



## DATA CENTERS IN MONTANA

### *Frequently Asked Questions*

#### GENERAL INFORMATION

##### 1. What is a data center?

A data center is a physical facility that houses and runs large computer systems. Data centers typically include multiple computer servers, data storage devices, and network equipment that can provide information technology infrastructure services for organizations to store, manage, process, and transmit large amounts of data. A primary driver of rapidly growing demand for data centers is in the field of artificial intelligence (AI).

Data center is a generic term that can cover a number of different use cases, including:

- Enterprise data centers owned and operated by a single business or government entity to support its own internal users and applications;
- Cloud data centers operated by an entity offering hosting for storage and computing services; and
- Hyperscale data centers supporting massive computing workloads including AI or cryptocurrency mining operations.

Data centers are rated by expected downtime with higher tier facilities providing higher reliability. Reliability is driven by multiple factors, including co-located backup generation.

##### 2. What data centers are currently operating in Montana?

Data centers are not new in Montana. Private sector and state-run data centers have operated in Montana for over a decade. Cryptocurrency mining operations have been active for more than 7 years. Operational facilities include:

Data Center	Location	Load (Megawatts, MW)	Energy Supplier
Atlas Power Group	Butte	75 MW	Mercuria
Big Horn (Beowulf)	Hardin	100 MW	Hardin Generating Station
Vision Net	Multiple	<5 MW	NorthWestern Energy
State Information Technology Services Division (SITSD)	Helena, Miles City	<5 MW	NorthWestern Energy & Montana-Dakota Utilities
NYDIG	Multiple	Varied	On-site natural gas fired generation

#### APPLICABLE REGULATIONS

##### 5. What regulations apply to data centers in Montana?

Certain aspects of data center operations may be subject to state environmental and utility regulation. Applicable laws may include:

- Clean Air Act of Montana – Air quality permits for emission sources
- Montana Water Quality Act – Wastewater discharge permits
- Montana Water Use Act – Water rights for cooling systems
- Utility Regulations, Electric Utility Industry Generation Reintegration Act – Public Service Commission



## AIR QUALITY REGULATION

### 6. Do data centers require air quality permits?

Data center computer servers, data storage devices, and network equipment do not directly result in air emissions. However, the energy sources used to power data centers may trigger air quality permitting requirements. Air quality permits may be required for:

- Backup diesel or natural gas generators
- On-site power generation facilities (coal, natural gas, or other combustion sources)
- New data center-dedicated power generating facilities

Energy resources such as wind, solar, energy storage, and hydroelectric generation have little, if any, impact on air quality.

### 7. What about air quality permitting thresholds?

The Montana Clean Air Act requires:

- Montana Air Quality Permit (MAQP): Required for any source with potential to emit (PTE) greater than 25 tons per year of a regulated air pollutant prior to construction and operation.
- Major New Source Review (NSR): Sources with PTE greater than 100 or 250 tons per year (depending on source type) are subject to Montana's major NSR permitting program.

The typical MAQP permitting process requires 75 days from submitting a complete application to issuance of a final permit. For major NSR permits, the process may be significantly longer due to complexity and regulatory requirements to demonstrate compliance with air quality standards.

The U.S. EPA has developed a website providing resources on Clean Air Act regulations, guidance, and technical tools relevant to data centers: [www.epa.gov/stationary-sources-air-pollution/clean-air-act-resources-data-centers](http://www.epa.gov/stationary-sources-air-pollution/clean-air-act-resources-data-centers).

## WATER REGULATION

### 8. How do data centers consume water?

Data center water use largely depends on the chosen cooling technology. Cooling technology choice is influenced by climate, water/electricity costs, and site-specific regulations. Different cooling system types have widely varying water requirements:

**Evaporative Cooling:** Creates the highest water demand. Water absorbs heat from servers and is evaporated to the atmosphere. This provides highly effective cooling but directly consumes large quantities of water—often millions of gallons daily per facility in hot or dry climates.

**Pass-Through (Once-Through) Cooling:** Rare in modern data centers due to environmental regulations. Involves drawing large volumes from a river/lake, running it through the cooling system, and returning it at higher temperature. Requires DEQ permit for discharge of non-contact cooling water.

**Closed Loop and Geothermal Systems:** Recirculate coolant in sealed pipes, drastically limiting ongoing water use. Water is primarily needed only at system startup and for occasional minor refills. The industry appears to be moving toward wide adoption of this approach.



## 9. What permits are required for data center water use?

Use of Montana waters is regulated by the Montana Department of Natural Resources and Conservation (DNRC). Unless serviced by an existing system with its own water rights, the supply of water for any cooling technology requires DNRC approval. Contact DNRC about Water Use Act compliance.

## 10. How does DEQ regulate data center wastewater?

Montana DEQ regulates wastewater disposal through the Water Protection Bureau. The regulatory framework depends upon:

- Type of discharge: Whether wastewater is discharged to surface water (stream, river, lake) or to groundwater.
- Type of wastewater: Non-contact cooling water, process wastewater, or sanitary sewage from facility sinks and toilets.

DEQ reviews the temperature and contaminant content of proposed discharges for compliance with Montana law.

## 11. What are the permitting requirements for geothermal cooling systems?

Permitting requirements for geothermal cooling systems, which could be utilized by a data center, depend on the type of system:

- Closed-loop systems: Not subject to water quality regulation by DEQ or EPA.
- Open-loop systems with unaltered water: Regulated by EPA as Class V underground injection wells; must be registered with EPA Region 8 Underground Injection Control inventory.
- Open-loop systems with altered water (additives introduced): Requires a Montana Ground Water Pollution Control System (MGWPCS) permit from DEQ.

## POWER SUPPLY REGULATION

### 12. How is electricity service regulated for large data centers?

The rates that a data center pays for electricity service necessary to power a grid-connected data center vary depending on factors including the energy supplier, the utility providing transmission service to the facility and the size of the energy load at the facility. Applicable utility regulations also vary depending on the energy supply provider.

Electricity supply service provided by a utility that is subject to Montana Public Service Commission (PSC) regulation (NorthWestern Energy or Montana-Dakota Utilities) is priced according to rates and terms, known as tariffs, that must be approved by the PSC. Rates for the transmission services necessary to deliver energy to the facility are set according to tariffs approved by the Federal Energy Regulatory Commission.

A new large customer of NorthWestern Energy requiring more than 5 MW of electricity service, such as a large data center, must demonstrate to the PSC that providing this service "will not adversely impact the public utility's other customers over the long term as determined by the [PSC]" (Mont. Code Ann. § 68-8-201(1)(b)).

Alternately, a data center may elect to contract for energy supply from an independent power producer or power marketer. In that case the energy supply cost is not subject to PSC regulation and is set in a contract or power purchase agreement between the data center and the energy supplier. FERC-approved tariffs still apply to the transmission service costs in this scenario.



## ENERGY MANAGEMENT

### 14. What measures do data centers implement to manage energy loads?

Data centers may employ a variety of measures to reduce or manage energy usage:

- Virtual consolidation: Dynamically diverting partial loads from numerous servers onto a single server;
- Energy efficient firmware and hardware;
- Higher efficiency cooling technologies ranging from direct-supplied cold outside air ("economizer" air supply) to servers operating while submerged in non-conductive fluids; and
- Decommissioning older inefficient equipment and replacing with new technology that achieves more computations per energy unit.

## ENVIRONMENTAL REVIEW (MEPA)

### 15. Does the Montana Environmental Policy Act (MEPA) apply to data centers?

MEPA (Mont. Code Ann. § 75-1-101 et seq.) applies when a state agency takes an action that may significantly affect the quality of the human environment. MEPA review may be triggered when DEQ or another state agency:

- Issues permits for air emissions, water discharge, or other regulated activities;
- Provides funding, grants, or loans for a project; or
- Approves land use changes on state lands or provides other government approvals.

The level of MEPA review depends on the significance of potential environmental impacts, ranging from Categorical Exclusion for actions without significant impacts, to Environmental Assessment, to a full Environmental Impact Statement for actions that may significantly impact the environment.

Data centers seeking state permits should contact DEQ early in the planning process to determine applicable MEPA requirements.

## CONTACTS AND RESOURCES

### 16. Who should I contact for more information?

For specific questions, please contact the appropriate agency:

**DEQ Air Quality Bureau:** Air quality permits and emissions requirements

**DEQ Water Protection Bureau:** Wastewater discharge permits and groundwater protection

**DEQ Environmental Assessment:** MEPA review and environmental impact analysis

**Department of Natural Resources and Conservation (DNRC):** Water rights and water use permits

**Public Service Commission (PSC):** Large load customer approvals and utility rate oversight

Visit DEQ's website at [deq.mt.gov](http://deq.mt.gov) for permit applications, regulations, and additional guidance.