



## **Rise in Bitcoin Mining Has Chelan PUD Considering New Rate Class**

Chelan County PUD has seen a significant increase in data mining rigs—portable data processing operations used for mining bitcoins and other crypto-currency—that use significant amounts of power. One way to handle this new demand is by creating a new rate class specifically for these energy-intensive loads, board members were told at their June 1 meeting. It's one of the options under consideration as the PUD nears the expiration of a six-month moratorium on adding new loads of 1 MW or more. ***PUD policy team working on the issue finds the transiency of data miners creates additional risks, at [11].***

### **FULL STORY:**

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It's one of the options under consideration as the PUD nears the expiration of a six-month moratorium on adding new loads of 1 MW or more, said Andrew Wendell, Chelan's director of customer services. Wendell heads up a policy team that has been looking into the issue of new large loads since the district declared the moratorium in December (CU No. 1677 [15]). Other actions the team is considering include implementing stricter load aggregation requirements; revising the allocation of system improvement costs to ensure the PUD is recovering the full costs of such improvements; improving and enforcing metering requirements; establishing energy use and ramping agreements; and adjusting fees and charges for large-load applicants.

The team has also discussed changing the energy caps within the industrial rate class, establishing tiered rates for industrial customers or a combination of those options, Wendell told the board. An additional option "consists of evaluating the unique characteristics of the energy use of these applicants, to determine how their loads impact our system as well as the district's financial models, and study these impacts to determine if a new rate structure would be warranted based on these unique characteristics."

Wendell said the PUD is seeing more transient data-processing loads that can move quickly from one place to another and sometimes to multiple locations. "These applications are able to operate primarily in leased, portable spaces," he told PUD commissioners. They are "seeking to use all energy available at those locations and in some cases requesting increased capacity," which has involved line extensions and transformer upgrades.

That load is close to 2 MW now and continues to increase, Wendell said. "We're currently monitoring

loads and energy consumption from known operators and we are learning of new operators all the time,” he said in an email. “There are approximately seven to 10 known operators currently performing mining as a core function within our service territory.”

“Little is known of the relationship of these operations to the local economy,” Wendell told the board. “We are not seeing products going in or coming out; there are not a lot of jobs” or new construction associated with data mining. Some of the data miners use portable cargo containers, Wendell told *Clearing Up*. “There are companies that will retrofit these containers and ship them out to you, with the (computer) racks and infrastructure for cooling, and you can put your own mining rigs in them. One company sells a turnkey container with the mining rigs included.”

The rigs are mining for data—specifically, data that allows them to acquire digital currency such as bitcoins. According to [bitcoinmining.com](http://bitcoinmining.com), miners use special software to solve math problems and are issued a certain number of bitcoins in exchange. According to Wikipedia, it’s called mining because it resembles the mining of traditional commodities: “it requires exertion and it slowly makes new currency available at a rate that resembles the rate at which commodities like gold are mined from the ground.”

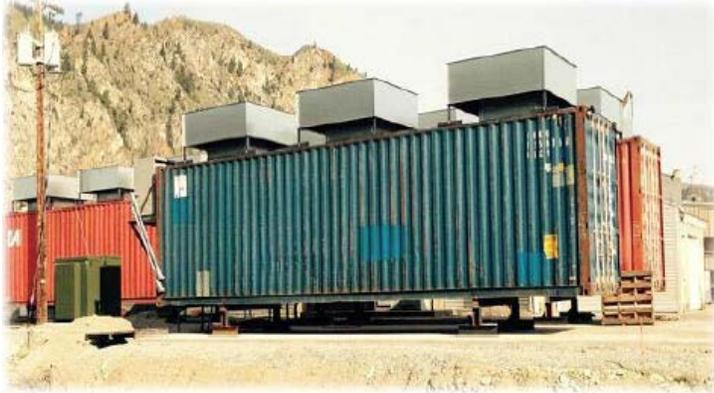
The shipping-container mining rigs typically use between 0.15 and 0.25 MW, Wendell told *Clearing Up*, so a site with four containers could use 1 MW. And while the highest energy use intensity (EUI) score among Chelan’s commercial customers is 52 kWh per square foot per year, mining rigs can have an EUI of upwards of 2,100 kWh/sq. ft./year. “These mining rigs are performing very intense computations and using a lot of energy,” he told the PUD board.

Data miners can also set up shop in a residential home that has large service, Wendell added. While a typical home has a load factor of about 0.35—meaning it uses the full available electric capacity about 35 percent of the time—data-mining homes have a load factor closer to 1.

Since Chelan implemented its moratorium on loads of 1 MW or more, “many of these applicants are applying for just under 1 MW and will take whatever they can get,” Wendell told *Clearing Up*. An applicant might put one or two cargo containers in one location and sign a lease agreement in another location and work around that 1-MW moratorium, he added. “These folks have been so bold as to tell us that is their intention—they want to get the most energy they possibly can at any location.”

Wendell said those high loads can affect reliability on Chelan’s system, which has many radial feeders and a mostly rural service territory.

The mining rigs—whether in portable cargo containers or at commercial sites, such as a former laundromat—are currently creating many more operational issues and risks to the district’s overall financial model than the more



Cargo containers converted to data mining rigs.

*Courtesy Chelan County PUD.*

typical large data-processing center. “We don’t believe data centers are necessarily a bad thing if appropriately planned for and with the appropriate rate structure,” he said. “We don’t want people to believe we are against data processing,” he added. The data-mining rigs just happen “to be a challenge for our current financial model and we need to make some adjustments.”

“These containers are the new equivalent of tailing piles from mining operations and they are a blight,” Commissioner Dennis Bolz said during the board meeting. They are “moving ahead of the legal structure,” he added, but are going to continue. He suggested the PUD seek partnerships with the county and municipalities. “Is there an obligation on our part to work with them to create a better community and use zoning to control who comes in and who goes?”

Bolz also pointed out that Chelan is close to meeting its I-937 goal of reducing energy use by 2 MW. “What we’ve saved has gone to this.”

Wendell said the policy team will bring some specific rate options to commissioners at their June 15 meeting. The board may also decide to extend the new-largeload moratorium, which is now set to expire July 6. Wendell said one option is to restructure it to focus on the Energy Use Intensity of the applicant, rather than just the total load **[Jude Noland]**.