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# University of Wyoming Energy Law & Policy in the Rockies

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## Emerging Issues Cryptomining on Federal Oil & Gas Leases

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# Disclaimer



*François Picard/AFP via Getty Images*

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# What is Cryptocurrency?

- **Decentralized finance** using a **blockchain ledger** to document transactions.
- **Lower transaction fees** – peer to peer with no intermediaries
- **Cryptographically secure**—sender and receiver identities are hidden, transactions can't be counterfeit or hacked.
- **Blockchain ledger is public**, so anyone can view the transactions themselves but not the information about the parties.





# Cryptocurrency Mining - Bitcoin

- Bitcoin mining is the process by which Bitcoin transactions are validated on the Bitcoin network and added to the blockchain ledger and upon verification new coins are created and released into circulation.
- Validation is by solving complex cryptographic hash puzzles to verify blocks of transactions that are updated on the decentralized blockchain ledger.
- Validation requires powerful computing power and sophisticated equipment. In return, miners are rewarded with Bitcoin, which is then released into circulation hence the name Bitcoin mining.



# More about Bitcoin

- Bitcoin source code written by Satoshi Nakamoto limited supply of 21 million bitcoin.
- Initial block in 2009 with 50 bitcoins, as more are mined and released into circulation where blocks of transactions are created and stacked in the right order in a way that can be mathematically traced and proven.
- **Every 10 minutes**, a block is discovered, and a fixed bitcoin award is offered for every block that is mined.
- Reward for every block mined started at 50 Bitcoins. To date, three halving events have taken place, and the block reward went from 50 from 2009, 25 from 2012, 12.5 from 2016, to the current 6.25 BTC from 2020. The last Bitcoin halving event took place on May 11th, 2020.
- 19,168,250 bitcoin in circulation, about 2 million remain to be mined.





## A bit more about Bitcoin

- Bitcoin values fluctuate rapidly current price is \$20,086.10 as of Oct.4 2022.
- All time high was \$67,527.90 on November 8, 2021.
- At \$20k per bitcoin, \$40 billion in bitcoin remain to be mined.
- Bitcoin Mining activities are a race to solve complex cryptographic hash puzzles.
- Computing power and energy demands to compete in the race are significant.



# Cryptomining is All About Energy

Average U.S. Household Energy 30 kWh electricity

A bitcoin mining unit can use 41,000 kWh in a day.

- Mining can use as much energy in one day as about 1,400 homes.
- Natural Gas powered generators can require 300-350 McF Gas per day.
- What is the value of gas used and royalty rate?







# Generator and Mining Unit







# On-Lease Array



















# On-Lease Gas Use

- ***Marathon Oil Co. v. Andrus***, 452 F. Supp. 548 (D. Wyo. 1978).
- 1974 Notice to lessees NTL-4 “set aside and held for naught”
- Plain language of the lease required royalty on “production removed or sold from the lease” and DOI’s previous position was that royalties are not to be collected on oil and gas that was unavoidably lost or used in lease operations.
- BLM's royalty-free use regulations at 43 CFR 3178. These regulations were adopted in late 2016 and replaced the provisions of NTL-4A regarding the use of gas for "beneficial purposes," which had been in place since 1980.

Venting and Flaring Rules



# 43 CFR 3178.3

## Royalty is Not Due on:

- (1) Oil or gas that is produced from a lease or communitized area and **used for operations and production purposes** (including placing oil or gas in marketable condition) on the same lease or communitized area **without being removed from the lease or communitized area**; or
- (2) Oil or gas that is produced from a unit PA and **used for operations and production purposes** (including placing oil or gas in marketable condition) on the unit, for the same unit PA, without being removed from the unit.





## 43 CFR 3178.3

- (b) For the uses described in § 3178.5, (removed from lease and returned) the operator must obtain prior written BLM approval for the volumes used for operational and production purposes to be royalty free.
- Onshore Order 5 – standards for measurement, reporting and recordkeeping for gas produced.



# Onshore Order 5

- 81 Fed. Reg. 81516 (November 17, 2016)
- Standards for measurement, reporting and recordkeeping for gas produced.

$$w(HV) = \frac{a(HV) \times D(n) \times \sqrt{n}}{t(\%, n-1)} = \frac{0.02 \times 1.693 \times \sqrt{3}}{4.303} = 0.013.$$

- References Noncompliance Assessments Civil Penalties and Criminal Liability from 43 CFR 3160, some of which can be severe.





# Waste Gas

- BLM Venting and Flaring Rules
- Colorado Oil and Gas Commission Rule 912 – effective January 15, 2021
- Goal to eliminate the practice of routine flaring at new and existing wells
- What was waste now has value when used for cryptomining?



# Inflation Reduction Act

- Sec. 50263. Royalties on All Extracted Methane
  - For leases issued after enactment, royalties shall be assessed on “all gas produced, including all gas that is consumed or lost by venting, flaring, or negligent releases through any equipment during upstream operations.”
  - Maintains the status quo. What is “unavoidably lost”? Currently defined by NTL-4A. BLM is working on new rulemaking.





# Issues

- Reporting and Recordkeeping.
- Authorization for facilities on public lands – split estate?
- Definition of beneficial use?
- Social Cost of Carbon?
- NEPA and Environmental review for authorizations?
- Royalties?





# What does the future hold?

- Comprehensive policy to clarify issues related to on-lease cryptomining.
- Authorizations for facilities on public lands
- Off lease Operations.
- Ownership of mining units.
- Reporting and Royalties.





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# Thank You!

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