February 22, 2023

Representative Pam Marsh, Chair
House Committee on Energy and Environment
Oregon State Capitol
Salem, OR 97301

Re: HB 2816 and -2 Amendment - SUPPORT

Chair Marsh and Members of the Committee,

Data centers and cryptocurrency operations are energy-intensive industries in our state, some of which are not currently regulated by Oregon's 100% clean laws. HB 2816 will ensure all data centers and cryptocurrency operations are part of the state's transition to clean energy.

Data centers and cryptocurrency operations use the same basic equipment, including servers. And they both consume a large amount of energy to maintain constant operation of that equipment. Most data center operators are on track to transition to 100% clean energy by 2030. For those that are not, HB 2816 creates a simple and streamlined framework to ensure they transition to clean energy by 2040. As HB 2816 with the -2 amendment comes before the House Climate, Energy, and Environment Committee, **we strongly urge your support!** Climate Solutions is a regional non-profit working to accelerate clean energy solutions to the climate crisis.

Why should data centers and cryptocurrency operations be required to achieve 100% clean power by 2040?

Data centers: U.S. data centers consume over 90 billion kwh of electricity annually, the equivalent output of 34 coal-powered power plants. Actual publicly available information about electricity use by data centers is scarce and fiercely guarded as proprietary. What we know is the very large data centers being built now can each contain many tens of thousands of IT devices and require more than 100 megawatts (MW) of power capacity per data center

—enough to **power around 80,000 U.S. households**.[1] For reference, the City of Salem had 64,426 households in 2021.[2].

We know we likely have many times this level of energy consumption with several dozen data centers of varying sizes in Oregon now and many more already planned to be built over the coming years. Oregon is attractive for siting data center operations due to our proximity to undersea data cables, relatively low cost of energy, and substantial Enterprise Tax Zone benefits. The Northwest Planning and Conservation Council expects the **current total electricity use of data centers in Oregon to more than double by 2040**, when the major utilities will be required to provide 100% carbon free power. In fact, the Northwest Power Conservation Council compiled data showing that data centers will increase their power use 58% by 2030 and 128% by 2040. That represents a significant portion of Oregon's future electricity load potentially unregulated by our clean energy laws. As is described below, not all data centers are currently on track to get clean power and in fact, one Eastern Oregonian utility's carbon pollution has already increased by 543% per megawatt hour since 2010, when Amazon data centers arrived.[3]

Cryptocurrency: Like data centers, cryptocurrency mining operations are among the most energy-intensive operations.[4] Although Oregon is not currently home to a large number of cryptocurrency operations, particularly compared to New York, Kentucky, Georgia, and Texas, there is reason to believe that the aforementioned incentives that have attracted data centers to Oregon will be attractive to the cryptocurrency sector as well.[5]

The Pacific Northwest is starting to see more cryptocurrency operations, especially in Washington. But there is at least one industrial-sized operation in Oregon so far that we know of (along with other smaller cryptocurrency operations underway). This large operation, OregonMines, has reportedly used at least three megawatts of power per hour, **enough**

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[1] Utilizing 2020 data from U.S. Department of Energy. Source: Energy Innovation, "How Much Energy Do Data Centers Really Use?" March 17, 2020, https://energyinnovation.org/2020/03/17/how-much-energy-do-data-centers-really-use/

[2] U.S. Census Bureau, Quick Facts: Salem, Oregon: https://www.census.gov/quickfacts/fact/table/salemcityoregon/BZA010220

[3] The Oregonian, "As Amazon expands in eastern Oregon, regional carbon emissions soar," Sept. 6, 2022, https://www.oregonlive.com/silicon-forest/2022/09/as-amazon-expands-in-eastern-oregon-regional-carbon-emissions-soar.html

[4] See NY Times: Bitcoin Uses More Electricity Than Many Countries, Sept. 3, 2021: https://www.nytimes.com/interactive/2021/09/03/climate/bitcoin-carbon-footprint-electricity.html

[5] See Willamette Week, "Bitcoin Miners Are Flocking to Oregon for Cheap Electricity. Should We Give Them a Boost? The arrival of cryptocurrency miners in The Dalles offers a strange opportunity for the state—and a big environmental threat," Feb. 21, 2018: https://www.wweek.com/news/business/2018/02/21/bitcoin-miners-are-flocking-to-oregon-for-cheap-electricity-should-we-give-them-a-boost/

electricity to power a town the size of Sisters. According to coverage in Willamette Week, OregonMines, a 15-employee company, is now the third-largest consumer of electricity in The Dalles and moved there due to its the cheap hydro power.[6] It was later reported that OregonMines is doubling its capacity with a 4 MW facility in Cascade Locks. As Robert McCullough, an energy consultant who once set power rates at Portland General Electric, expressed: "We may well become the center of cryptomining in the world."[7]

In New York State the situation is more dire. Bitcoin mining operations have revived retiring fossil fuel power facilities to provide electricity for their operations. Greenidge Generation's power plant in New York that is mining bitcoin, along with others, became the basis for that state's recently passed law placing a moratorium on new cryptocurrency operations that utilize fossil fuel energy.[8]

A letter from more than a hundred climate advocates to Governor Hochul made the need to stem this activity through legislation clear - "New York must halt this move to turn old fossil-fuel-powered plants into crypto mining centers until a full environmental assessment is conducted on the impact that these operations will have on greenhouse gas emissions, as well as the state's air and water quality."[9] Similarly, in Montana and Pennsylvania, crypto miners took over dying coal plants and revived them to run their massively energy-intensive operations.[10]

The White House released a landmark series of reports in September that sought to capture the industry's nationwide impact. It included a number of striking statistics, including an estimate that cryptocurrency mining now accounts for 0.9% to 1.7% of the electricity consumed in the country and produces between 25 and 50 million metric tons of carbon dioxide annually — comparable to the diesel fuel emissions produced by the nation's trains.[11]

Many major tech companies are planning to achieve 100% clean energy voluntarily sooner than this law would require.

Fortunately, all of the major tech companies, including Google, Meta, Apple, and Amazon, have publicly stated voluntary goals for achieving 100% clean energy procurement. Those goals are detailed below. Without exception, each of them targets 2030 or sooner for 100% clean power.

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[6] Bitcoin Miners Are Flocking to Oregon for Cheap Electricity. Should We Give Them a Boost? (wweek.com)
[7] See id.
[8] A New York Power Plant Mining Bitcoin Faces Test in Governor's Office (businessinsider.com)
[9] letter dated October 13
[10] Bitcoin miners revived a dying coal plant – then CO2 emissions soared (The Guardian)
[11] FACT SHEET: Climate and Energy Implications of Crypto-Assets in the United States - OSTP - The White House

HB 2816 requires data center and cryptocurrency operators to procure clean energy along the same timeline as HB 2021. Importantly, HB 2021 would not apply to *energy providers*, but rather the *facility operators*. This narrowly tailors the regulation to the high energy use itself, and to where the significant load increases will be in coming years. Under the bill, a High Energy Use Facility ("HEUF") is defined by three characteristics:

1. Uses 10 or more average megawatts of electricity per year;
2. Receives power not currently regulated by the HB 2021 100% clean law; and
3. Has a primary purpose of data processing or cryptocurrency production

HEUFs would be on the same track as HB 2021 regulated entities with a requirement to reduce emissions associated with electricity use 80% by 2030, 90% by 2035, and 100% by 2040. A streamlined reporting requirement would enable Oregon DEQ to collect basic data to demonstrate progress toward the targets, including an estimate of GHGs, annual goals set by the facility operator for GHG reduction, and a copy of the Power Purchase Agreement for any purchases from energy providers indicating the type of power purchased. This level of reporting is far less cumbersome than the reporting requirements for Investor Owned Utilities and Energy Service Suppliers under HB 2021.

Additionally, HB 2816 would not create an administrative burden for DEQ. The requirements of Hb 2816 are designed to roll the reporting into its existing GHG reporting program, though some minimal additional resourcing could be needed.

HB 2816 makes sense as a step toward securing Oregon's clean energy future, is fair and mostly applies as a backstop and insurance to the tech sector's voluntary clean energy transition underway, and does not interfere with the activities of tech companies, energy providers, and local governments.

HB 2816 Makes Sense as a Step Toward Securing Oregon's Clean Energy Future

HB 2021, the landmark legislation passed two years ago, requires Investor Owned Utilities and Electricity Service Suppliers to meet emissions reductions requirements. While that law covers the IOU and ESS share of Oregon's energy supply, which is about 65%, it does not cover other large loads in the state. Fossil fueled generating facilities continue to operate in Oregon and neighboring states, and though new rules promulgated by the Energy Facility Siting Committee constrain the construction of new fossil fueled facilities, they can be built in some circumstances.

HB 2816 is a common sense measure that eliminates a significant risk looming in Oregon's energy future. If fossil fuel energy is still available, and data centers and cryptocurrency continue to grow, the associated emissions could derail Oregon's decarbonization goals.

HB 2816 Is Fair and Mostly Applies as a Backstop to the Tech Sector's Voluntary Clean Energy Transition

The bill is designed to have parity with HB 2021:

- HB 2816 mandates the same clean energy targets as HB 2021.
- HB 2816 stipulates a simple and streamlined reporting process, and is far less of an administrative burden than for Investor Owned Utilities and Electricity Service Suppliers under HB 2021.
- HB 2816, as amended by the -2 amendment, does not prescribe penalties or an enforcement regime, nor does it compromise the Enterprise Tax Zone status of a regulated entity. Rather, it rather leaves enforcement to the discretion of DEQ. To be clear, this is the same discretion the agency maintains for any enforceable program. It is unlikely that the operator of a regulated facility will face penalties if making reasonable efforts to be in compliance.
- Like HB 2021, HB 2816 is technology agnostic and allows compliance for any nonemitting electricity.
- HB 2816 allows for multiple compliance pathways, including purchasing renewable energy, constructing on-site renewables, and/or purchasing Renewable Energy Certificates.
- HB 2816 explicitly focuses on primary power and does not regulate backup power. This is in line with HB 2021's reliability provision and allows critical IT infrastructure to continue operations in the event of a temporary power outage.

The bill provides significant cushion for tech companies' publicly stated voluntary clean energy goals. The chart below shows these goals. Each company seeks to achieve 100% clean energy by 2030 or earlier, well in advance of HB 2816's target.

	100% Clean Energy or Carbon Free Target Date
Google	2030[12]
Meta	2030[13]
Apple	2030[14]
Microsoft	2025[15]
Amazon	2025[16]
HB 2816	2040 ✓

HB 2816 Does Not Interfere with the Activities of Tech Companies, Energy Providers, and Local Governments

HB 2816's narrowly tailored scope of regulation avoids the need to overhaul regulations on energy procurement outside of IOU territory. The bill does not regulate, nor otherwise affect, energy providers. Moreover, the -2 amendment makes clear that an energy provider's sale of electricity to a High Energy Use Facility for compliance does not count toward the total electricity that determines an energy provider's legal obligation to comply with the Renewable Portfolio Standard (RPS), if applicable.

In fact, HB 2816 gives the tech sector maximum flexibility in meeting the bill's requirements. The bill does not dictate how a regulated data center or cryptocurrency mining operation acquires clean energy. It can do so by purchasing from an energy provider, constructing a proprietary renewable energy facility, offtaking directly from a utility scale renewable energy facility, utilizing Renewable Energy Certificates, or any combination of those options.

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[12] https://sustainability.google/progress/energy/
[13] Climate - Meta Sustainability (fb.com)
[14] Apple commits to be 100 percent carbon neutral for its supply chain and products by 2030 - Apple
[15] Microsoft will be carbon negative by 2030 - The Official Microsoft Blog
[16] "We are on a path to running 100% of our business on renewable energy by 2025—five years ahead of our original target of 2030." Amazon becomes the world's largest corporate purchaser of renewable energy (aboutamazon.com)

The bill is technology agnostic. Any nonemitting electricity can fulfill the requirements. BPA Tier 1 power is considered compliant for purposes of HB 2816, which is in line with the state's Renewable Portfolio Standard.

If an HEUF procures clean energy directly from a COU or other energy provider, HB 2816 would not dictate the terms of power purchase agreements. The legislation simply requires the regulated data center or cryptocurrency operation demonstrate to DEQ through a PPA or other contract that clean energy was in fact procured. DEQ will treat such documentation as confidential and proprietary.

The requirement that a regulated data center or cryptocurrency operation comply with HB 2816 in order to receive Enterprise Tax Zone benefits will be removed by amendment (see the description of the -2 amendment below). This removes any possible entanglement with existing or future tax abatement agreements between HEUF operators and local governments.

Why it's important to regulate data centers and crypto operations directly as end users

According to recent reporting in the Oregonian and information received from Oregon DEQ via Public Records Act request, Amazon appears to be making potential plans to build fossil gas powered fuel cells to provide baseload energy at three or more of the company's existing data centers. The proposed fuel cells use oxidized, rather than combusted, gas. While a novel technology, DEQ has made clear that using fossil gas to power fuel cells of this size would emit a substantial amount of GHG emissions. Of particular concern is that this technology is intended to provide 24/7 baseload power, not backup power. According to DEQ, the GHG emissions associated with this much gas as baseload power is estimated to be over 80,000 tons of CO2e per year per data center. Emissions from gas fuel cells at these 3 data centers together could be about 250,000 tons/year, the equivalent of 53,867 cars on the road for a year or 1,380 railcars' worth of coal burned[17].

DEQ completed an emergency rulemaking for the Climate Protection Program (CPP) late last year clarifying that emissions from oxidized gas would be regulated by the GHG reduction requirements (i.e., the cap) of the CPP *if* the gas is purchased from a gas utility. The communications further show that given the constraints of purchasing gas from a utility, Amazon may pursue building a pipeline directly connecting to the interstate pipeline Gas Transmission Northwest ("GTN"), which would avoid the emissions reduction requirements of the CPP, and only trigger the "Best Available Emissions Reduction" (BAER) requirement. If AWS's

[17] EPA Greenhouse Gas Equivalencies Calculator

data centers were to be powered by this amount of fossil gas, it would directly undermine not only Oregon's ambitious clean energy goals, but also local air quality.

These communications illustrate the need to place the obligation for procuring clean energy directly on the HEUF operator, rather than an energy provider. Simply requiring an energy provider to procure clean energy on behalf of a HEUF operator would not meet the state's clean energy goals due to this contingency.

Moreover, it is reasonable to place this requirement directly on a HEUF operator. As mentioned above, HB 2816 allows for multiple compliance pathways which are technically and financially more feasible than constructing a novel and unproven type of gas powered fuel cell or other non-renewable generating source for supplying baseload power.

What the -2 Amendment does and why we urge support for it:

Through broad engagement with the tech industry, as well as energy and utility stakeholders, several amendments have been proposed in the -2 Amendment to the bill. We include them below with explanation of their necessity:

- Change the point of regulation for penalties in Section 2 to DEQ (there was a scrivener's error there indicating ODOE)
    - *This amendment is correcting a scrivener's error identifying ODOE as the point of regulation for penalties, and makes consistent throughout the bill that DEQ is the point of regulation. ODOE would not have a role.*
- Remove the prescribed penalties and give DEQ general discretion on when to impose penalties under their existing penalties authority in ORS 468.10.
    - *In an effort to move closer to parity with HB 2021, specific prescribed penalties have been removed.*
- Remove the provision requiring compliance with the clean energy targets as a prerequisite for receiving Enterprise Tax Zone benefits.
    - *Removing the Enterprise Tax Zone provision avoids entanglement with existing agreements between companies and local authorities.*
- Remove the additional 2027 target in order to maintain parity with the 2030/2035/2040 clean energy targets in HB 2021
    - *This amendment responds to feedback from tech companies and energy providers that the additional target creates a disparity with HB 2021, which does not have a 2027 target.*
- Explicitly allow for the use of RECs with parameters to be set by DEQ through rule

    - *This amendment is needed to ensure HEUF operators can continue to use RECs for compliance, a flexibility mechanism in recognition that this regulation is on the data center or crypto operation as the end user rather than a utility or energy service supplier.*
- Make explicit that PPAs/contracts reported to DEQ pursuant to the reporting requirement are maintained as confidential and proprietary information
    - *This amendment responds to concerns regarding the market sensitive nature of PPAs/contracts, and ensures they are kept confidential while maintaining transparency*
- Distinguish between primary power and backup power – and make clear the legislation only requires clean energy targets for primary power.
    - *This amendment clarifies that HB 2816 does not apply to emissions associated with the use of backup power generation that is designed to provide temporary power in the event of a power outage, including testing and maintenance*
- Clarify that electricity procured for a regulated facility does not count toward the provider's RPS obligations.
    - *This amendment is needed to ensure electricity provided to a large new data center or cryptocurrency operation that must meet clean energy requirements of HB 2816 does not count toward the total electricity that determines an energy provider's legal obligation to comply with the Renewable Portfolio Standard (RPS), if applicable*
- General clean up and clarifications

In conclusion, we urge your support for this common sense measure. We believe it was crafted to provide the tech industry maximum maneuverability to meet clean energy targets.
IT infrastructure is important. In the last two decades we saw the field of information technology progress at an incredibly rapid pace. We hold in our palms the ability to communicate, acquire a breadth of information, buy and sell goods and services, and engage with government and the electoral system.

All of these societal benefits are made possible by data centers, the constantly whirring behemoth facilities that undergird our digital revolution. Data centers house equipment used for storing, processing, and disseminating data and applications, and are critical infrastructure for the tech sector. Because we could not use our computers and devices without data centers, they provide a significant benefit to us, and have made our society more informed, efficient, and equitable. They also provide economic benefits in local communities. HB 2816 will ultimately bring some stability to the tech sector by instilling public confidence, making it a

welcome and productive participant in our economy, and helping it participate fully in our state's clean energy transition.

For all these reasons, **we urge your strong support of HB 2816 and the -2 amendment.**

Sincerely,

Joshua Basofin
Clean Energy Policy Manager
Climate Solutions