Cipher Mining

Presentation for Analyst Day

MARCH 7, 2023

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ARCADIS

ExxonMobil

FLUOR

Google

PARSONS

VANTAGE DATA CENTERS

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Chief Technology Officer

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BARCLAYS

Goldman Sachs

LEHMAN BROTHERS

RBC

Scotiabank

Power Procurement & Portfolio Introduction

A Solar Asset in the Desert

Case Study – Not a Cipher Project

"Project Salvador will demonstrate that solar is a viable and sustainable power solution in Chile given the strong solar irradiation and high electricity prices in the region."

– Marco Northland, CEO of Etrion

"As one of the world's largest operating solar merchant power plants, PV Salvador represents an important milestone for the electricity generation industry, proving that solar can provide wholesale power at competitive prices in completely unsubsidized markets."

– Bernard Clement, SVP of TotalEnergies

Located in the Atacama Desert in Chile

70 MW
Peak Solar Capacity

World's largest merchant solar asset at the time (2013)

$200m
Project Capex

One of the first unsubsidized solar projects

What Went Wrong

1

Structural imbalances between the local power production & consumption in the northern part of Chile

2

Transmission infrastructure deployment delays leading to high curtailment levels

3

Strong correlation of the power production profiles leading to low nodal prices

Could a bitcoin mining facility have been the solution?

A Collaborative Approach to Turn Under-Monetized Electrons into Digital Assets

THE PROBLEM

Vast amounts of energy are under-monetized due to various factors, including:

Transmission and distribution infrastructure limitations

Mismatch between the local power supply and demand

Price distortions driven by public incentives and market mechanisms

VALUE PROPOSITION

For a Power Producer 

- Reduce forced curtailment
- Mitigate grid congestion issues
- Enhance revenue predictability while capturing exposure to high market prices

For a Grid Operator 

- Larger basis to amortize fixed costs
- Participation in grid balancing mechanisms
- Predictable curtailment behavior

BITCOIN MINING LOAD: A UNIQUE ENERGY ASSET

Local monetization of electricity produced

Fast response and automated flexible capacity

High revenue predictability days in advance

Quick to deploy with limited operational risks

Cipher Mining

SNAPSHOT OF ASSETS PORTFOLIO

Long-Term Power Offtake to Protect Mining Profitability	
Self-Mining Capacity	236 MW
Total Capacity Fully Hedged	96%
Remaining Hedge Duration	4+ Years
Average Fixed Power Price Pre-Flexibility Revenues	$27/MWh
Total Capacity Capable of Monetizing Flexibility	92%

Diversified Mix of Sites as a Risk Mitigation Approach	
Sites Across Texas	2 FTM(1) + 2 BTM(1) = 4
Total Capacity Collocated with a Power Asset	96%
Total Capacity Backed by Power Supply Guarantees	87%
Total Capacity Subject to an Offtake Obligations	57%

(1) The acronym "FTM" represents "Front-of-the-Meter" and "BTM" represents "Behind-the-Meter"

Cipher Mining

WHAT'S NEXT?

EXPANSION AT EXISTING SITES

Opportunistic expansions at existing sites with available capacity:

- **Alborz**
  - Secure a grid connection to import power from the market as a complement to wind energy
  - Increase the data center capacity to match the wind farm interconnection capacity
- **Bear/Chief**
  - Interconnection agreements signed for up to 135 MW per site
  - Large load study on going to expand the sites

NEW SITES & PPAs

- Focus on merchant renewable assets exposed to **(a)** high technical curtailment levels and/or **(b)** negative and low market prices
- Focus on power plants similar to Odessa
- Continue a live monitoring of other attractive markets (e.g., PJM, Ontario, SPP)

Alborz Data Center

Bear Data Center

Operations

Operations Team Structure

Construction

- Engineering
- Permitting
- Procurement
- Construction
- Commissioning

Site Operations

- Infrastructure operations & maintenance
- Miner deployment, management & repair
- Controls automation
- Site safety

Corporate Operations

- Awards & trade settlement
- Logistics & customs
- Portfolio accounting financial controls
- Treasury operations

Technology

- IT network implementation
- IT security & systems resiliency
- Custom software development
- Data science

Mandate → deliver **four** datacenters in 18 months

TEAM LEADS

CO-PRESIDENT / COO

Patrick Kelly – *Co-President / Chief Operating Officer*

CITADEL · D E Shaw & Co · STONE RIDGE

CONSTRUCTION

Chris Totin – *Chief Construction Officer*

ARCADIS · ExxonMobil · FLUOR · Google · PARSONS · VANTAGE DATA CENTERS

SITE OPERATIONS

Lee Rivers – *Director of Data Center Field Operations*

Google · SCE&G A SCANA COMPANY

CORPORATE OPERATIONS

Courtney Frazier – *Head of Corporate Operations*

GLENCORE · J.P.Morgan · orion RESOURCE PARTNERS · WPI WESTPORT PETROLEUM, INC. · XERAY SYSTEMS, INC.

TECHNOLOGY

Bryan Keller – *Chief Technology Officer*

MD SASS · Point72 · S|A|C Capital Advisors, LLC

Operational Leverage

OUTSOURCING PRINCIPLES

- Identify and secure industry best vendors, contractors, and suppliers
- Significant experience and internally sourced references
- Relevant licenses and certifications (SOC1/2)
- Ability to quickly scale resources
- Local presence (boots on the ground)

AUTOMATION

- Leverage technology to automate and systematize routine tasks
- High availability architecture (no single point of failure)
- Redundancy for critical systems

26

Cipher Full Time Employees

25

Dedicated Contractors

150

Contractors Deployed

200

Direct and Contracted Staff

Key Indicators as of February 28, 2023

OPERATIONAL POWER (MW)

236
Current

HASH RATE (EH/S)

5.2
Current

MACHINES

48k+
Operating

11,000+
To Be Energized

15.59 BTC
Daily Production High

465 BTC
BTC Held

398 BTC
Monthly Production February

Note: Values represented are approximations

Odessa Site Overview

CIPHER MINING'S FLAGSHIP DATA CENTER

About Me

Chris Totin
Chief Construction Officer

ARCADIS
ExxonMobil
FLUOR
Google
PARSONS
VANTAGE DATA CENTERS

568MW

Data Center
Capacity Delivered

$21.2B

Value of Projects
Developed

Hats Worn

General Contractor
Subcontractor
Project Manager
Construction Manager
Program Manager
Owner / Owner Rep

Dad

3 Kids <6 Years Old

6 Yr Old Girl - Valyn

3 Yr Old Girl – Vera

9 Mth Old Boy – Rohm


A View from Low Earth Orbit
20
Royalty Heights
MARRIOTT
Odessa
McKinney Park
The right place in Texas
Odessa

Odessa Data Center Quick Facts

51.5 Acres

~40 football fields

60,000+ ASICs(1)

207 MW of capacity

Remotely Operable

Fully automated operations from switching to ticketing

Hyperscale Inspired

Designed to traditional data center specifications

(1) Represents ASICs capacity of the Odessa data center at full deployment

Development Timeline

Q4 2021

Design

Design

KEY FEATURES

1. **Simple**
2. **Redundant**
3. **Robust**
4. **Elevated**
5. **Optimized for Uptime**
6. **Decentralized**

Development Timeline

Q4 2021

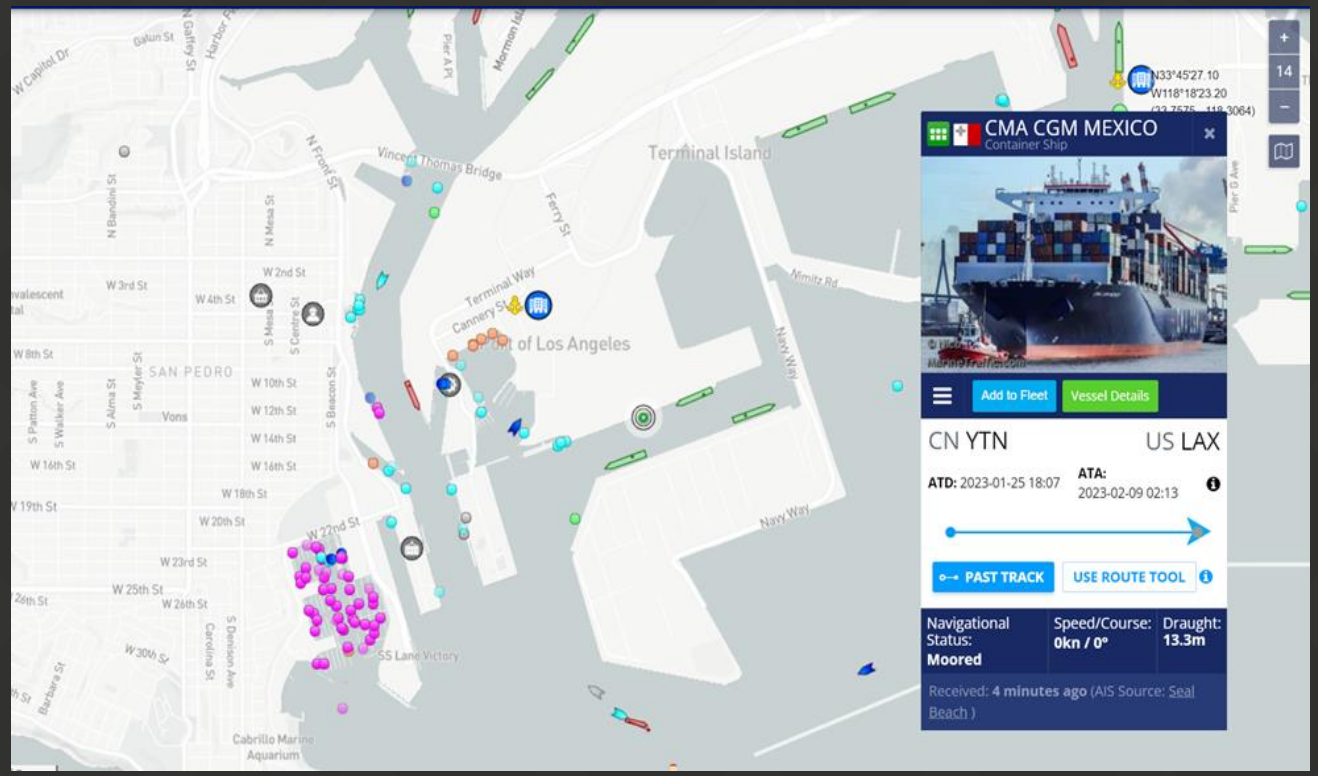
Design

DEC 2021

Completed Procurement of Long Lead Equipment

Globally Sourced

VESSEL TRACKING PLATFORM



Equipment / Material	Location
MV Switchgear	Germany
LV Switchgear	Canada
HV Cable	Turkey
Miner	Thailand
Miner	Malaysia
Modular Data Center	Texas, USA
O&M Building	Georgia, USA
MV Transformers	China
Network Switches	Korea
Engineering Services	Louisiana, USA
MV Switchgear	Illinois, USA
Generators	Wisconsin, USA
UPS	Philippines

Development Timeline

Q4 2021

Design

DEC 2021

Completed Procurement of Long Lead Equipment

JAN 2022

Broke Ground

Beginning Conditions at the Odessa Data Center

Development Timeline

Q4 2021

Design

DEC 2021

Completed Procurement of Long Lead Equipment

JAN 2022

Broke Ground

Started Construction

SEP 2022

Ready to Mine

First Circuits Completed & Ready to Start Mining

NOV 2022

ERCOT Approval

Started Mining

ODESSA

Current Footprint

Odessa

~4.2 EH/s
143 MW
Hashing Capacity

53 Miles
Electrical Cables Installed

85
Transformers
Installed & Energized

41 Miles
Fiber Optic Cables Installed

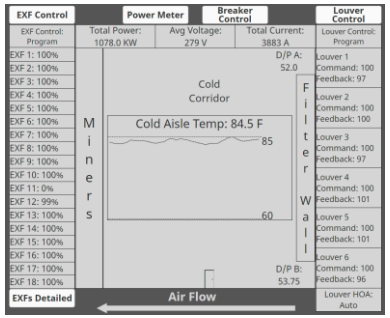
Site Operations

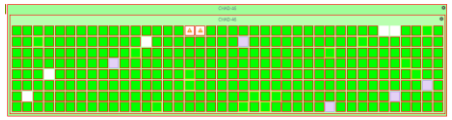
Data Center Technicians

Google

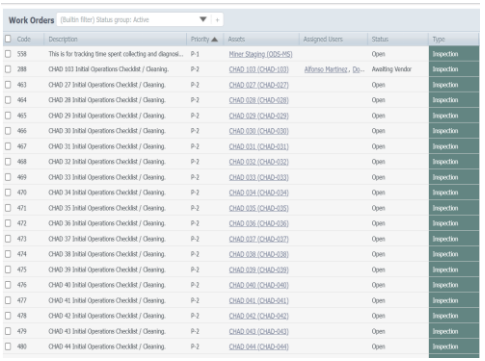
Meta

Remote Operations





Ticketing



Data Science

Data Center Operations Success Equation

Highly experienced and qualified Data Center Technicians + Infrastructure to enable remote visibility & ops + Ticketing platform that automates, prioritizes, and integrates 3rd parties + Close partnership with data science team to build decision tree engines =

Technology

Making Cipher a Data Driven Company

Data Engineering

Creating the best data sourcing and reporting platform

Data Science

Developing insights through models and business intelligence

Info Security

Monitoring threats and implementing corporate process controls

App Development

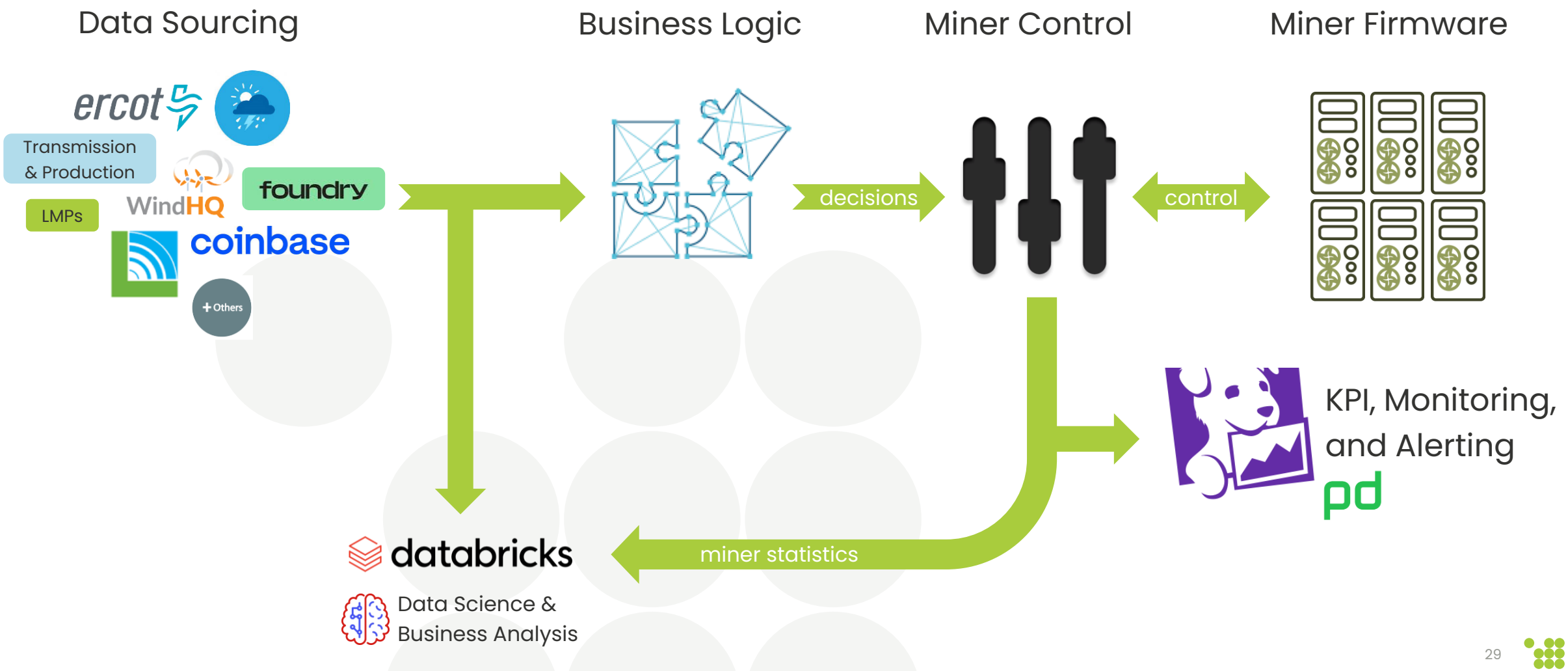
Building custom software for miner control, operations, risk, and treasury management

Infra Support

Making sure everything works

We've built the Cipher platform to make the best strategic and operational decisions based on solid data analysis and interpretation

Using Data to Drive Site Ops and Site Ops to Enhance Data



Alborz

Pioneering Data Driven Operations in Bitcoin Mining

KEY CHALLENGES

- Fully behind-the-meter
- No grid connection, need to react to 100% of production volatility in real-time while maximizing available power availability
- Wind is challenging; storms come suddenly
- Significant consequences to consuming more than the wind farm produces
- No existing miner control framework could react fast enough or hit a power target at scale

Bear and Chief

Optimizing Dollar Profitability for Grid Connected Sites

KEY CHALLENGES

- Only operate when profitable
- Enhance revenue through participation in day-ahead markets
- Monetize ancillary services through rapid curtailment
- Need to avoid 4CP events
- Sites are remote

Odessa

Deploying Data Driven Analysis for Operations at Scale

KEY CHALLENGES

- Reacting to Luminant curtailment actions
- Enhance revenue through power sales
- Optionality on take-or-pay - combined challenge of FTM/BTM site
- Very large scale

Some Other Cipher Use Cases for Model Driven Decisions

EXAMPLES OF OTHER DATA SCIENCE INITIATIVES

- Neural Net modeling of projected network hash rate
- Bitcoin price predictions
- Power market volatility and spike probability
- Quantifying ‘cost to curtail’
- Strategic decision modeling
- Data anomaly and outlier detection
- Real-time power generation and congestion analytics
- Treasury management and trading

Treasury Platform

Treasury Platform Overview

Leverage 15+ years of commodities experience providing solutions to corporate producers, consumers, and refiners

Minimize power price exposure through **optimization** strategies

Prudent management of BTC inventories and cash balances

Ensure a safe and robust control and operational environment under a **collaborative decision-making** framework

Bitcoin mining is just like any other **energy refining** process

BTC Management – Overview

CORE STRATEGIES

SELL

- Daily liquidation
- Target OPEX+ coverage
- Balance liquidity and market view
- Increase allocation with strong bearish view

HOLD

- Target inventory build over time
- Serviceable as collateral
- Increase allocation with strong bullish view

OPPORTUNISTIC STRATEGIES

YIELD

- Short futures and/or options
- 1-3 months forward
- Margin requirement consideration
- Increase allocation relative to futures carry or rich implied volatility

HEDGE

- Costless tail-hedged structures
- Margin requirement consideration
- Suitable in varying market conditions

BTC Management – Principles

LIQUIDATION PRINCIPLES

- Minimize market impact with TWAP execution
- Cold wallet storage for inventory
- Continuous monitoring of trading hot wallet balances
- Daily USD sweep to US Bank custody account
- FDIC insurance
- US Bank money market yield – hurdle rate for portfolio

HEDGING PRINCIPLES

- Outperform hurdle rate on liquidation strategy
- Select high quality counterparties
- CME futures / FCM
- Require ISDA / CSA agreements for OTC hedges
- Require tri-party arrangements for OTC collateral
- Right-way credit risk requirement on OTC hedges
- Daily USD sweep to US Bank custody account

POWER MANAGEMENT

BEHIND-THE-METER

Odessa

- Fixed price PPA with embedded optionality
- Fully automated mine / curtailment management of data center
- Optimize power price exposure through real-time sale of power when revenue is greater than mining economics
- Take advantage of forward sales of power when market allows

FRONT-OF-THE-METER

Bear and Chief

- Floating price exposure at Load Zone (West)
- Fully automated mine / curtailment management of datacenter
- Optimize power price exposure through systematic decision making across the real-time, day-ahead energy markets
- Enhance revenues from the ancillary services market by participating as an ERCOT Controllable Load Resource

OTHER

OTC Market

- Portfolio approach across datacenters
- Aggregate power exposures across all assets
- Basis market participation

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