their opinions, ask questions, and express support for or opposition to proposed action. The District received written and verbal comments from members of the public during public meetings and outside public meetings. Customer comments are available on the [chelanpud.org](http://chelanpud.org) website for review.

## **Section 4 – Classifying Cryptocurrency and Blockchain Processing and Similar Loads**

Defining a rate class is the first step in designing a new rate. In developing the rate class definition, staff recognized that the customers having the impacts of greatest concern on the District tended to be cryptocurrency miners, as discussed in Section 1. The Board recognized this when it adopted a moratorium on accepting or processing applications for cryptocurrency load on March 19, 2018. The classification recommended by staff in this report is substantially the same as the draft classification presented by staff to the Board on August 6, 2018. It represents a refinement of the scope of the moratorium. Staff crafted the classification based on its investigation and the knowledge gained over months of experience with inquiries from and service to cryptocurrency customers. The following considerations and findings are fundamental to staff's recommended classification.

### **Key Considerations and Findings Regarding the Classification**

#### **Identified Characteristics and Costs; Cryptocurrency**

The District's costs are not associated with serving cryptocurrency and blockchain processors per se. Rather they are associated with serving energy intensive loads that share the other load characteristics of cryptocurrency and blockchain processing loads described in Section 1. Currently, bitcoin mining and mining of similar blockchain-based cryptocurrencies are the most common types of digital processing associated with the identified characteristics. However, a rate classification limited only to bitcoin and blockchain would exclude customers with similar cost characteristics for two reasons.

First, technologies associated with cryptocurrency and blockchain processing are rapidly evolving. A classification limited to specific technologies would quickly become outdated as new technologies arose. The software for the first decentralized blockchain cryptocurrency, bitcoin, was released in 2009. The proof-of-work feature of bitcoin resulted in energy intensive computing; the energy consumption of bitcoin processors grew with the value of bitcoin. As of 2018, there are thousands of similar cryptocurrencies and similar applications with variations on the bitcoin protocol. It is conceivable that future variations that cannot reasonably be described as cryptocurrency or blockchain will exhibit similar load characteristics. Flexibility in the rate classification should allow it to be adaptive to changes in technology.

Second, the District cannot directly confirm the type of computations performed on a given computer. Staff cannot monitor whether a machine is mining bitcoin or training artificial intelligence or performing some other processing. It is important to note that the District has experienced several attempts by cryptocurrency customers to evade being classified as such during the moratorium by not informing the District of their presence or otherwise arguing the class definition does not apply to them. The flexibility in the rate classification allows staff to identify customers with the indicative characteristics of a cryptocurrency processor without needing to examine the individual computers.

Staff recommends including operations with similar characteristics in the class to build the needed flexibility into the rate. Including in the class definition the phrase "similar characteristics" allows the District to apply the rate to new computational technologies that have similar load characteristics as the existing HDL loads. Given the uncertainties, staff exercised some judgment – informed by its experience with these customers – to generate the indicative "similar characteristics" in the proposed classification. Because of the rapidly developing nature of the technology, the difficulty in describing and validating

the types of computer processing conducted by a particular customer, and some customers' propensity to evade classification, staff recommends a more inclusive classification with flexibility to prevent "gaming" of the District's policies.

### **Similar Classifications in the Utility Industry**

In recent years, utilities have taken a variety of approaches to address the rise of cryptocurrency mining loads in their service territories. The District adopted a "High Density Load" rate class in 2016 due in part to growth in bitcoin mining in Chelan County. The New York Municipal Power Authority created a new tariff in 2018 for customers "generally involved in high-volume data processing for cryptocurrencies."<sup>11</sup> In August 2018, the Public Utility District of Grant County, Washington adopted a rate class for cryptocurrency miners based on similar characteristics.<sup>12</sup> In March 2018, the Public Utility District of Benton County, Washington adopted a policy for cryptocurrency customers in response to concerns about the distribution system safety and reliability.<sup>13</sup> Hydro-Québec is in an administrative proceeding on rates and policies specifically for the blockchain industry. These are just a few examples of recent responses to the rapid influx of cryptocurrency mining loads from utilities with similarly low-cost power.

### **Contract Threshold**

The District has long required all customers larger than 5 aMW to enter into an individualized service contract with the District under Schedule 4 in order to address the customer's specific requirements and characteristics of the proposed service, including addressing any infrastructure upgrades needed. Due to the heightened risk associated with the unique characteristics of cryptocurrency mining, both for individual customers and in the aggregate, a lower limit is appropriate. Therefore, staff recommends a contract limit of 3 MW.

### **Geographic Availability**

Staff recommends that service for cryptocurrency not be available in the Stehekin area and new or expanded service in the areas north and west of Leavenworth served by the Anderson Canyon-Summit transmission line. Stehekin is an isolated electrical system not connected to the electrical grid and with very limited capacity. Providing service to cryptocurrency in Stehekin would be imprudent given the state of the electric system serving the area. The Anderson Canyon-Summit line is 35 miles long and runs through mountainous terrain in a national forest. It was constructed in the early 1930s and still contains many of the original components; notably the line uses a very small conductor by modern standards. The current transmission planning assessments, conducted annually in accordance with North American Electric Reliability Company (NERC) requirements, indicate the current loading of the line is approaching the performance limitations that will require improvements to accommodate the small amount of native load growth that is anticipated along the line. The addition of load beyond typical native load growth will use up the small amount of remaining capacity. Load growth from cryptocurrency would accelerate the need for extensive improvements to provide reliable service that comports with the NERC requirements. Serving a large cryptocurrency customer or a number of smaller ones would likely necessitate or accelerate the need for a complete rebuild of the entire line, which would require time consuming and costly permitting and construction not contemplated by the rate or upfront capital charges.

<sup>11</sup> *Tariff Filing by the New York Municipal Power Agency to Implement a New Rider A - Rates and Charges for High Density Load Service*, New York Public Service Commission, Case 18-E-0126, "Order Approving Tariff Amendments with Modifications", 3 (March 19, 2018).

<sup>12</sup> Grant PUD's new Rate Schedule No. 17 covers "evolving industries" as defined in the rate schedule. The scope of the schedule is intended to be flexible in scope but initially covers only cryptocurrency mining.

<sup>13</sup> See Benton PUD's "Electricity Intensive Load Policy".

**Staff's Recommended Rate Class Definition**

**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.

## **Section 5 – Cost of Service and Design of Cryptocurrency Rate**

### **Introduction**

The Board directed staff to develop a rate for cryptocurrency customers that reflects in a fair, just, and not unreasonably discriminatory fashion the cost of serving such customers. Rate development is usually a two stage process of first attributing the cost of serving an aggregate class of customers (in this case the cryptocurrency class), then structuring individual charges for the in a rate to recover an appropriate share of the attributed class costs from individual cryptocurrency customers in approximate proportion to the costs incurred by the District to serve such individual customer. This first phase of rate development involves establishing an equitable allocation of the District's total revenue requirements, or cost of service, to the various customer classes taking electric service from the District based upon the general characteristics of each such class. In 2016, the District established a High Density Load (HDL) rate class based upon the Cost of Service Analysis (COSA) completed at that time, which was developed in 2008 and updated by the Strategic Financial Planning department. To develop the cryptocurrency rate, staff leveraged the COSA and rate design used for the HDL rate for the base (Customer) component and the demand (Delivery) component for the cryptocurrency rate because allocation methodologies and the COSA for these components have not materially changed since that effort was completed. Details and supporting calculations of the COSA performed for the HDL rate can be found in the HDL Staff Report. As recommended in the "Cost Recovery Through Rates" discussion in Section 1, the supply (Energy) component differs from the HDL rate because it is based on the cost of purchasing market energy rather than the cost of generation. Some supply costs, such as administrative and general overhead, overlap with the HDL rate, but most do not. The new supply costs are detailed in this section.

Because rate development involves a number of judgment calls, there is neither a uniquely correct way to carry out the analyses that is described in this section, nor any uniquely correct resulting rate. At each stage, numerous judgments must be made regarding the calculation and assignment of costs. Board direction and principles, internal District financial policies and accounting practices, past District practices, and generally accepted industry standards of cost accounting and rate design all influenced staff's choices in designing its rate recommendations.

This section describes the principles and methodologies used to design staff's recommended cryptocurrency rate. It includes an overview of the COSA methodologies used to functionalize, categorize and allocate the District's revenue requirements when the HDL rate was established. It also includes a description of the methodologies used to structure the rate based on the COSA and on the expected cost of market energy.

### **General Rate-setting Guidelines and Procedures**

Developing rates that meet all the identified objectives and policies is a complex process. Recent COSA efforts have identified several general principles and objectives that rates should reflect or further:

- Fair, Equitable & Non-Discriminatory
- Revenue Stability & Sufficiency
- Cost Based
- Continuity in Philosophy
- Incorporate Strategic Objectives
- Conservation & Efficient Usage
- Simplicity in Administration & Understanding
- Major Shifts Adjusted Over Time

General rate-setting objectives often conflict with each other, so the resultant rate depends in part on how the District balances these objectives. The District's COSA and rate setting process employ industry accepted methodologies as well as specific methodologies adapted as needed for the special characteristics of the District and the costs it incurs. For example, since the state utility tax imposed on the electric system is based on the amount of revenue obtained from the retail customers, it is allocated proportionately only to retail customers and is not assigned to wholesale service, interdepartmental service or any other service that is exempt from this tax.

### **Cost of Service Analysis**

The Strategic Financial Planning department manages the District's COSA on an ongoing basis. Staff last presented the District's COSA to the Board in 2008 (the "2008 COSA"), when the Board approved the reasonableness of its calculations. The 2008 COSA informed the design of current electricity rates. Since 2008, some aspects of the methodology in the COSA have been updated by Strategic and Financial Planning to meet changing circumstances. These changes include the implementation of new long-term power contracts, financial policy changes, changes to the District's market hedging program, public power benefit actions, and enhanced financial forecast modeling to mention a few. The 2008 model, with the above mentioned changes, is updated on an ongoing basis with current financial results and forecasted cost information. The District plans to perform a new COSA in 2019.

The three main steps in the COSA are to functionalize (assign revenue requirements to customer-related, delivery-related, or supply-related components), categorize (divide functionalized expenses among customer classes) and allocate (assign miscellaneous costs including District overheads) costs and revenues among the various customer classes. This process incorporates past practice, industry standards and the expertise and direction provided by key District employees to produce the cost of service result.

The initial steps of functionalization and categorization are closely related and have been combined in the District's cost of service supporting documentation. These combined steps involve assigning the revenue requirement among the general categories of supply-related, delivery/collection-related and customer-related (also referred to as energy, demand and basic, respectively) by customer class. This categorization closely resembles the existing structure of the District's financial accounting system and the financial forecasting system, but does require the application of some methodologies to properly assign or allocate some components of the revenue requirements. The following sections describe the general basis of the methodologies used in determining how the cost or revenue requirements have been categorized.

### **Functionalizing Costs into Customer, Delivery, and Supply Components**

**Customer (Basic) Cost Component** - Customer costs are costs that vary primarily by the number of customers in a customer class and include customer billing, collections, records, meter reading, service, etc. along with a proportionate share of the District's administrative and general (A&G) costs that support all the District's activities. The costs in this category correlate to the number and characteristics of customers served by the District in each customer class and are not a direct function of the amount of energy used by the customer. Consistent with industry practice, these costs are the basic charge or minimum rate component in rates. The COSA methodologies for assigning these costs have not materially changed since adoption of the HDL rate in 2016 and are detailed in the HDL Staff Report.

**Delivery/Collection (Demand) Cost Component** - Delivery costs include the costs of transmission and distribution services, including a proportionate share of A&G and depreciation, and a rate of return on the District's investment in transmission and distribution facilities serving the customer class. These costs are generally driven by the maximum demand requirement imposed by the various customer



classes and customers, with the exception of the frost protection and street lights classes, for which costs are directly assigned. The assignment of this cost component varies by service and customer type and can be based on number of service drops, energy usage or demand. Cost inputs for this rate component for non-residential customers are detailed in the HDL staff report. Details supporting the newly developed Residential Cryptocurrency demand charge can be found in Appendix C.

**Supply (Energy) Cost Component** – This cost category is often referred to as “energy” costs. Supply costs include internal and external power purchases<sup>14</sup> and activities directly related to acquiring power, along with a proportionate share of A&G costs. These costs are primarily driven by the actual amount of electricity consumed by customers in each class. Limited surplus energy is available beyond the District’s current contractual obligations and amounts reserved to serve local load, including a contingency for a low production year (such as a low water year). This practice of closely managing the District’s resources through long-term sales and a hedging program protects the District with revenue certainty and reduces exposure to volatility from the variability of wholesale prices and streamflow and operational risks at its hydroelectric projects. The wholesale market is the next best resource to supply incremental customers such as cryptocurrency. As recommended in Section 1, the wholesale market price of energy is the basis for the supply cost component. Accordingly, the proposed rate incorporates a transparent market-based wholesale price in the energy rate component along with other associated energy charges.

The other energy charges include transactional costs directly associated with the purchase of energy, financial impacts, additional risk exposure, costs of administration of the District’s energy portfolio, and costs of the provision of scheduling and other ancillary services. The other energy charges are summarized below:

#### **Other Energy Charges**

**Specified Source** – Covers the premium paid by the District to purchase carbon-free energy. Without this premium, the District may increase the carbon content of the power it uses to serve load. Importing non-clean power would be counter to the District’s policy of serving load with clean power. It could also harm the District’s ability to sell its generation into the California market with a carbon-free premium because the California Air Resources Board, the agency tasked with implementing and enforcing California’s cap-and-trade program, is concerned with utilities exporting clean power into California and simultaneously serving their own load with non-clean power. While the setting of rates for utility services is not an action subject to environmental review, it is noted that this approach advances the District’s Integrated Resource Plan and clean-power policies to the benefit of air resources.

**I-937 Compliance** – Covers the cost to comply with the Energy Independence Act (I-937). I-937 requires the District to use qualifying renewable resources to serve a certain percentage of its load.

**Transaction Charges** (Index Premium, Odd Lot Premium, Credit Premium) – Covers the cost associated with purchasing index energy from the wholesale market, charges of purchasing energy in non-standard sizes, and use of the District’s credit capacity with other entities.

**Overhead** (Allocated and Direct) – Covers the costs directly associated with managing the District’s energy portfolio and associated contracts, legal and credit review, risk management

<sup>14</sup> In the District’s internal accounting, the District treats power from the District’s generating resources used by the District’s retail system as if the retail system purchased the power from the District’s resources.

and monthly billings, along with a proportionate share of A&G costs that are included in the supply (energy) component of the cost of service.

**Scheduling & Ancillary Services** – Covers the costs of scheduling, load following, reserves and voltage control, etc.

**Risk Premium** - Covers incremental financial risks associated with cryptocurrency loads being transient in nature, subject to regulatory uncertainty, and having unpredictable growth and concentration. Multiple risks are addressed through this component. Operational safety and reliability risks include fire loss and interruptions to service. The market price risk includes the District's exposure to market prices due to fixing the market energy rate annually. The stranded asset risk relates an inability to recover costs of system expansion through rates over time if the customers move on. Customer class concentration risk involves possible concerns from ratings agencies if a single transient industry makes up a large portion of the District's customers. These and other risks are discussed in more detail in Appendix D.

**Overhead Tax** - State Utility Tax and Privilege Tax.

See Appendix D for additional detail.

### **Categorizing Costs into Rate Classes**

Once the functionalization of costs has been completed, various methodologies are used to assign or "categorize" these cost components among the various rate classes and rate components. Rate classes include residential, commercial, industrial and other defined groups of customers that have similar service requirements. The methodologies used to accomplish the allocations are summarized below with supporting analysis in the HDL Staff Report. Note that the District's current division among customer classes is based in part on differences in total electricity (energy) use and the rate of use (demand).

The cryptocurrency revenue requirement for the basic (Customer) component and the demand (Delivery) component is derived from the calculated requirements of the HDL class from the HDL rate adopted in 2016, except that the demand component for residential cryptocurrency customers has been changed to reflect costs of serving on residential portions of our system, as explained below. The supply (Energy) component is a market-based rate along with additional charges associated with serving cryptocurrency loads with market purchases. The revenue requirement includes operating activity and the offsetting revenue associated with customer contributions in aid of construction as a credit to gross capital investment requirements.

**Basic (Customer) Cost Component** – Based on the number of customers in each customer class and the total customer costs of serving that class, the District created weighted customer allocation factors in the 2008 COSA. The weighting factors represent the cost of serving a customer of one class compared with the cost of serving a customer of another class. For example, the industrial class has a relatively high weighting factor because the District incurs more basic costs in serving a typical industrial customer than in serving a typical commercial or residential customer. This allocation factor has been applied to the basic cost component of the revenue requirement to determine the basic costs of each customer class. The weighting factors used here are unchanged from the 2008 COSA, but the customer counts were updated during the development of the HDL rates. Details of the allocation factors can be found in the HDL Staff Report. As explained below in the Design of the Cryptocurrency Rate section, staff's recommended cryptocurrency basic charge is based on the current Rate Schedule 35 – High Density Load basic charge developed in 2016 with the creation of the HDL rate class.

**Demand (Delivery) Cost Component** - System demand costs are categorized based on analyzing peak usage expectations for each customer rate class. The COSA process associates various feeders with rate classes to provide independent load factor profiles for the various customer classifications. In addition, seasonal load use and customer classification subset attributes are applied when direct supporting details are limited. The District primarily used a 3-month coincidental peak (CP) allocation factor. As explained below in the Design of the Cryptocurrency Rate section, staff's recommended non-residential cryptocurrency demand rate is the current Rate Schedule 35 – High Density Load demand charge developed in 2016 with the creation of the HDL rate class. Details of the cost distribution can be found in the HDL Staff Report.

A Residential Cryptocurrency demand charge has been added to the proposed rate structure. At the time the HDL Demand Charge was developed, the District did not have HDL loads in residential areas, thus the development of the High Density Load rate included only cost analysis of the commercial and industrial customer classes. Because commercial and industrial areas are typically centralized, closer to major equipment (e.g., substations), and often have a moderate load factor, the cost per unit delivered is less than areas built for residential service. In residential areas there are typically more line miles installed and more infrastructure required on a per unit served basis. Residential areas have a higher diversity factor (i.e., variations in load throughout the day) and a lower load factor, which allows more service connections per substation. For example there may be two or three homes connected to the same 25 kW system capacity. This design works for normal residential loads because even if they have a high peak load, the load drops off during periods of the day, allowing the electrical system equipment to cool off. The same design is not a good match for cryptocurrency loads because they run all on, all the time. Without the additional load of cryptocurrency, and without the cool-down period, residential distribution equipment will age prematurely and create safety and reliability risks. System alterations to mitigate these issues are costly and create non-routine maintenance needs. Because of the impacts associated with serving cryptocurrency customers in residential areas, staff recommends the residential demand charge to recover the additional costs.

**Energy (Supply) Cost Component** – The costs assigned to this component are directly associated with customer's total consumption or use of the service, and are allocated based on the measured energy usage (kWh) of each of the customer classes, including line losses. Because cryptocurrency loads will be served with market purchases, the assigned costs are the cost of the energy purchases along with the other energy charges associated with serving these loads with market purchases. This rate proposal does not account for line losses. Staff will recommend that a line loss adjustment be added in the future.

### **Design of the Cryptocurrency Rate**

Staff recommends using the current Schedule 35 Basic and Demand charges for cryptocurrency services which is based on the Commercial and Industrial COSA analysis completed during adoption of the HDL rates in 2016. Staff also recommends adopting a Residential Cryptocurrency demand charge. Staff recommends a market-based rate for the Energy component. Following the planned review of the COSA in 2019 and after the District gains more experience with cryptocurrency customers, staff may recommend adjustments to the cryptocurrency rate.

**Basic (Customer) Cost Component** – Staff recommends using the current Schedule 35 HDL basic charge. The charge is tiered into three levels to reflect the wide range of sizes of cryptocurrency customer. The tiers allow for proportional assignment of costs for individual customers based on size rather than charging the same basic (customer) charge for all sizes which raises the charge higher for smaller customers than appears reasonable to staff. The tier thresholds are the same as the District uses for engineering and application fees: 300 kW and 1 MW.

**Demand (Delivery) Cost Component** Staff recommends using the current Schedule 35 – HDL demand charge for cryptocurrency customers in non-residential areas. The demand charge in the HDL rate uses the combined costs and three-month coincidental peak kW demand for commercial and industrial delivery developed in the COSA to determine a \$/kW rate.<sup>15</sup>

The demand charge for residential cryptocurrency calculates a per customer delivery revenue requirement based on average energy usage of the residential class and the cost per kWh of the delivery component from the COSA for the residential class. Energy demand is then calculated utilizing the average load factor of current residential cryptocurrency customers of 74% to arrive at a \$/kW rate. The calculation of the residential demand charge is detailed in Appendix C.

**Energy (Supply) Cost Component** – Cryptocurrency customers at 3 MW or below will be served at a fixed market rate that will be based on the Intercontinental Exchange (ICE) Mid-Columbia forward prices. The Mid-Columbia hub location price is consistent with the District’s transactions when purchasing wholesale energy. ICE publishes monthly forward prices on a daily basis. In December of each year, the District will calculate the average Mid-Columbia flat forward price for the term April 1<sup>st</sup> of the following year through March 31<sup>st</sup> of the subsequent following year. This is not a guarantee as the Board always retains the ability to adjust the rate mid-year.

The calculated average market price will be in addition to the other energy charges. The other energy charges are directly associated with costs related to purchasing energy to serve cryptocurrency loads, administrative costs, ancillary charges and risk exposure. These components are listed in the table below and are explained in further detail in the “Functionalizing Costs into Customer, Delivery, and Supply Components” section, above, and in Appendix D.

<b>Other Energy Charges</b>	
Charge	Charge per kWh
Specified Source	0.34¢
Transaction charge (index premium, odd lot premium, credit premium)	0.14¢
Allocated overhead (current COSA model)	0.15¢
Direct Overhead (incremental resource time)	0.12¢
Scheduling & Ancillary Services (load following, reserves, voltage control)	0.13¢
Risk Premium	1.30¢
Overhead Tax	0.13¢
<b>Total</b>	<b>2.31¢</b>

Cryptocurrency customers at or above 3 MW will require a contract with the District that will address any special circumstances and conditions applicable to the Customer’s needs and will address any terms and conditions considered appropriate by the District, including the manner which energy will be purchased and delivered.

<sup>15</sup> Calculation of HDL Demand Charge: Costs assigned to this component are distributed to each customer class using a three-month coincidental peak allocation factor. This calculated revenue requirement for commercial and industrial is combined and then divided by the combined commercial and industrial class average monthly demand to produce an average monthly cost per kW.

<b>Staff's Recommended Monthly Cryptocurrency Rate</b>	
<b>3 MW and less</b>	
<b>Basic Charge:</b>	<b>Per month per meter</b>
Up to 300 kW	\$130
300 kW to < 1 MW	\$560
1 MW to ≤ 3 MW	\$860
<b>Monthly Demand Charge, Residential:</b>	\$5.50 per kW of Demand (effective prior to 4/1/2020) \$15 per kW of Demand (effective 4/1/2020)
<b>Monthly Demand Charge, Non-Residential:</b>	\$5.50 per kW of Demand
<b>Energy Charge:</b>	2.31¢ per kWh + market energy charge <sup>16</sup>
<b>Upfront Capital Charge:</b>	<b>Per kW of new or expanded Electric Service under this schedule</b>
Amount of upfront capital charge is set forth in the District's <a href="#">Fees and Charges Schedule</a>	
<b>Over 3 MW</b>	
Service will require a Contract between the Customer and the District prior to connection of Service that will address any special circumstances and conditions applicable to the Customer's needs. Contracts will address any terms and conditions considered appropriate by the District, which may include but is not limited to scheduling, maintenance and decommissioning of infrastructure, load balancing, ancillary services, transactional costs, security, and financial risk.	

### **Comparability of Rates with Other Utilities**

Utilities develop their rates and charges based on a multitude of factors including their own assessment of a given customer class and their own financial circumstances, which reflect the availability and cost of power, transmission, and distribution. The cryptocurrency rates proposed in this report are within the range of residential, commercial, and industrial rates in Washington State and the Northwest. They are significantly lower than such rates in some other regions of the United States and higher than some rates that may be available to cryptocurrency miners. There have been comments made to the effect that other utilities may be willing to enter into contracts to serve cryptocurrency mining or other loads for a rate lower than the District's proposed rate. The District does not have insight into the circumstances of those particular utilities, but a number of factors could account for the differences if they exist. Rates may be lower because they have idle generation or due to specific features of their contracts with the Bonneville Power Administration. The presence of unused transmission and distribution capacity could also lead to lower rates. They may be lower because the utility did not assess the risks of serving cryptocurrency customers in the same manner as the District or because the utility is not exposed to the high volume of applications and potential concentration of risk that the District faces. Comparison with the rates of other utilities is informative, but is not necessarily indicative of appropriate rates for the District.

<sup>16</sup> Estimated market energy charge for the period 4/1/2019-3/31/2020: 2.847¢/kWh + 6% admin fee = 3.02¢/kWh (estimate as of 11/15/18).

### **Upfront Capital Charge**

As mentioned in Section 1, and as with HDL customers, the District incurs costs for accelerating expansion of or upgrades to its electrical system to accommodate cryptocurrency customers, and it risks not recovering those costs over time if the cryptocurrency customers discontinue taking service (called “stranded asset risks”). The COSA-based rate recommended by staff above does not fully include these costs or ameliorate the stranded asset risks. Therefore, staff recommends the upfront charge developed in the HDL Staff Report, and as modified by the District, to recover the costs associated with electrical system capacity expansion that are not embedded in the staff’s COSA-based rate recommendation described above. Because the upfront charge is a fee rather than a rate, in accordance with District policies, the Board does not need to approve the actual upfront charge or the methodology used to calculate it. Staff recommends following the same policy for applying the charge as is applied to the HDL customers as described in the HDL Staff Report.

### **Demand Exceedance Charge**

Staff recommends a monthly fee of \$150 plus, in each day an exceedance occurs, 1.5 times the applicable monthly demand charge on the amount by which the highest Demand in the day exceeded the maximum authorized demand. This is intended to recover costs of customer service, systems (Automated Energy) and engineering review associated with monitoring demand limits to which the customer agreed to operate, as well as the equipment degradation. Including a daily charge is reflective of the increasing and compounding damage caused by prolonged exceedances versus those that are temporary in nature.

### **Delayed Implementation of the Residential Demand Charge**

Staff recommends that the residential demand charge of \$15/kW be effective one year after the cryptocurrency rates goes into effect. This will phase in the rate for those customers transferred from the HDL rate. It will also reduce complications in the District’s ongoing implementation of an upgraded customer information system.

### **Application to Existing Special Contracts**

The District negotiated a number of customer-specific contracts with HDL customers during the implementation of the HDL rate. Some of the customers with those special contracts are mining cryptocurrency. The District will continue to honor the terms and conditions of the special contracts for their respective terms.

## Appendix A Draft Cryptocurrency and Blockchain Processing Rate Schedule

### **DRAFT** Cryptocurrency Processing; Blockchain Processing; and Similar Loads

#### Schedule [# TBD]

##### **AVAILABILITY:**

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.

This rate schedule is available throughout the District's service area with the exception of the Stehekin area and new or expanded service in the areas north and northwest of Leavenworth served by the Anderson Canyon-Summit transmission line.

Service under this schedule requires a power sales Contract between the Customer and the District prior to connection of service. Changes in Load, as defined in Utility Service Regulation 41, require a new service application to be submitted to the District to evaluate the impact of that changed load to existing Electrical Service Facilities.

Customers subject to the terms and conditions of Schedule \_\_ must meet the following characteristics:

- Be served at one Premise through a single Point of Delivery as defined in the District's Service Regulations;
- Be in compliance with Chapter 296-46B WAC electrical safety standards, administration and installation; and
- Maintain satisfactory Power Factor determined in Schedule 24.

Customers with multiple locations and Energy loads will not be aggregated for billing purposes unless the District, in its sole discretion, determines the Customer is circumventing the size cap to meet the load requirements of a common Premise. A Customer with measured total connected loads may be required to be served under the rates and terms applicable to such total size.

##### **UPFRONT CAPITAL CHARGE:**

Prior to approval of service or increase in capacity, Customers to be served under this Schedule must pay an Upfront Capital Charge based upon the requested size of the new or increased amount of electric load. The Upfront Capital Charge does not apply to load amounts approved by the District prior to the effective date of this Schedule where: (1) the Customer has properly obtained District approval of the load prior to the effective date of this Schedule; (2) the load has not changed materially in load factor, size, or otherwise from the load approved by the District; (3) the Customer has fully complied and

continues to fully comply with the District's rules, policies, and regulations; and (4) the load is transferred onto this Schedule as of the effective date of the Schedule. Current amounts are included in the District's Fees and Charges schedule. Additional state and local taxes may apply. Additional charges may apply, including Line Extension costs.

**RESIDENTIAL:**

For purposes of the Demand Charge under this rate schedule, residential means premises located in areas of the distribution system that have been designed and constructed for loads with residential characteristics, such as high load diversity and low load size.

**CHARACTER OF SERVICE:**

Service to be furnished under this schedule may be either:

- Three phase, sixty hertz alternating current at primary voltage, or
- Secondary power single phase, three phase or four wire three phase, 60 cycle, alternating current at available phase and voltage up to 1 MW.

**RATES:**

	<b>3 MW and less</b>	
<b>Basic Charge:</b>		<b>Per month per meter</b>
Up to 300 kW		\$130
300 kW to < 1 MW		\$560
1 MW to ≤ 3 MW		\$860
<b>Monthly Demand Charge, Residential:</b>	\$5.50 per kW of Demand (effective prior to 4/1/2020) \$15 per kW of Demand (effective 4/1/2020)	
<b>Monthly Demand Charge, Non-Residential:</b>	\$5.50 per kW of Demand	
<b>Energy Charge:</b>	2.31¢ per kWh + market energy charge	
<b>Upfront Capital Charge:</b>	<b>Per kW of new or expanded Electric Service under this schedule</b> Amount of upfront capital charge is set forth in the District's <a href="#">Fees and Charges Schedule</a>	

**Over 3 MW**

Service will require a Contract between the Customer and the District prior to connection of Service that will address any special circumstances and conditions applicable to the Customer's needs.

Contracts will address any terms and conditions considered appropriate by the District, which may include but are not limited to scheduling, maintenance and decommissioning of infrastructure, load balancing, ancillary services, transactional costs, security, and financial risk.

**MARKET ENERGY CHARGE:**

The market energy charge portion of the Energy Charge will be fixed as of December 15 of each year by the District at the average flat price of the Mid-C Peak and Off-Peak Futures as published daily by the Intercontinental Exchange (ICE) for the 12-month period starting on April 1 of the following year plus a 6% administrative fee. If ICE futures are not published on December 15, they will be fixed as of the next following date they are published. If ICE Mid-C Peak and Off-Peak Futures cease to be published, the



District, in its reasonable discretion, may select a replacement source of futures for the purpose of fixing the market energy charge.

**DEMAND EXCEEDANCE:**

In addition to all other rates and charges, in each billing period in which Demand exceeds the Customer's maximum authorized demand, Customer will be assessed \$150 plus, in each day an exceedance occurs, 1.5 times the applicable monthly demand charge on the amount by which the highest Demand in the day exceeded the maximum authorized demand. 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 any Contract, or take any other remedial action available to recover losses and prevent future exceedances.

**TAX ADJUSTMENT:**

The amount of any tax levied by any city or town in accordance with R.C.W. 54.28.070 of the laws of the State of Washington, will be added to all charges for electricity sold within the limits of any such city or town.

**SERVICE POLICY:**

Service under this schedule is subject to the rules and regulations as defined in the District's [Utility Service Regulations](#).

EFFECTIVE: **TBD**

## Appendix B Relevant Staff Presentations to the Board in 2018

- **March 19, 2018 – Moratorium Implemented**
  - Moratorium on applications for electric services for cryptocurrency or similar operations
- **April 16, 2018 – Board presentation**
  - Unauthorized Use fees and charges
  - Investigation processes
- **May 15, 2018 – Moratorium Hearing**
  - Existing challenges
  - Actions completed since moratorium adoption
  - Future work and next steps
- **July 23, 2018 – Board presentation**
  - Preview of cryptocurrency rates
  - Infrastructure and capacity availability
- **August 6, 2018 – Moratorium hearing**
  - Public comment on proposed cryptocurrency rates
- **August 20, 2018 – Moratorium hearing**
  - Review of public comments
  - Additional rate considerations
- **September 4, 2018 – Board presentation**
  - Cryptocurrency Zoning & Planning
  - Summary of outreach efforts with county, city officials
- **September 4, 2018 – Board presentation**
  - Small mining operation overview
  - Residential rate considerations
  - Next steps
- **September 17, 2018 – Moratorium Hearing**
  - Overview of rate and phase-in recommendation
  - Rate outreach plan
  - Next steps
- **November 5, 2018 – Preview of Public Information Meeting**
  - Background on need for new rate
  - Proposed rate schedule
  - Calculation examples for customers
  - Upfront Capital Costs
  - Next steps
- **November 7, 2018 – Public Information Meeting**
  - Background on need for new rate
  - Proposed rate schedule
  - Calculation examples for customers
  - Upfront Capital Costs
  - Next steps
- **November 19, 2018 – Rate & Moratorium Hearing**
  - Review of actions taken throughout moratorium
  - Rate recommendation
  - Moratorium recommendation

- **November 19, 2018 – Board presentation**
  - Fees and Charges update

## Appendix C Residential Demand Charge Calculation

The forecasted 5-year average (2019 -2023) residential revenue requirement from the COSA was applied to the average monthly usage of residential customers to determine a monthly revenue requirement per customer. Demand for typical residential customers is not currently metered. However, all cryptocurrency customers are demand metered. For this calculation, the average usage was divided by the peak demand to calculate load factor. The average load factor of existing residential cryptocurrency customers is 0.74. Dividing the monthly revenue requirement by this factor and converting the revenue requirement to a demand measure results in the calculated residential cryptocurrency demand charge of \$15 per kW of demand. The detailed calculation of the rate is provided below.

[a] Residential average monthly usage (kWh)	1,825
[b] Residential revenue requirement (¢/kWh from COSA)	<u>2.80</u>
[c] Monthly revenue requirement per customer [a] * [b] ÷ 100	\$51.10
[d] Average residential cryptocurrency load factor	74%
[e] Residential Cryptocurrency monthly demand (kW) [a] ÷ 730 ÷ [d]	3.38
<i>730 = average hours in a month</i>	
<b>Residential Cryptocurrency Demand [c] ÷ [e] (\$/kWh)</b>	<b>\$15.13</b>

## Appendix D Other Energy Charges

Other Energy Charges			
Charge	Rate	Description	Methodology
Specified Source	.308¢/kWh	Covers the premium paid by the District to purchase carbon-free energy	E3 Carbon Curve converted based on unspecified emission factor established by cap-and-trade regulation
I-937 Compliance	.03¢/kWh	Cost to the District associated with I-937 compliance	3 year average of renewable purchase costs applied to I-937 requirement percentage for each customer
Index Premium	.05¢/kWh	Cost of purchasing index energy from the wholesale market	Estimates based on index premiums incurred from past participation in the wholesale market at various terms (i.e. day ahead, next month....)
Odd Lot Premium	.075¢/kWh	Charge to buy energy in non-standard sizes.	Based on current market for non-standard volumes
Credit Premium	.018¢/kWh	Charge to use the District's credit capacity with other entities.	5% fixed charge covering cost of posting line of credit to cover purchases
Risk Premium	1.3¢/kWh	Covers incremental financial risks associated with cryptocurrency loads being transient in nature, subject to regulatory uncertainty, and having unpredictable growth and concentration.	Discussed below
Allocated Overhead Charge	.15¢/kWh	Recovery of costs directly associated with managing the District's energy portfolio along with a proportionate share of A&G costs that are included in the supply (energy) component of the cost of service.	Five-year average of the energy portfolio management costs and A&G included in the supply component of the cost of service.
Incremental Resource/Direct Overhead	.115¢/kWh	Recovery of incremental resource time and direct overhead costs anticipated to serve cryptocurrency loads	Estimated incremental resource time required in the areas of customer service, energy planning and trading, credit & risk, billing and legal
Scheduling & Ancillary Services	.129¢/kWh	Recover costs of scheduling, regulation and load	Estimated incremental resource time required for

		following, spinning and operating reserves, and reactive supply and voltage control, etc.	scheduling power. Estimated costs of providing ancillary services of regulation and load following, spinning and operating reserves, and reactive supply and voltage control.
Overhead Tax	.131¢/kWh	State Utility & Privilege Taxes	6% of revenues collected from other energy charges

### Risk Premium (\$13.00/MWh or 1.3¢/kWh)

Cryptocurrency mining and their unique load requirements and characteristics are unprecedented in the electric utility sector and present the District with many challenges, risks and uncertainties that are not present in the more traditional and predictable loads for commercial and industrial businesses and residential homes. The utility business model requires investments in long-lived assets and infrastructure to serve ratepayers, the cost of which the utility recovers over generations through effective rate design and predictable revenue streams. The District's historical local load requirements and growth patterns have been very predictable with relatively small growth year over year. This has allowed the District to prudently and systematically plan and invest in transmission and distribution assets, protect the revenue streams offered by surplus generation through hedging strategies, reliably serve our customer owners and ratepayers with low rates, and effectively meet our strategic plan objective to do the best for the most for the longest. Cryptocurrency mining is new, has unproven sustainability and is currently an unregulated industry that is supported by a volatile commodity value generated by transient machines, which effectively does not fit the traditional utility model, creating new risks, exacerbating existing financial and operational risks, and causing uncertainty in load forecasting, revenue predictability and forward infrastructure and asset planning. Staff recommends that this rate include a risk premium to mitigate the risks and uncertainty associated with this specific rate class and to help protect other rate classes from unintended consequences that could harm District operations or financials.

The cryptocurrency industry exposes the District to risks that are difficult to quantify or ascertain the likelihood of occurrence given the effective newness of this industry and behaviors that may become more known over time as the industry matures. The list is not exhaustive, however the following risks are recognized as significant uncertainties that are factored in the risk premium consideration:

- **Operational / Asset Reliability and Safety Risk** – Cryptocurrency mining challenges the typical District infrastructure, which is not intended to withstand sustained high load factors. Without modification that requires cost and incremental staff and engineering time, infrastructure and assets age prematurely, asset failure rates more frequent, safety incidents may increase, including fires originating from District-owned infrastructure, and reliability to non-crypto customers may be diminished, which is contrary to our Mission, Vision and Values.
- **Cost Risk** – Premature aging, accelerated asset replacement and staff resource cost are all potential incremental cost impacts that are uncertain in magnitude and could fluctuate over time pending the magnitude and volatility of cryptocurrency load growth or decline over time.

- **Market Price Risk** – Because the rate would be fixed for a period based on market futures, the District holds the risk that actual market prices to serve this load will be higher than those forecast.
- **Stranded Asset Risk** – The potential cryptocurrency load growth dwarfs normal load growth for the District. A system expansion based on cryptocurrency growth, followed by a decline in cryptocurrency load, would result in the District’s remaining customers paying for the ongoing maintenance and operation of an overbuilt system.
- **Administration/Institutional Risk** – This rate class is new to the District and there remains uncertainty of how much future staff resource time and administration requirements will be needed, pending load growth, magnitude of applications and needed contracts, size of loads, changes in the cryptocurrency industry and number of unique contracts, etc. will affect future costs of serving this load. Adapting to changes in the cryptocurrency industry takes inordinate resources at all levels of the District that would otherwise be put towards other District priorities. The District will likely incur significant ongoing costs to continuously adapt to cryptocurrency customers. The District also runs the risk of undertaking adaptive changes to its business processes and organization, such as adding or restructuring departments, that are rendered useless by subsequent changes in cryptocurrency.
- **Regulatory / Environmental Risk** – The high likelihood of carbon legislation being enacted in Washington creates uncertainty around carbon costs to the District. Although the rate includes specified source costs, the uncertainty of Washington state’s carbon costs could not be calculated, and thus is a factor in the risk premium.
- **Customer Class Concentration Risk** – The cryptocurrency mining operations have potential to increase load obligations significantly. While load growth is contingent on having the appropriate infrastructure in place, this rate class has the ability to significantly outpace the District’s traditional organic growth. Customer class concentration in an industry that is highly transient may cause concerns for rating agencies regarding revenue and load certainty over time. A decline in credit rating has many overarching and negative cost impacts to the District.
- **Community Zoning Uncertainty Risk** – The District serves the community by providing reliable and affordable utility services to the county and is a good community partner. The community leaders, including the port, county and cities are continuing their discussions regarding their position on cryptocurrency, including locations preferences, zoning or restrictions that could impact the District’s strategy to serve this load.
- **Organic Growth Risk** – Cryptocurrency customers seek to utilize significant amounts of electricity for machines to process and demand significant infrastructure needs, and in doing so could increase the cost to the District to serve traditional organic growth due to limited available capacity.

Risk estimation is not a precise discipline and often requires that variables and assumptions are developed based on professional judgement and deliberation that can change over time as facts and circumstances change. The assessment of risk under novel circumstances involves essentially unbounded variables. It thus requires a high degree of judgment. Cryptocurrency – which is unique in terms of load characteristics and continues to rapidly evolve – lacks a meaningful track record from which to make assumptions. For example, it is within reason to predict that the District will be faced with additional requests for hundreds of megawatts. It is also reasonable to predict applications will trickle down to nothing. And it is foreseeable that the District could see a rapid influx of cryptocurrency load, followed by sudden departure of all of it. Some of the key uncertainties are volatile cryptocurrency prices, minimal governmental regulation of the industry, competition amongst miners, comparative

electricity prices elsewhere, global scale of exposure, and changes in cryptocurrency technologies. The District's experience in serving cryptocurrency loads over the past four years has reinforced this conclusion. Two years ago, after considerable process, the District rolled out new rates and policies to address the issues, only to be forced to revisit the issues because of a dramatic change in bitcoin prices and load inquiries that would double the District's current local load. Cryptocurrency load risk assessment does not lend itself to precise calculation because almost every significant variable one would use for a risk calculation has a big question mark around it. Therefore, significant judgment was needed in this risk assessment.

After exploring several possible methods for quantifying the many risks associated with serving cryptocurrency and blockchain loads, staff settled on \$0.013/kWh as an appropriate risk premium given all the risk factors. Rather than trying to directly quantify all of the potential risks, the District used the following quantifiable metrics as proxies to benchmark and validated the recommended premium with the intent to keep our existing customer owners neutral. The following describes more specifically benchmarks.

- **Generation Portfolio Risk** – While the current energy component of the rate structure is based on market-based prices, immediate generation risk is not as prevalent. It is important to reflect though why the District has determined that the best energy rate approach at this time is not to serve from generation at cost of production, but rather rely on market purchases. The District relies on the generation surplus in the wholesale market to support our current and existing rate structure and local load requirements across rate classes. By design, the District has implemented a systematic hedge program for the generation portfolio to provide revenue certainty, reduce revenue volatility, and mitigate risks with streamflow conditions and operations that impacts the number of megawatts the hydro plants can generate to serve our customers and other contractual obligations. The program contractually commits on average 98% of the available generation resources during the delivery year to serve load, protect costs through long-term cost-plus slice contracts, mitigates price, streamflow and operation risks through market-based slices, and mitigates price risk through block sales. This approach effectively protects the downside risk of the wholesale market for the District and helps to accomplish its objective to protect current rates and avoid significant rate increases for traditional long-standing ratepayers in Chelan County.

The District utilized a stochastic model to value wholesale market price risk, and while the risk value will vary based on market prices and volatility at different points in time, the model identified that there is approximately \$10/MWh or 1.0¢/kWh of price risk on average over a 3-year period between the expected value and the 10<sup>th</sup> percentile (low price scenario) that would be at risk for unhedged positions. In addition, there exists streamflow risks that the hedging program mitigate that are valued at \$1.50/MWh to \$3.50/MWh (0.15 to 0.35¢/kWh), depending on valuation methodology, for unhedged positions. Effectively, the current hedging program offers our existing customer owners surplus revenue protection from those potential declines and provides revenue certainty for the surplus portfolio that helps support the District's current rate structure.

This industry and rate class have the capability to move from one location to another quickly and mining sustainability is heavily reliant on the unregulated cryptocurrency market value, thus the District cannot effectively predict how frequent or to what magnitude this load will grow or decline over time, nor determine how much generation to leave unhedged to accommodate uncertain cryptocurrency loads. By doing so, the District would be adding \$11.50 to



\$13.50/MWh (1.15 to 1.35 cents/kWh) of streamflow and price risk alone to our existing customers, unless that risk is transferred to the rate class responsible for the risk.

Given the decision to protect our ratepayers from incremental generation portfolio risk by not altering the District's current hedging program, the District is pursuing a market-based energy component. However, that introduces a number of other risks that the District must mitigate or protect against through the risk adder, including:

- **Financial and Credit Rating Risk** - The District's current credit rating is AA+, AA+, and Aa3, as issued by Fitch, Standard and Poor's and Moody's, respectively, placing the District as one of the strongest rated public power utilities in the country. A strong "AA" external credit ratings is advantageous to our customer owners who rely on the District's financial strength for long-term rate stability and predictability. Strong financial credit ratings and long-term financial sustainability are also important to other external stakeholders, such as bondholders, banks and financial institutions, energy counterparties, and the local community for economic development, who all have a vested interest in our financial strength that supports uninterrupted access to financial markets at the lowest cost and at beneficial credit terms. Alternatively, credit rating downgrades have long-term negative impacts to the District through potential increased costs for borrowing, banking agreements, credit, margining, contractual obligations, and other examples, that impact our income statement. Eroding bottom line results can lead to additional borrowing and lower cash balances. Credit rating agencies consider not only the District's financial metrics, but also exposure to risks that can erode financial strength and long-term sustainability over the long-term. While retail revenue certainty is viewed positively, the cryptocurrency industry has potential to be a volatile transient revenue source that adds incremental risk to infrastructure.

All of the District's ratings agencies consider an entity's relationship of cash and expenses. One of the rating agencies specifically utilizes a standardized methodology to score key rating drivers and financial strength measures that includes weighting by category and notching of particular key strength or risk areas that moves the rating score up or down. The District's credit rating relies on its financial strengths, including strong liquidity and cash position to pay for operating costs and debt service, to offset lower scored areas for generation surplus risk and cost recovery framework to maintain our strong credit rating.

The District utilized a proxy methodology to identify cash requirements needed to maintain a key financial metric, often considered as one measure of financial strength, over a 3-year period that is impacted by additional operating costs such as purchasing power in the market, all with the consideration of maintaining existing customer owner's neutrality and protection from potential risks and cost impacts to the other rate classes. While the methodology is also a point in time view similar to price risk for the generation portfolio, the risk impact magnitude to maintain this financial metric was comparable to that of the generation portfolio risk at slightly over \$10.00/MWh or \$0.01/kWh. We are mitigating that by maintaining our current wholesale hedge program at 98% of average generation and protecting against declining prices.

- **Credit Rating Downgrade Risk** – A credit rating downgrade is a material event for the District and would signal to the external stakeholders, such as existing and future bondholders, that the financial strength and/or risk profile of the District has changed or perceived to be different based on changed conditions. This would immediately impact the District's bottom line income

potential with respect to an existing contract that supports the debt portfolio, a long-term contract that provides revenue from the credit spread, and would impact the District's ability to issue cost-effective debt in the future, which are costs that would be borne by all of the District's ratepayers. Staff estimates the costs of a one tier credit downgrade at 0.158¢/kWh.

- **Liquidity Risk** – Providing reliable electricity to the District's customer owners is a key part of the District's Mission Statement and continuing to improve that reliability metric is one of the District's strategic priorities. Additional costs may arise when market supply is limited or not readily available or energy is curtailed or is not cost-effective due to liquidity challenges. Staff estimates this cost at 0.065¢/kWh, which is the difference between forward on-peak and off-peak wholesale prices applied to peak hourly load divided by monthly average energy usage and applying a 10% scalar.

The three above risks total 1.3¢/kWh. Based on either a generation or market energy supply procurement strategy, the risk premium is a necessary component of the rate to effectively address the uncertainty of a transient load that is currently difficult to forecast or plan for beyond a short-term period with respect to generation, market supply, infrastructure impacts or long-term sustainability. The risk premium for this rate class is intended to address the many uncertainties that exist, but also the known incremental risks that the District is trying to protect against to keep our existing customer owners and ratepayers neutral and preserve current low rates that benefit the community. After considering a range of options, it is recommended that the rate include a risk premium of \$0.013/kWh, which uses as a proxy for the overall risk premium the benchmarks discussed above based on the assumptions utilized. The risk premium will be reviewed and modified and may change as the industry and District experience evolves over time. The District will consider new and evolving circumstances associated with risk, the cryptocurrency industry and local experience with this rate class, rate class growth, regulations, generation portfolio mix and hedging strategies, and feedback from rating agencies during periodic reviews.

## RESOLUTION NO. \_\_\_\_\_

A RESOLUTION DECLARING CONFLUENCE TECHNOLOGY CENTER (CTC) UNITS LL1, 201 AND RELATED LIMITED COMMON ELEMENTS, ALONG WITH TWO GENERATORS, TWO COOLING TOWERS AND APPURTENANCES, SURPLUS TO DISTRICT NEEDS AND AUTHORIZING THE GENERAL MANAGER TO EXECUTE TWO PURCHASE AND SALE AGREEMENTS WITH PORT OF CHELAN COUNTY FOR THE SURPLUSED PUD CTC PROPERTY, PORT'S HORAN PROPERTY, AND OTHER RELATED AGREEMENTS.

**FACTUAL BACKGROUND AND REASONS FOR ACTION**

Chelan County PUD (PUD) is the owner of two condominium units, LL1 and 201, Limited Common Elements, two back-up generators, two cooling towers and related appurtenances, (collectively CTC Property) located in Chelan County, Washington at the Confluence Technology Center ("CTC"). The PUD acquired its interests in the CTC from the Port on October 30, 2003.

On July 23, 2018, a Term Sheet was presented to the PUD Board and the Port of Chelan County Board (Port) proposing a package of transactions involving Port's Sale and PUD purchase of the Port Horan property (consisting of 3 parcels in the Olds Station area of Wenatchee, Washington) (Horan Property) in exchange for the PUD's sale and Port purchase of the CTC Property, PUD Lease of the CTC Units and other related transactions described herein (all collectively the "Horan Transaction Contracts").

Since that date, PUD and Port staff have negotiated the following Horan Transaction Contracts with major terms and conditions set forth below, which form the basis for PUD staff recommendation and determination that if all Horan Transaction Contracts are approved, the PUD's CTC Property will be surplus to the PUD's needs.

## Horan Transaction Contracts:

1. Purchase and Sale Agreement for the PUD's purchase of the Horan Property, containing 19.05 acres for the negotiated purchase price of \$8,298,280. The sale includes two (2) shares of Wenatchee Reclamation irrigation water.
2. Purchase and Sale Agreement for the Port's purchase of the CTC Property including two (2) Condominium Units, two back-up generators, two cooling towers and relate appurtenances from the PUD for a negotiated purchase price of \$1,400,000.
3. Lease by the PUD from the Port for the CTC Property. The terms of the lease preserve existing rights in common and limited common areas necessary to allow continued uninterrupted PUD operations. The annual rent is \$350,000

plus 38% of electricity and gas for the first four years. Two one-year renewal options are included during which rent increases to \$500,000 annually plus 38% of electricity and gas.

4. Video Conference Center Priority Use Agreement provides the PUD with priority use of twenty-five percent (25%) of the available time in the Video Conference Center and the ability to schedule events up to 12 months in advance. The nine-year agreement has a fixed cost of \$75,000 per year and the agreement begins on January 1, 2023.
5. Port Option to buy back the Horan Property for the selling price under two surplus conditions. 1) The PUD chooses not to develop the Horan Property or, 2) The PUD does not actively develop the Horan Property within ten (10) years. Additionally, if the PUD develops the Horan Property, but surpluses an unused portion within twenty (20) years, the Port has the option to purchase the surplus at fair market value based on an appraisal.
6. Port Option to purchase all or a portion of the Headquarters (HQ) and/or Hawley St. properties at fair market value based on an appraisal for a period of fifteen (15) years. The PUD retains the right to accept or reject a request by the Port to purchase only a portion of the property being surplus.
7. PUD Option to purchase IB No. 5/IB No. 6 property and buildings if surplus by the Port within fifteen years (15) at fair market value based on an appraisal.
8. High Density Load Exemption Agreement provides an exemption to the Port for up-front capital charges and related fees and charges for high-density and cryptocurrency loads for the first two (2) Megawatts of load in the CTC for a period of ten (10) years.
9. Irrigation System Agreement provides for the maintenance and operation of the common irrigation system administered by the Port.

Subject to Commission approval, closing of both Purchase and Sale Agreements, PUD CTC Lease and Horan Transaction Contracts is to occur no later than January 31, 2019, with possible extension to February 28<sup>th</sup>, 2019 and as otherwise may be agreed.

RCW 54.16.180 provides that the PUD may sell property no longer necessary, material to, and useful in its system operations. Before disposing of surplus property RCW 39.33.030 requires the PUD to hold a public hearing after public notice and news release required therein.

On November 19, 2018 the Commission, by motion, set a public hearing date for its regular meeting on December 3, 2018, for the purpose of considering whether the CTC Property is surplus. The PUD published a notice regarding the

surplus CTC Property hearing and consideration of the sale of the CTC Property to the Port for this date and purpose.

Following the public hearing, staff recommends the CTC Property be declared surplus, the two Purchase and Sale Agreements with the Port with the above referenced terms and conditions be approved, and the General Manager directed to immediately enter into the two Purchase and Sale Agreements and the other described agreements on the closing date. The General Manager has reviewed staff’s recommendation and concurs in the same.

**ACTION**

IT IS RESOLVED BY THE COMMISSION OF PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY, as follows:

Section 1. After public hearing held December 3, 2018, the CTC Property as set forth in the Purchase and Sale Agreement between Chelan County PUD and the Port of Chelan County located at the Confluence Technology Center in Chelan County, Washington is declared surplus to the PUD’s needs.

Section 2. The Purchase and Sale Agreement with the Port of Chelan County for the sale of the PUD CTC Property, the Purchase and Sale Agreement with the Port of Chelan County for the PUD purchase of the Port Horan Property and related Horan Transaction Contracts described in this Resolution and as attached to the Horan Property Purchase and Sale Agreement, are hereby approved and the General Manager or his designee is hereby authorized to enter into the two Purchase and Sale Agreements, and at closing enter into the above referenced Horan Transaction Contracts and take such further steps as may be required to complete all of the transactions.

Section 3. The two Purchase and Sale Agreements and all other agreements will be on file in the offices of the PUD.

DATED this 3rd day of December 2018.

ATTEST:

\_\_\_\_\_  
President

\_\_\_\_\_  
Vice President

\_\_\_\_\_  
Secretary

\_\_\_\_\_  
Commissioner  
Seal

\_\_\_\_\_  
Commissioner

## RESOLUTION NO. \_\_\_\_\_

A RESOLUTION APPROVING THE ISSUANCE OF A REQUEST FOR PROPOSAL FOR ADVANCED METERING INFRASTRUCTURE (“AMI”) SYSTEM AND AUTHORIZING THE GENERAL MANAGER OF THE DISTRICT TO PUBLISH NOTICE INVITING SEALED PROPOSALS FOR THE AMI SYSTEM PROJECT

**FACTUAL BACKGROUND AND REASONS FOR ACTION**

The District desires to seek Commission authorization to invite proposals for Advanced Metering Infrastructure (“AMI”) that will meet the District’s requirements set out in a proposed RFP No. 18-61 and in support of Resolution No. 17-14201, which directed staff to proceed with an AMI solution. It is anticipated the AMI solution will involve automatically collecting data from metering devices and transferring that data to a central database for billing and/or analyzing. This includes, but is not limited to, the software, hardware, head-end, metering components, implementation, including installation services, and support services (AMI System). The proposed RFP includes a preference for Software as a Service (SaaS) AMI head-end System, but the District will also consider an on-site AMI head-end System.

Resolution No. 17-14215 requires Commission approval of RFPs and authorization to invite proposals estimated to cost more than \$3,000,000. Staff anticipates a resulting contract price in excess of \$3,000,000. Staff has prepared a proposed RFP, which will be on file in the offices of the District prior to publication.

District staff recommends that RFP No. 18-61 is in the best interests of the District and that the RFP be approved by the Commission and the RFP inviting proposals be published.

The General Manager of the District has reviewed District staff’s recommendation and concurs in the same.

**ACTION**

IT IS RESOLVED BY THE COMMISSION OF PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY, as follows:

Section 1. The Request for Proposal (RFP No. 18-61) for the Advanced Metering Infrastructure system is hereby approved and the General Manager of the District is hereby authorized to invite sealed proposals for furnishing said AMI System.

DATED this 3rd Day of December 2018.

\_\_\_\_\_  
President

ATTEST:

\_\_\_\_\_  
Vice President

\_\_\_\_\_  
Secretary

\_\_\_\_\_  
Commissioner

\_\_\_\_\_  
Commissioner

Seal

## RESOLUTION NO. \_\_\_\_\_

A RESOLUTION APPROVING THE 2019 DISTRICT BUDGETS FOR THE FIBER NETWORK, WATER, WASTEWATER AND INTEGRATED ELECTRIC (DISTRIBUTION, TRANSMISSION, COLUMBIA RIVER-ROCK ISLAND HYDRO-ELECTRIC, LAKE CHELAN HYDRO-ELECTRIC, ROCKY REACH HYDRO-ELECTRIC SYSTEMS, TREASURY SERVICES, INTERNAL SERVICE SYSTEM AND FINANCING FACILITIES) BUSINESS LINES.

**FACTUAL BACKGROUND AND REASONS FOR ACTION**

In compliance with Washington state statutes and District Resolution No. 07-13147, proposed budgets for the contemplated financial transactions of the various systems of the District for the year 2019 have been discussed with the Board of Commissioners.

The proposed 2019 budgets are intended to build upon the District's strategic plan, strategic initiatives and five-year business plans. The foundation of the strategic initiatives and budgets is at the top of the District's balanced scorecard – Customer-owner satisfaction. The 2019 budget process has taken the strategic plan priorities into consideration and proposes to establish priorities within the three strategic plan focus areas: reinvesting in assets and people is the highest priority, reducing debt next and continuing the Public Power Benefit program (including the fiber build-out throughout the county) third. These priorities best protect the long term interest of customer-owners.

Strategic priorities, significant projects, challenges, and constraints of the proposed 2019 budgets were discussed at a public meeting on October 15, 2018 and again at public hearings on November 5, 2018 and November 19, 2018.

The first public hearing on the proposed 2019 budgets was held on Monday, November 5, 2018, at 1:00 p.m. in the Board of Commissioners' office at 327 North Wenatchee Avenue, Wenatchee, Washington. Ratepayers were given full opportunity to appear and be heard for or against the whole or any part of the proposed budgets. The notice for this public hearing was advertised with the local newspaper stating the date, time and location of the hearings.

The second public hearing on the proposed 2019 budgets was held on Monday, November 19, 2018, at 1:00 p.m. in the Board of Commissioners' office at 327 North Wenatchee Avenue, Wenatchee, WA, 98801. Ratepayers were given full opportunity to appear and be heard for or against the whole or any part of the proposed budgets. The notice for this public hearing was advertised with the local newspaper stating the date, time and location of the hearings.



The adoption of the District budgets is categorically exempt from the requirements of the Washington State Environmental Policy Act. WAC 197-11-800(14)(c).

The General Manager recommends that the proposed strategic priorities and the proposed 2019 budgets as presented and discussed be adopted by the Commission.

The Commission, having completed the budget hearings, deems it proper and necessary that proposed budgets for the calendar year 2019 be finally determined and adopted as set forth in this resolution.

**ACTION**

IT IS RESOLVED BY THE COMMISSION OF PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY, WASHINGTON, as follows:

Section 1. The Commission establishes the following priorities within the three strategic plan focus areas:

1. Reinvesting in assets and people
2. Reducing debt balance
3. Continuing the Public Power Benefit program

Section 2. The budgets for the District in words and figures as set forth in the copy of each budget for the Fiber Network, Water, Wastewater And Integrated Electric (Distribution, Transmission, Columbia River-Rock Island Hydro-Electric, Lake Chelan Hydro-Electric, Rocky Reach Hydro-Electric Systems, Treasury Services, Internal Service System and Financing Facilities) business lines as presented to the Board on December 3, 2018 are adopted as the budgets for the year 2019. The budget summary is attached and other supporting information is on file in the office of the District.

Dated this 3rd day of December 2018.

\_\_\_\_\_  
President

ATTEST:

\_\_\_\_\_  
Vice President

\_\_\_\_\_  
Secretary

\_\_\_\_\_  
Commissioner

\_\_\_\_\_  
Commissioner

**Chelan County PUD**  
**2019 Proposed Budget (\$000)**

	<b>Combined District</b>	<b>Integrated Electric</b>	<b>Fiber &amp; Telecom</b>	<b>Water</b>	<b>Wastewater</b>	<b>Eliminations</b>
Service Revenue	69,512	55,520	10,512	6,399	725	(3,644)
EP&T Net Wholesale	101,602	101,602	-	-	-	-
LT Hydro Contract	134,296	134,296	-	-	-	-
Other Wholesale Activity	(1,320)	(1,320)	-	-	-	-
Wholesale Energy Revenue	234,578	234,578	-	-	-	-
Other Revenue	23,840	24,964	1	62	2	(1,190)
	<b>327,930</b>	<b>315,062</b>	<b>10,513</b>	<b>6,461</b>	<b>727</b>	<b>(4,834)</b>
Other Operating Expenses	186,233	178,767	7,398	4,056	846	(4,834)
Taxes	8,584	7,646	36	890	13	-
Depreciation & Amortization	44,737	39,639	3,230	1,583	285	-
	239,554	226,052	10,664	6,529	1,143	(4,834)
<b>Operating Income/(Loss)</b>	<b>88,376</b>	<b>89,010</b>	<b>(151)</b>	<b>(67)</b>	<b>(416)</b>	<b>-</b>
Non Operating Activity	11,195	14,456	(2,672)	(562)	(26)	-
Interest Earnings	(13,712)	(13,245)	(304)	(115)	(48)	-
Interest Expense	24,990	24,914	-	28	48	-
Fair Market Value Change	282	286	(2)	(1)	(1)	-
Other Non Operating Activity	4,692	4,735	(23)	(18)	(2)	-
Capital Contributions	(5,057)	(4,535)	(43)	(457)	(23)	-
Intersystem Transfers/Adjustment	-	2,300	(2,300)	-	-	-
<b>Change in Net Postion</b>	<b>77,181</b>	<b>74,554</b>	<b>2,521</b>	<b>495</b>	<b>(390)</b>	<b>-</b>
<b>Capital Projects: Gross</b>	<b>150,132</b>	<b>138,329</b>	<b>7,273</b>	<b>1,068</b>	<b>3,462</b>	<b>-</b>
Less Capital Contributions	(4,488)	(3,965)	(43)	(457)	(23)	-
<b>Capital Projects: Net</b>	<b>145,645</b>	<b>134,364</b>	<b>7,231</b>	<b>611</b>	<b>3,439</b>	<b>-</b>
<b>Regulatory Assets</b>	<b>4,315</b>	<b>4,315</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Deferred Relicensing</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Hydro License Obligations</b>	<b>422</b>	<b>422</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Operating Expenses</b>	<b>186,233</b>					
<b>Taxes</b>	<b>8,584</b>					
<b>Non-Operating (Inc)Exp</b>	<b>16,252</b>					
<b>Total Expenditures = OperExp + Taxes + NonOp +</b>						
<b>Net Capital + Regulatory Assets</b>						
<b>+ Deferred Relicensing</b>	<b>361,451</b>					
<b>Net Debt Reduction</b>	<b>38,477</b>					
<b>Total Expenditures &amp; Net Debt Reduction</b>	<b>399,928</b>					

Notes:

- Purchased Power included in Net Wholesale
- Net Regulatory Assets is net of related Capital Contributions

**2019 Capital Projects  
Proposed Budget**

DRAFT

System	Discrete/ Recurring	Project#	Title	Current Total Project Budget	Total Project Change: Current vs Proposed	Proposed Total Project Budget	2019 Annual Budget
Electr Distribution	Discrete	CAP190004	Future Station Siting and Constr		750,000	750,000	750,000
		DS140004	Bavarian Substation	2,408,000	120,000	2,528,000	1,460,000
		DS140005	N Shore Chelan Substatn	2,540,000	210,000	2,750,000	1,000,000
		DS160002	Recloser Tester	60,000		60,000	60,000
		DS170004	PPB: RR Visitor Ctr Imprvments	1,000,000		1,000,000	380,000
		DS170006	Ohme Substation	2,000,000	1,700,000	3,700,000	3,120,000
		DS180003	Icicle Mobile Substation	35,000		35,000	25,000
		DS180005	Feeder Addition - South Shore	170,000	1,550,000	1,720,000	1,550,000
		DS190001	Vehicles - Distribution		2,874,000	2,874,000	2,874,000
		DS190002	PPB RR VC Museum New Story		1,000,000	1,000,000	250,000
		DS190003	City Loop T-Line NESC Imprvs		600,000	600,000	150,000
		DS190004	ACS 6-160 Relay Upgrade		130,000	130,000	50,000
		DS190005	Goodwin Bridge Line Relocate		200,000	200,000	150,000
		DS190006	Advanced Metering Infrastructure (AMI)		1,500,000	1,500,000	1,500,000
		DSL1801	Hawley St Substation (DF-Stemilt)		365,000	365,000	350,000
	Recurring	2XXX0100	UG Xfrmrs-Capital Purchases		635,000	635,000	635,000
		2XXX0200	OH Xfrmrs-Capital Purchases		420,000	420,000	420,000
		2XXX0300	Line Devices-Regulators		57,000	57,000	57,000
		DSLEXXX1	DS - Line Extensions		1,500,000	1,500,000	1,500,000
		DSXX0001	DS - Customer Services		1,600,000	1,600,000	1,600,000
		DSXX0002	DS - Electric Meters		210,000	210,000	210,000
		DSXX0003	DS-Undergrnd Cable Replacement		1,000,000	1,000,000	1,000,000
		DSXX0006	Substation Equip Replacements		600,000	600,000	600,000
		DSXX0007	Distribution Line Improvements		300,000	300,000	300,000
		DSXX0009	Substation Improvements		400,000	400,000	400,000
		DSXX0011	Elec Reconductor Upgrades		250,000	250,000	250,000
		DSXX0014	Elec Mandated Relocate		300,000	300,000	300,000
		DSXX0015	NESC Distribution Upgrades		1,100,000	1,100,000	1,100,000
		DSXX0018	TRS Structural Pole Replace DS		85,000	85,000	85,000
		DSXX0020	TRS Structural Pole Replc LCRD		115,000	115,000	115,000
		DSXX0021	DS Pole Replacement		200,000	200,000	200,000
		DSXX0022	Feeder Device-Lines		200,000	200,000	200,000
		DSXX0023	Conduit Install Fiber BuildOut		100,000	100,000	100,000
DSXX0024	Fiber Build-Out Make Ready		100,000	100,000	100,000		
System Forecast Adjustment							-956,300
<b>Electr Distribution Total</b>				<b>8,213,000</b>	<b>20,171,000</b>	<b>28,384,000</b>	<b>21,884,700</b>
Network Transmsn	Discrete	XT120005	N Mid C Transmission Project	4,245,300	1,454,850	5,700,150	500,000
		XT160004	AY-AC 1&2 Relocate	2,415,000		2,415,000	300,000
		XT170003	WNS 6-250 Breaker Replace	238,000		238,000	1,000
		XT180001	Y-AC3 Goodwin Bridge Partial Rblid	1,150,000		1,150,000	285,000
		XT180003	CHS 115kV Bus PTs	88,000		88,000	46,000
		XT180004	Greater McNeil Cyn Proj	500,000	13,375,000	13,875,000	2,000,000
		XT190001	AYS SCADA & DC Redundancy		225,000	225,000	225,000
		XT190002	AY-AC2 Relay Upgrade POTT		170,000	170,000	170,000
		XT190003	RRS Col1 Brkr 7-760 Relay Rplc		220,000	220,000	220,000
		XT190004	RRS 230 kV Bus 2 Diff Relay		260,000	260,000	260,000
		XT190005	RRS 230kV Bus 1 Diff Relay		260,000	260,000	40,000
		XT190006	Valhalla B288 RAS		500,000	500,000	100,000
		XT190007	Thermography Camera		20,000	20,000	20,000
		XTLR1801	Stemilt DF T-Line Interconnect		250,000	250,000	250,000

DRAFT								
System	Discrete/ Recurring	Project#	Title	Current Total Project Budget	Total Project Change: Current vs Proposed	Proposed Total Project Budget	8 2019 Annual Budget	
Network Transmsn	Recurring	XTXX0001	TRS Structural Pole Replc XT		200,000	200,000	200,000	
		XTXX0004	WSDOT Clear Zone		40,000	40,000	40,000	
	System Forecast Adjustment						-669,750	
<b>Network Transmsn Total</b>				<b>8,636,300</b>	<b>16,974,850</b>	<b>25,611,150</b>	<b>3,987,250</b>	
Fiber & Telecom	Discrete	NW170017	PPB Manson-FDT 177	630,366	360,927	991,293	44,405	
		NW180002	7342 to 7360 Platform Upgrade	1,500,000		1,500,000	500,000	
		NW180004	Bandwidth Management Links	2,200,000		2,200,000	967,097	
		NW180005	Fusion Equipment	130,000	27,000	157,000	30,000	
		NW180008	NNI Redundancy-Retail Service Providers	250,000		250,000	100,000	
		NW180019	PPB: FDT Saddlerock 012	64,726		64,726	41,310	
		NW190001	Fiber Vehicles		84,000	84,000	84,000	
		NW190002	Mobile Redundant Node		410,000	410,000	200,000	
		NW190003	Portal Replacement		1,500,000	1,500,000	1,000,000	
		NW190004	Mobile Backup Generator		150,000	150,000	150,000	
		NW190005	CPE Ethernet Switch Replacement		223,226	223,226	111,613	
		NW190006	Excavator		40,000	40,000	40,000	
		NW190007	PPB: Wenatchee FDT 068		59,619	59,619	17,886	
		NW190008	PPB: Entiat FDT 086		5,577	5,577	1,673	
		NW190009	PPB: Entiat FDT 087		19,646	19,646	11,367	
		NW190010	PPB: Entiat FDT 088		1,968	1,968	590	
		NW190011	PPB: Entiat FDT 089		9,821	9,821	2,946	
		NW190012	PPB: Leavenworth FDT 121B		401,853	401,853	292,758	
		NW190013	PPB: Chelan FDT 135		240,687	240,687	135,200	
		NW190014	PPB: Cashmere FDT-160		691,608	691,608	487,611	
		NW190015	PPB: Chelan FDT 137		8,137	8,137	2,441	
		NW190016	PPB: Entiat FDT 174		23,957	23,957	7,187	
		NW190017	PPB: Chelan FDT 182		13,493	13,493	4,048	
		NW190018	PPB: Wenatchee FDT 219		55,117	55,117	32,369	
		NW190019	PPB: Wenatchee FDT 220		49,213	49,213	28,901	
		Recurring	NWLEXXX7	Fiber Drops-Line Extensions		20,000	20,000	20,000
			NWXX0002	Franchise Fiber Relocates		25,000	25,000	25,000
	NWXX0003		Fiber District Relocates		25,000	25,000	25,000	
	NWXX0010		Fiber Drops		750,000	750,000	750,000	
	NWXX0011		Fiber Devices		375,000	375,000	375,000	
	NWXX0012		Fiber Conduit Installation		30,000	30,000	30,000	
	Fiber Expansion PPB	NWXX0013	Fiber Infrastructure Systems		225,000	225,000	225,000	
		NWXX0014	Fiber Subdivisions		100,000	100,000	100,000	
System Forecast Adjustment				4,056,594	1,227,910	5,284,504	1,810,385	
<b>Fiber &amp; Telecom Total</b>				<b>8,831,686</b>	<b>7,153,759</b>	<b>15,985,445</b>	<b>7,273,223</b>	
Water	Discrete	WR170002	Wenatchee Heights Tank Repl	296,000	171,264	467,264	400,000	
		WR190001	Water Vehicles- Equipment		216,000	216,000	216,000	
	Recurring	WRXX0001	WS - New Water Services		90,000	90,000	90,000	
		WRXX0002	WS - Customer Line Extensions		60,000	60,000	60,000	
		WRXX0003	WS - Water Main Replacements		269,000	269,000	269,000	
		WRXX0004	WS - Water Main Fire Hydrants		7,000	7,000	7,000	
		WRXX0005	Water Main Mandated Relocate		40,000	40,000	40,000	
		WRXX0006	Water Meters		34,000	34,000	34,000	
System Forecast Adjustment						-47,950		
<b>Water Total</b>				<b>296,000</b>	<b>887,264</b>	<b>1,183,264</b>	<b>1,068,050</b>	
Wastewater	Discrete	SW140001	Peshastin Wastewater Upgrade	4,100,000	760,000	4,860,000	3,620,000	
	Recurring	SWXX0001	New Sewer Svcs-Lake Wenatchee		20,000	20,000	20,000	
		SWXX0002	New Sewer Svcs-Peshastin		3,000	3,000	3,000	
System Forecast Adjustment						-181,000		

DRAFT							8
System	Discrete/ Recurring	Project#	Title	Current Total Project Budget	Total Project Change: Current vs Proposed	Proposed Total Project Budget	2019 Annual Budget
<b>Wastewater Total</b>				<b>4,100,000</b>	<b>783,000</b>	<b>4,883,000</b>	<b>3,462,000</b>
<b>Internal Services</b>	<b>Discrete</b>	<b>CAP190001</b>	<b>Fleet Shop Equipment</b>		75,000	75,000	75,000
		<b>CAP190002</b>	<b>Facilities Upgrades</b>		500,000	500,000	500,000
		<b>CAP190003</b>	<b>Hatchery equipment/upgrades</b>		200,000	200,000	200,000
		<b>IS130001</b>	<b>LMR Network Replacement</b>	5,600,000		5,600,000	1,622,342
		<b>IS130002</b>	<b>Microwave Replacement</b>	3,720,000		3,720,000	87,733
		<b>IS150006</b>	<b>Dispatch Log</b>	600,000		600,000	415,000
		<b>IS160002</b>	<b>CIS Upgrade</b>	7,940,635		7,940,635	3,500,000
		<b>IS160012</b>	<b>Enterprise Search</b>	378,000	187,904	565,904	200,000
		<b>IS170005</b>	<b>Bid Workflow</b>	295,000	143,000	438,000	143,000
		<b>IS170021</b>	<b>Physical Access Cntrl Platform</b>	1,170,000		1,170,000	803,000
		<b>IS180003</b>	<b>Hydraulic Model</b>	800,000		800,000	405,000
		<b>IS180004</b>	<b>Sys Ops Consoles</b>	156,000		156,000	65,000
		<b>IS180005</b>	<b>Data Analytics Platform</b>	470,000		470,000	300,000
		<b>IS180009</b>	<b>Telemetry - Flow Meters</b>	420,000	62,000	482,000	262,000
		<b>IS180011</b>	<b>Core Network Switches</b>	280,000	213,000	493,000	210,000
		<b>IS180013</b>	<b>Mobile Asset &amp; Work Management</b>	215,000		215,000	135,000
		<b>IS180014</b>	<b>Operations and Service Center</b>	2,600,000	2,770,000	5,370,000	5,270,000
		<b>IS180015</b>	<b>RR-CM Facilities Upgrade</b>	41,518,973		41,518,973	10,266,103
		<b>IS190001</b>	<b>Fleet Vehicles - Shared</b>		889,000	889,000	889,000
		<b>IS190002</b>	<b>Cellular &amp; LMR BDA Upgrade</b>		30,000	30,000	30,000
		<b>IS190003</b>	<b>IT Software New Services</b>		120,000	120,000	120,000
		<b>IS190004</b>	<b>GIS Upgrade</b>		400,000	400,000	200,000
		<b>IS190005</b>	<b>Security Info-Event Mgmt Sys</b>		300,000	300,000	300,000
		<b>IS190006</b>	<b>Enterprise Storage HW-SW</b>		500,000	500,000	500,000
		<b>IS190007</b>	<b>Server/Network Infrastructure</b>		150,000	150,000	150,000
		<b>IS190008</b>	<b>Virtual Desktop Infrastructure</b>		65,000	65,000	65,000
		<b>IS190009</b>	<b>Sys Ops Alarm Management Project</b>		72,000	72,000	72,000
		<b>IS190010</b>	<b>CM Optical Level</b>		30,000	30,000	30,000
		<b>IS190011</b>	<b>CM Fluke Calibrator</b>		50,000	50,000	50,000
		<b>IS190012</b>	<b>GPS Collector</b>		12,000	12,000	12,000
		<b>IS190013</b>	<b>Security Camera Installation</b>		197,000	197,000	197,000
		<b>IS190014</b>	<b>Horan Land Purchase</b>		9,500,000	9,500,000	9,500,000
<b>System Forecast Adjustment</b>							-1,828,709
<b>Internal Services Total</b>				<b>66,163,608</b>	<b>16,465,904</b>	<b>82,629,512</b>	<b>34,745,469</b>
<b>Rocky Reach</b>	<b>Discrete</b>	<b>RR110012</b>	<b>RR C1-C11 Gov Elec Repl</b>	5,183,535		5,183,535	1,400,000
		<b>RR120004</b>	<b>RR Excitation Reg Replc C1-C11</b>	4,508,217		4,508,217	500,000
		<b>RR120006</b>	<b>RR Unit DFR Installation</b>	766,200		766,200	140,000
		<b>RR130004</b>	<b>RR Tran &amp; SS Relay Replacement</b>	343,415		343,415	38,000
		<b>RR160006</b>	<b>RR Bridge Cranes</b>	5,730,000		5,730,000	1,000
		<b>RR160010</b>	<b>RR C10 Head Cover</b>	847,000		847,000	1,000
		<b>RR160011</b>	<b>RR C11 Head Cover</b>	850,000		850,000	210,000
		<b>RR170003</b>	<b>PKBB Boat Launch &amp; Docks Repl</b>	700,000		700,000	1,100
		<b>RR170005</b>	<b>RR Dam Deformation</b>	372,000		372,000	32,000
		<b>RR170006</b>	<b>RR Tailrace Buoy Placement</b>	525,000		525,000	450,000
		<b>RR170007</b>	<b>RR Fire Alarm System</b>	1,720,000		1,720,000	1,000
		<b>RR170010</b>	<b>RRFW Dewatering Pumps</b>	308,000		308,000	240,000
		<b>RR170011</b>	<b>RR Flow Meter Replacement</b>	440,000		440,000	200,000
		<b>RR180002</b>	<b>PKBB Construction BB-1 BB-2</b>	790,000	135,000	925,000	870,000
		<b>RR180004</b>	<b>RR Oil Rooms Fire Suppression</b>	1,525,000		1,525,000	300,000
		<b>RR180006</b>	<b>PKET Repl Moorage Docks</b>	351,000		351,000	3,500
		<b>RR180009</b>	<b>PPB: RR VC Roof Extension</b>	600,000		600,000	500,000
		<b>RR190001</b>	<b>RR Vehicles &amp; Equip</b>		374,000	374,000	374,000
		<b>RR190002</b>	<b>RR SER Alarm System Replace</b>		200,000	200,000	200,000

DRAFT								
System	Discrete/ Recurring	Project#	Title	Current Total Project Budget	Total Project Change: Current vs Proposed	Proposed Total Project Budget	8 2019 Annual Budget	
Rocky Reach	Discrete	RR190003	RR Boat Dock Replace		280,000	280,000	280,000	
		RR190004	RR Forebay Trash Clamming Pad		200,000	200,000	200,000	
		RR190005	RR VC Museum Move		184,000	184,000	40,000	
		RR190006	RR DC / UPS AC Panel Replace		125,000	125,000	25,000	
		RR190007	RR Oil Detection System		75,000	75,000	75,000	
		RR190008	HTCH Rehab		5,570,000	5,570,000	990,000	
		System Forecast Adjustment						
<b>Rocky Reach Total</b>				<b>25,559,367</b>	<b>7,143,000</b>	<b>32,702,367</b>	<b>6,010,860</b>	
Rock Island	Discrete	RI0800B2	RI PH1 B-2 Stator Replacement	4,961,785		4,961,785	1	
		RI080B09	RI PH1 Unit B9 Rehabilitation	26,000,000		26,000,000	1	
		RI110001	RI PH1 Excitation Sys B1-B4	1,010,990		1,010,990	1	
		RI110004	RI PH1 Govrnr DigCtrls B2	2,890,000		2,890,000	1	
		RI130002	RI PH2 Unit MCC	2,040,000		2,040,000	600,000	
		RI130010	RI PH1 B1-B8 Gen Heat Detection	240,983		240,983	15,000	
		RI140002	RI PH1 B6 Modernization	30,700,000		30,700,000	1,000	
		RI140003	RI PH2 Gantry Crane	2,574,000	3,186,000	5,760,000	3,600,000	
		RI140004	RI PH2 Bridge Crane	2,909,009	2,050,991	4,960,000	2,800,000	
		RI150003	RIFW Controls Upgrds	833,181	91,076	924,257	1,000	
		RI160015	RI PH1 B5 Modernization	31,300,000	805,641	32,105,641	4,180,000	
		RI160016	RI PH1 B7 Modernization	31,300,000		31,300,000	4,400,000	
		RI160017	RI PH1 B8 Modernization	31,300,000		31,300,000	3,875,000	
		RI170005	RI Dam Deformation	349,500		349,500	25,000	
		RI170007	RI PH1 Intake Gantry Repl	4,373,000		4,373,000	1,000	
		RI170009	RI PH2 Storage Building	6,250,000		6,250,000	2,132,000	
		RI170010	RI PH1 B9-B10 Turbine Staging	102,000		102,000	1,000	
		RI170011	RI PH1 B1 Modernization	15,415,000		15,415,000	1,525,000	
		RI170012	RI PH1 B2 Modernization	16,450,000		16,450,000	2,060,000	
		RI170013	RI PH1 B3 Modernization	16,275,000		16,275,000	8,750,000	
		RI170014	RI PH1 B4 Modernization	19,900,000		19,900,000	7,500,000	
		RI170023	RI Flow Meter Replacement	332,000	61,866	393,866	201,000	
		RI170024	RI Facilities Upgrade	32,693,111	1,202,000	33,895,111	24,665,691	
		RI180002	RI PH2 6-350 Breaker Bay Replace	300,000	390,000	690,000	620,000	
		RI180003	RI PH2 U1-U8 Rehab	1,800,000	9,700,000	11,500,000	10,500,000	
		RI180004	RI PH2 UPS Upgrade	140,000		140,000	113,000	
		RI180006	RI PH1 HVAC Upgrades	720,000	688,000	1,408,000	1,138,000	
		RI180007	PKWRF Boat Launch Rpl	554,000	116,200	670,200	590,000	
		RI180008	PKKB Erosion 3 5 6 9	585,000	185,000	770,000	710,000	
		RI180010	HTDP Auto Water Samplers	155,000	70,000	225,000	200,000	
		RI180011	HTCW Reuse Sys Concrete Floor	40,000	8,500	48,500	42,000	
		RI180016	PKWC Site 235 Stabilization	741,000	89,000	830,000	163,000	
		RI180019	HTSP Pump and Motor	120,000		120,000	120,000	
		RI180020	PKWRF Canyon 2 Drainage Pipe	495,000		495,000	20,000	
		RI190001	RI Fleet Vehicles			224,000	224,000	224,000
		RI190002	RI Rt Bank Sand Storage Bldg			50,000	50,000	50,000
		RI190003	RI XFMR Spare SPCC			120,000	120,000	120,000
		RI190004	RI PH2 Station Drainage Mod			1,185,000	1,185,000	1,160,000
		RI190005	RI PH1 Station Unwtr Pumps Rpl			623,000	623,000	623,000
		RI190006	RI PH2 HVAC Upgrades			585,000	585,000	300,000
		RI190007	RI PH2 Upstream Bulb Jibs			150,000	150,000	150,000
		RI190008	RI Spillway Traffic Controls			380,000	380,000	380,000
RI190009	RI PH2 6-370 Breaker Bay Replace			690,000	690,000	70,000		
RI190010	RI PH2 6-360 Breaker Replace			150,000	150,000	70,000		
RI190011	RI PIT Tag Array Installation			332,000	332,000	332,000		
RI190012	PKCD Coyote Dunes Trail & Rstrm			395,000	395,000	85,000		

DRAFT				Current Total	Total Project	Proposed	8
System	Discrete/ Recurring	Project#	Title	Project Budget	Change: Current vs Proposed	Total Project Budget	2019 Annual Budget
Rock Island	Discrete	RI190013	PKWW Park Entrance Path		100,000	100,000	100,000
			System Forecast Adjustment				-12,623,157
<b>Rock Island Total</b>				<b>285,849,559</b>	<b>23,628,274</b>	<b>309,477,833</b>	<b>71,589,538</b>
Lake Chelan	Discrete	LC180001	PKMP Log Boom & Dock Replace	850,000	71,500	921,500	75,000
		LC190001	PKCR S Shore Erosion		256,000	256,000	56,000
			System Forecast Adjustment				-19,650
<b>Lake Chelan Total</b>				<b>850,000</b>	<b>327,500</b>	<b>1,177,500</b>	<b>111,350</b>
<b>TOTAL</b>				<b>408,499,520</b>	<b>93,534,552</b>	<b>502,034,072</b>	<b>150,132,440</b>

Gross Capital

Electr Distribution	21,884,700
Network Transmsn	3,987,250
Fiber & Telecom	7,273,223
Water	1,068,050
Wastewater	3,462,000
Internal Services	34,745,469
Rocky Reach	6,010,860
Rock Island	71,589,538
Lake Chelan	111,350
<b>Total Gross Capital</b>	<b>150,132,440</b>

Customer Contributions

Electr Distribution	(3,715,000)
Network Transmsn	(192,000)
Fiber & Telecom	(42,500)
Water	(457,000)
Wastewater	(23,000)
Rock Island	(58,320)
<b>Total CIAC</b>	<b>(4,487,820)</b>

Net Capital:

Electr Distribution	18,169,700
Network Transmsn	3,795,250
Fiber & Telecom	7,230,723
Water	611,050
Wastewater	3,439,000
Internal Services	34,745,469
Rocky Reach	6,010,860
Rock Island	71,531,218
Lake Chelan	111,350
<b>Total Net Capital</b>	<b>145,644,620</b>

Regulatory Assets (DSOP-1823)	4,884,143
Net Regulatory Assets	<b>4,314,851</b>
Make Available (LCRL-2536)	<b>422,031</b>
	<b>150,381,503</b>

## RESOLUTION NO. \_\_\_\_\_

A RESOLUTION AUTHORIZING AMENDMENT NO.  
10 TO SERVICES AGREEMENT (SA-TA NO. 15-133)  
WITH ASPECT CONSULTING LLC TO PROVIDE  
TECHNICAL ASSISTANCE REGARDING THE  
DISTRICT'S WATER RIGHTS AND WATER  
RESOURCES PROGRAM

## FACTUAL BACKGROUND AND REASONS FOR ACTION

The District entered into a Services Agreement (SA-TA No. 15-133) on August 27, 2015 with Aspect Consulting LLC to provide technical assistance related to water right transfers, permitting, compliance, and relinquishment avoidance strategies associated with the District's portfolio of water rights, in an amount not to exceed \$195,000.

Resolutions No. 16-14026, 16-14102 and 17-14197 increased the contract price by a total of \$310,000 for a revised contract price not to exceed \$805,000.

Through the review of the District's water rights and Water Resources Program, staff has identified additional work that is needed. Resolution No. 17-14215 requires that the Commission, by resolution, authorize Amendments to Service Agreements when the Amendment increases the total contract price to over \$500,000.

District staff recommends that it is in the best interest of the District to amend Services Agreement No. 15-133 with Aspect Consulting LLC to provide technical services regarding the District's water rights in the amount of \$307,000, for a total revised contract price not to exceed \$1,112,000.

The General Manager has reviewed District staff's recommendation and concurs in the same.

## ACTION

IT IS RESOLVED BY THE COMMISSION OF PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY, WASHINGTON as follows:

Section 1. The General Manager is hereby authorized to execute an Amendment to Services Agreement (SA-TA No. 15-133) with Aspect Consulting LLC to provide the



additional services identified above. The revised contract price will not exceed \$1,112,000 without prior Commission approval. A copy of the Amendment is on file in the offices of the District.

DATED this **3rd** day of **December 2018**.

ATTEST:

\_\_\_\_\_  
Vice President

\_\_\_\_\_  
Commissioner

Seal

\_\_\_\_\_  
President

\_\_\_\_\_  
Secretary

\_\_\_\_\_  
Commissioner

## RESOLUTION NO. \_\_\_\_\_

A RESOLUTION AUTHORIZING THE GENERAL MANAGER  
TO ENTER INTO A RELIABILITY COORDINATION  
SERVICES AGREEMENT WITH THE CALIFORNIA  
INDEPENDENT SYSTEM OPERATOR CORPORATION TO  
RECEIVE RELIABILITY COORDINATION SERVICES

**FACTUAL BACKGROUND AND REASONS FOR ACTION**

Chelan PUD is registered with the North American Electric Reliability Corporation as Balancing Authority and Transmission Operator. As such, the District is required to obtain the services of a Reliability Coordinator, who is charged with overseeing reliable operation of the Bulk Electric System and has a wide area view of the interconnection. The Reliability Coordinator function is currently performed by Peak Reliability, Inc., and they have recently announced that they will be ceasing operation at the end of 2019.

Resolution 17-14215 requires that the Commission, by resolution, authorize Service Agreements that exceed \$500,000.

The California Independent System Operator has developed a suite of services under the umbrella of a Reliability Coordinator Services Agreement, which is a FERC approved tariff. The core Reliability Coordination function is funded much like the current agreement with Peak Reliability. Each entity receiving Reliability Coordination service pays a portion of total costs based on its pro-rata share of total Net Energy for Load of all entities receiving service. Until all potentially interested parties sign up for service, which will be completed by the end of December 2018, the specific cost is unknown. The initial term of the agreement is 18 months from the date the California Independent System Operator becomes the Reliability Coordinator of record for Chelan PUD, which is likely to occur November 1, 2019. The agreement then automatically renews. After the initial term the District can terminate the agreement by providing a minimum notice of 12 months.

The California Independent System Operator also provides optional supplemental services within the Reliability Coordinator Services Agreement. Peak Reliability provides similar optional services under separate agreements. These services include Hosted Advanced Network Application and physical security review services. The Hosted Advanced Network Applications provides real-time contingency analysis, utilizing the west-wide system model informed by real-time data from throughout the interconnection. This analysis tool performs a “what-if” analysis every five minutes to determine if the system continues to operate reliably should the next worst contingency occur given the current operating state. This tool also provides an off-line study mode, alarms to the District System Operators should a harmful contingency be identified, and most importantly the ability for the District’s operations staff to see the same information that the reliability coordinator is viewing. The initial term for the Hosted Advanced Network Application is three-years and then automatically renews for the

following calendar year, absent a 90 day notice to discontinue this services. Similar to the Reliability Coordination service, the specific costs of this service will not be known until the number of participating entities is determined through the enrollment process. The other supplemental service that the District may elect to receive from the California Independent System Operator, and provided for within the Reliability Coordinator Services Agreement, is a third-party review of District studies that are necessary and required by the NERC Critical Infrastructure Protection Standards. This is also a service that Peak provided, although the District utilized another third-party provider. This service is provided under the Reliability Coordinator Services Agreement as a lump-sum payment that is then trued up at the end of the review.

It is District staff's recommendation that it is in the best interest of the District to enter into the Reliability Coordinator Services Agreement with the California Independent System Operator for the services described above.

The General Manager of the District has reviewed staff's recommendation and concurs the same.

### **ACTION**

IT IS RESOLVED BY THE COMMISSION OF PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY, WASHINGTON, as follows:

Section 1. The General Manager of the District or his designee is hereby authorized to enter into the Reliability Coordinator Services Agreement among California Independent System Operator Corporation to receive Reliability Coordination services in an amount calculated in accordance with the agreement and adjusted annually pursuant to the Agreement. A copy of the agreement is on file in the offices of the District.

Section 2. The General Manager of the District or his designee is hereby authorized to obtain supplemental services provided for within the Reliability Coordinator Services Agreement in the amounts calculated in accordance with the agreement and adjusted annually pursuant to the Agreement.

Section 3. The General Manager of the District or his designee is authorized to obtain the services described above at an overall price not to exceed \$1,000,000, inclusive of Washington State Sales Tax, without prior Commission approval.

DATED this 3rd day of December 2018.

\_\_\_\_\_  
President

ATTEST:

\_\_\_\_\_  
Vice President

\_\_\_\_\_  
Secretary

\_\_\_\_\_  
Commissioner

\_\_\_\_\_  
Commissioner

Seal

## RESOLUTION NO. \_\_\_\_\_

A RESOLUTION DECLARING OSISOFT, INC OF SAN LEANDRO, CA AS THE SOLE SOURCE SUPPLIER OF PI VISUALIZATION SUITE.

**FACTUAL BACKGROUND AND REASONS FOR ACTION**

OSIsoft develops and supports the PI System used to capture, process, analyze, and store the Districts real-time operational data. The District has been licensing the PI System from OSIsoft since November 1<sup>st</sup>, 2001. Encompassing the full suite of PI Clients, the PI Visualization Suite gives the District the tools needed to deliver PI System data to mobile devices and the web. PI Visualization Suite expands the District's current PI toolset beyond our current desktop functionality.

OSIsoft, Inc. is the sole supplier of all related PI System tools including the PI Visualization Suite. OSIsoft, Inc. has provided certification that they are the sole provider of PI System tools and that the District is receiving the lowest price available for similarly situated individuals.

Pursuant to RCW 54.04.070 and 39.04.280, the District may, when there is clearly and legitimately a sole source of supply, waive the statutory competitive bidding requirements otherwise applicable to the purchase of equipment. Resolution No. 17-14215 requires that a declaration for sole source purchases over the statutory limits (\$60,000 per month) must come before the Commission for action.

District staff has determined that it would be in the best interest of the District to designate OSIsoft, Inc. as the sole source supplier for PI Visualization Suite and pro-rated support in an amount not to exceed \$92,642.88. This includes support through November 2019. Staff also recommends that the competitive bidding requirements of RCW 54.04.070 be waived.

The District currently purchases additional OSIsoft, Inc. products and pays annual support. 2018-2019 support costs were \$75,357.75. District staff recommends that this existing support be authorized going forward.

The General Manager has reviewed staff's recommendations and concurs in the same.

**ACTION**

IT IS RESOLVED BY THE COMMISSION OF PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY, WASHINGTON, as follows:

Section 1. The Commission declares OSIssoft, Inc. to be the sole source supplier for PI Visualization Suite.

Section 2. The competitive bidding requirements of RCW 54.04.070 are hereby waived due to the designation of OSIssoft, Inc. as the sole source supplier for PI Visualization Suite.

Section 3. The General Manager or his designee is authorized to enter into a purchase contract with OSIssoft, Inc. for the purchase of PI Visualization Suite and pro-rated support at a cost not to exceed \$92,642.88. Annual support services are also approved for all OSIssoft, Inc. software support for a period of 10 years at an annual cost not to exceed \$100,000 per year. A copy of the contract will be on file in the offices of the District.

Dated this 3rd day of December 2018.

\_\_\_\_\_  
President

ATTEST:

\_\_\_\_\_  
Vice President

\_\_\_\_\_  
Secretary

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Commissioner

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Commissioner

Seal

Contact

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