Wyoming Hyperscale White Box

Overview

BURNS McDONNELL®

Project Overview

WYOMING HYPERSCALE WHITE BOX

gross
J. M. Gross Engineering

BURNS McDONNELL

WYOMING HYPERSCALE
Indoor Farms

Sustainable Data Center Ecosystem

Targeting LEED v4.1 BD+C Gold Qualification

OCP-Ready, Liquid-Cooled AI, ML and HPC at Scale

OPEN
Compute Project®

Sustainability

- Producing 1 Acre of produce for every MW of data center heat
- Facility heating systems designed to synergize with data center heat quality
- Data Center will sell therms to farm at a fraction of what it would cost to produce the heat separately
  - Improves farm profitability
  - Provides revenue stream to Data Center
  - Reduces heat discharged to geo exchange

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Design Session

What is the future of sustainable data center design?

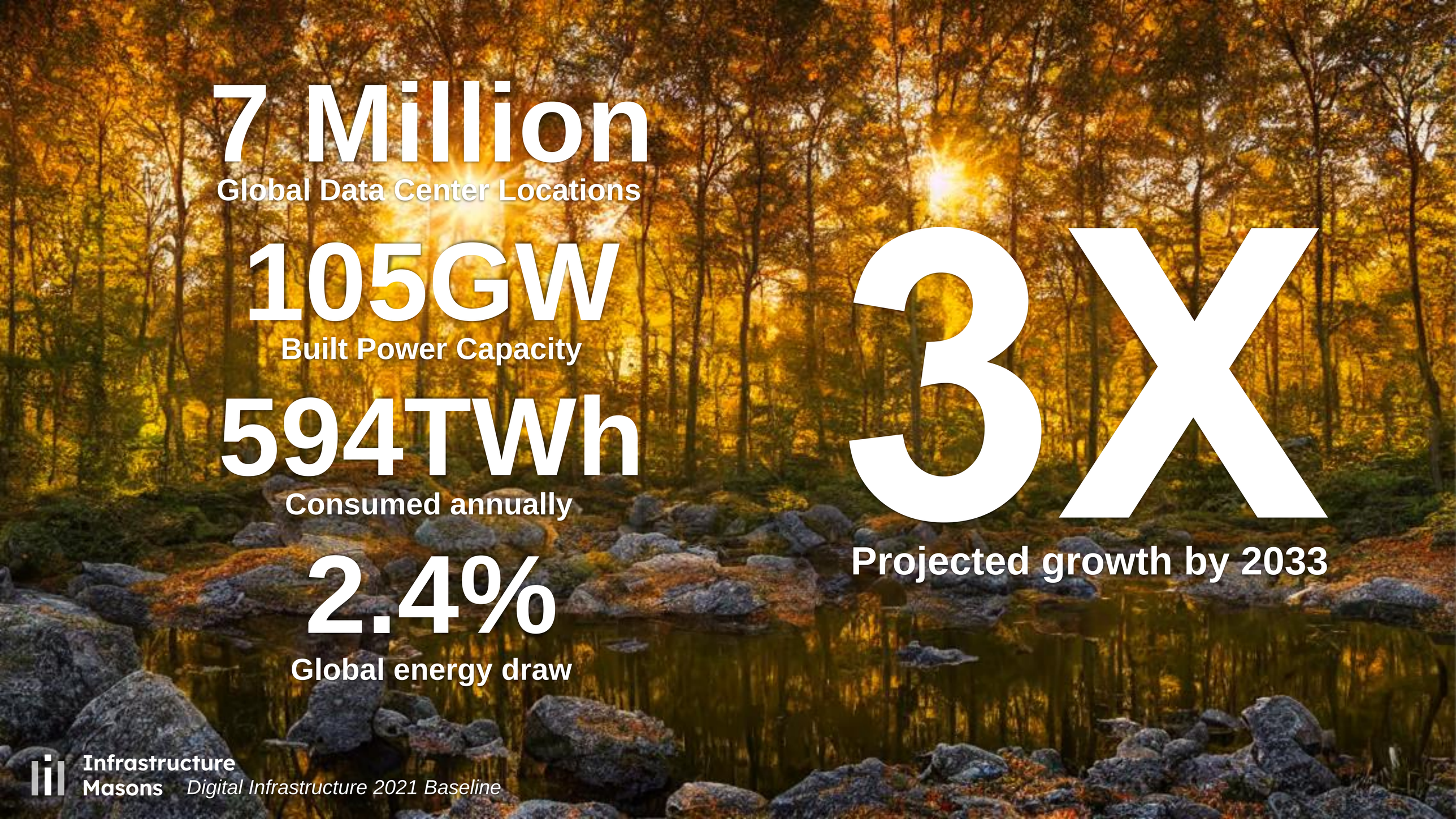
Schneider Electric

Infrastructure Masons

CATO

Permission to think about the future

What is a Sustainable Data Center?


7 Million
Global Data Center Locations
105GW
Built Power Capacity
594TWh
Consumed annually
2.4%
Global energy draw
3X
Projected growth by 2033
Infrastructure Masons
Digital Infrastructure 2021 Baseline

The UNSUSTAINABLE Data Center

Assumptions negatively impacting net-zero carbon for the digital Infrastructure industry.

Schneider Electric

Infrastructure Masons

Assumptions Negatively Impacting Net-Zero Carbon

All Workloads Require High SLAs

Customers (Procurement, Operations and Engineering) require it so I have no choice.

Data Centers Require Generators

The utility will fail and we have to have a long duration backup for workloads.

Building New Data Centers Will Change Local Ecosystems

We have no other way to build without bulldozing the land to build concrete buildings.

My Data Center Design is Different Than My Peers

My company is unique. I could adopt a standard data center design as long as it's mine. But, I can't share it.

I Need 48 hrs of On-Site Energy

Energy storage is not enough to handle grid outages.

Diesel Is The Most Reliable Backup

HVO is not a viable fuel for Generators - Less output / efficiency, lack of supply / delivery / support in the right areas.

Micro Grids Are Not Viable

Power generation is a utility issue. Microgrids are more expensive and cannot scale.

Power Utilization is a Tenant Issue

As a colo provider, I contracted all critical power.
Tenants usage is out of my control.

Clean Energy Is Not a Viable Option

Hard to secure, more expensive, variable supply so it is not a reliable solution.
I can't be on the bleeding edge. We have to provide reliable power today.

No Carbon Accounting Business Case

There is nothing tangible yet. I have to wait for others to prove it first.

The Supply Chain Can't Support/Scale Alternate Fuels so I Can't Adopt Them

HVO, Hydrogen, Sustainable Aviation Fuel

Data Centers Only Provide Economic Value To Local Communities

We provide jobs and tax revenue. There's not much more we can do for the local community (or justify from an investment standpoint)

Assumptions Negatively Impacting Net-Zero Carbon

1. All Workloads Require High SLAs
Customers (Procurement, Operations and Engineering) require it so I have no choice.

2. Data Centers Require Generators
The utility will fail and we have to have a long duration backup for workloads.

3. Building New Data Centers Will Change Local Ecosystems
We have no other way to build without bulldozing the land to build concrete buildings.

4. My Data Center Design is Different Than My Peers
My company is unique. I could adopt a standard data center design as long as it's mine. But, I can't share it.

5. I Need 48 hrs of On-Site Energy
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6. Diesel Is The Most Reliable Backup
HVO is not a viable fuel for Generators - Less output / efficiency, lack of supply / delivery / support in the right areas

DIRECTIONS

20 Min Table Discussion

Add New Assumptions

Rank Top 3+

How we can break top assumption (+)

<2 Min Readout

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8. Power Utilization is a Tenant Issue
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11. The Supply Chain Can't Support/Scale Alternate Fuels so I Can't Adopt Them
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12. Data Centers Only Provide Economic Value To Local Communities
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One Final Thought

Can we align the industry to measure the impact of data centers in local communities?

Schneider Electric

Infrastructure Masons

Infrastructure Masons Social Accord

Concept

- Impact on the local community for each **1MW of data center capacity** built.
- Measured through United Nations **Sustainable Development Goals** (SDGs).
- Members **report locally**, **regionally** and **globally**.

SUSTAINABLE DEVELOPMENT GOALS