

G-SHIP LLC'S GENERGY HYDRO ELECTRIC POWER TOWER



G-SHIP LLC

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DATA CENTER PUSHBACK

DATA CENTER PAIN POINTS

- Electricity
- Water
- Obtaining permits



Understanding the Data Center Water Regulation Debate
By: Josh Gehring



PERMITTING
What went wrong and how to fix it



No electricity. No water. No permit. No data center.

Business Magazine
Greenville

TigerDC Withdraws Project Spero From Spartanburg County Consideration



EXECUTIVE SUMMARY

DATA CENTER PAIN POINT

- Electricity and water expenses
- Rising Capital and operating costs
- Obtaining permits

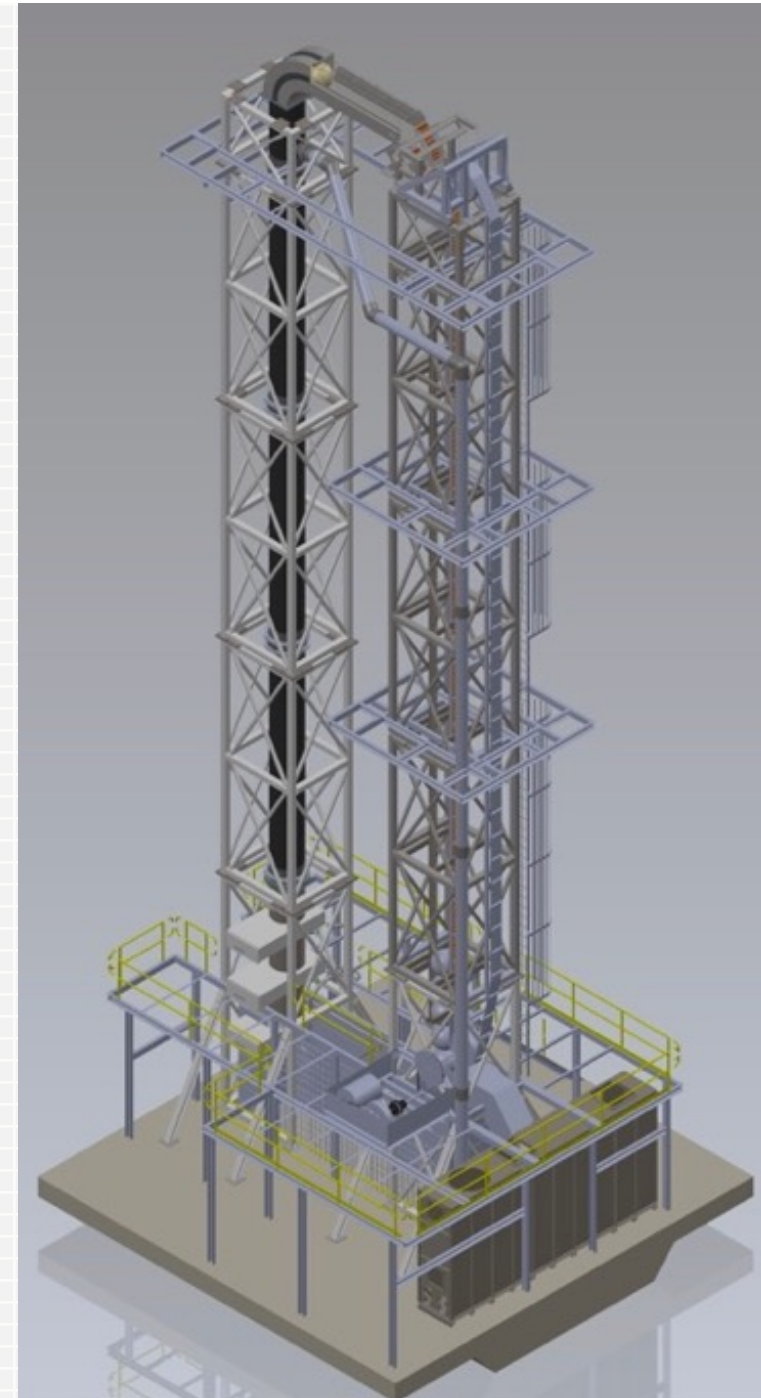
SOLUTION

- LOWER Electricity and water expenses
- LOWER Capital and operating costs
- Obtain permits QUICKLY

THE GENERGY HYDRO ELECTRIC POWER TOWER

- 100% up time 24/7/365
- Requires minimal space
- Reduces electrical expenses by 40% to 70% (location dependent)
- Fast construction time
- Power can be above ground, underground, or hybrid
- Scalable to infinity; Standard design 300 MW – 600 MW On Demand

The Genergy Hydro Electric Power Tower provides data center facilities with autonomous renewable energy with 100% Up Time.



UNIQUE ASPECTS OF THE TECHNOLOGY

- No geographical install constraints (install anywhere)
- Scalable to meet or exceed facility electrical requirements
- 24/7/365 hydroelectric power
- NO large area, river, stream, or reservoir required
- Onsite power generation

Executive Order 14318

Accelerating Federal Permitting of Data
Center Infrastructure

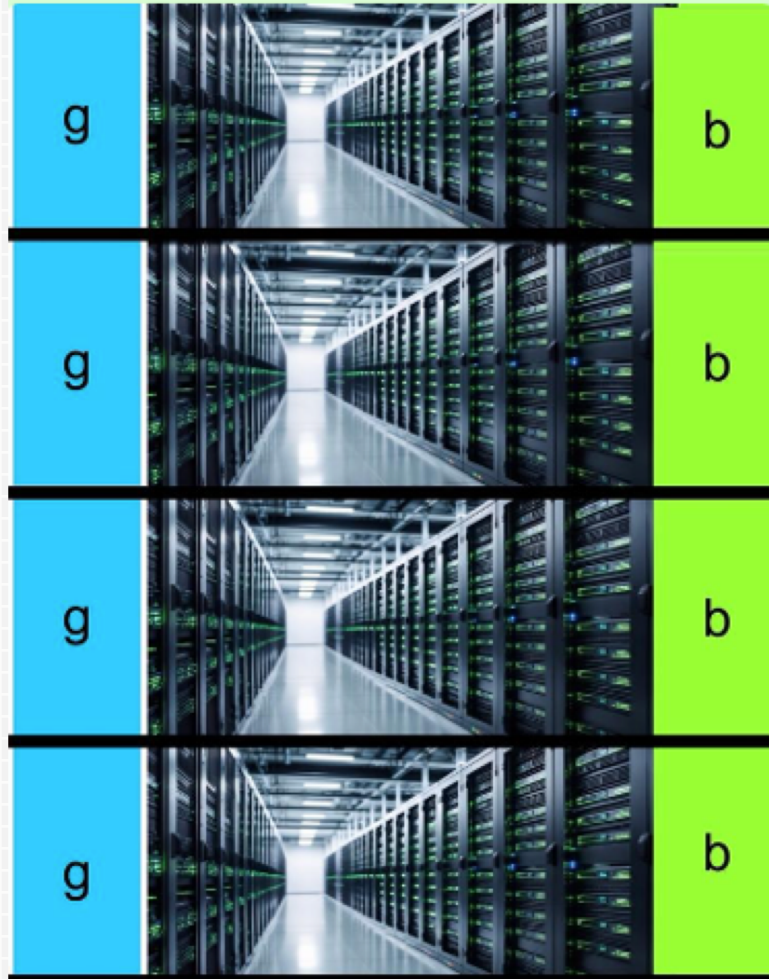
BUILD WITH POWER ONSITE

BENEFITS:

24 hour a day onsite
nonstop power with zero
fuel and zero emissions.
Streamlined permitting.

UNIQUE ASPECTS OF THE TECHNOLOGY

FOR DATA CENTERS



The Capex Benefit for Data Centers comes from our architectural and structural design that has 60' x 140' per floor (18 floors) built out between the "b & g" towers with high end HVAC, Electrical, & Lighting.

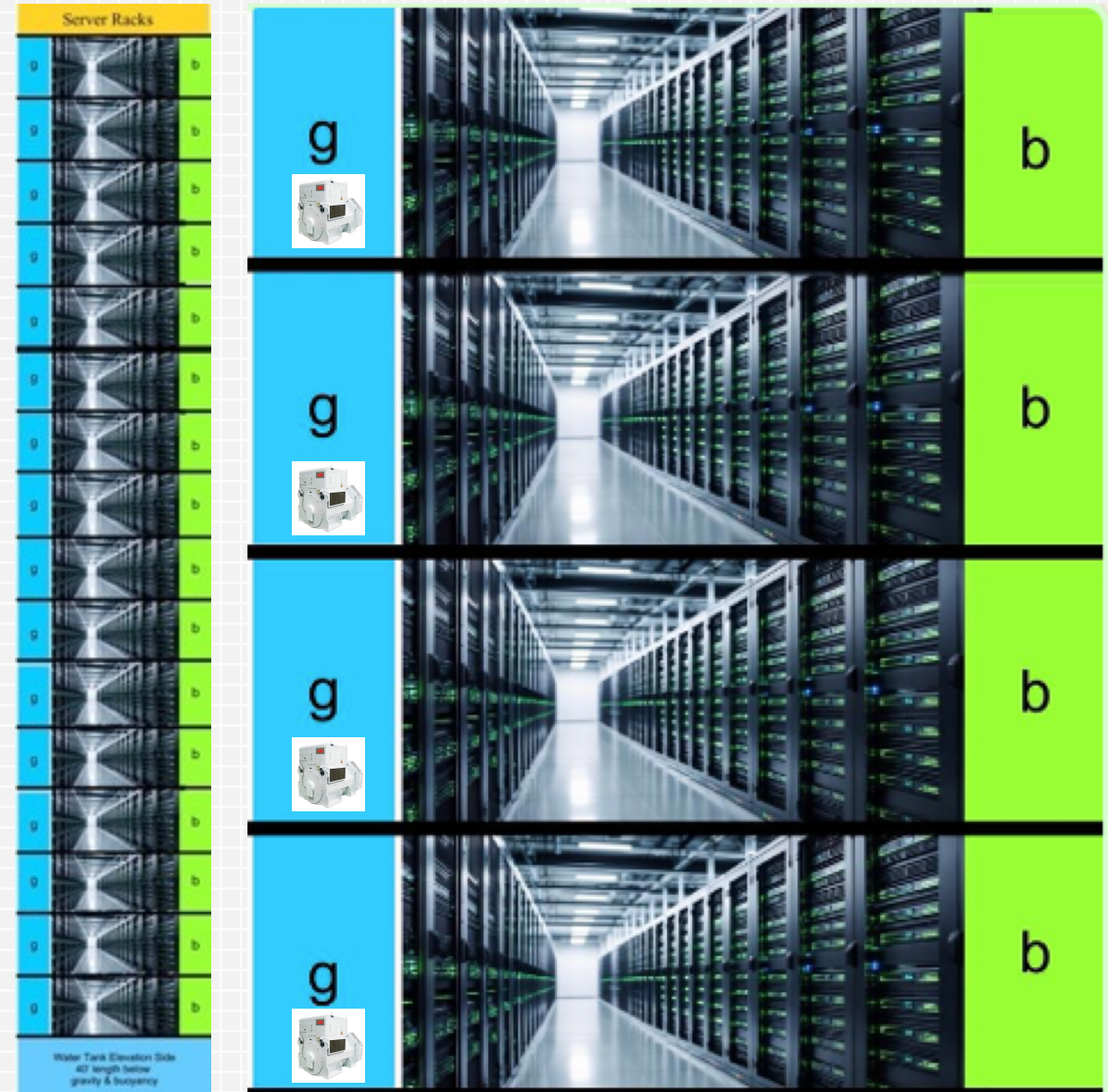
The Opex Benefit for Data Centers come from self-generation that eliminates sales tax, transmission, and fees for electricity OVER & ABOVE the "kWh" for "electricity".

UNIQUE ASPECTS OF THE TECHNOLOGY

Genergy 18 floors data center design has large conduit for fiber and copper placed inside the “g” silo. Electric generators are on each floor making the cables run horizontal **NOT VERTICAL.**

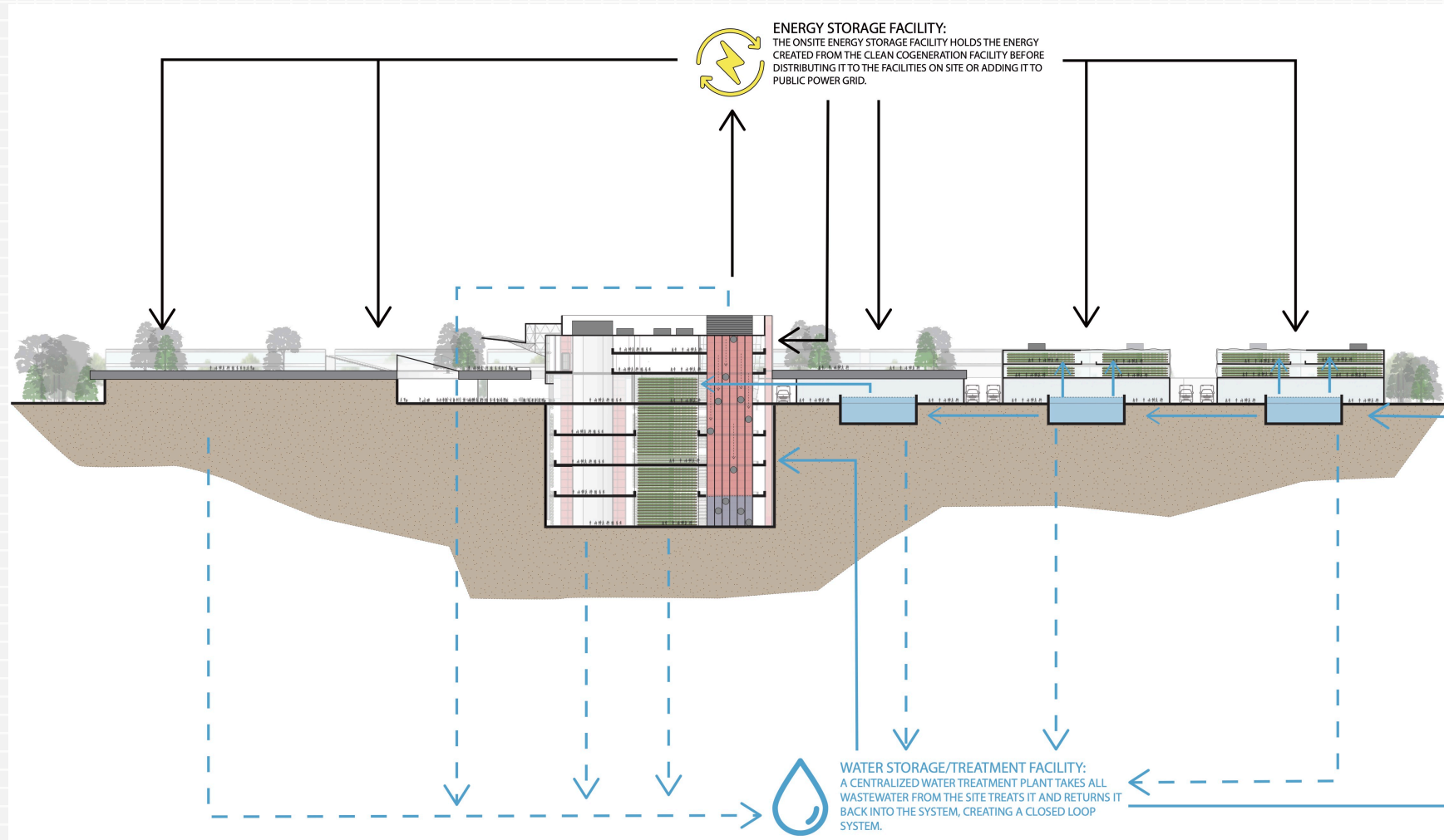
The result is that **each floor** has no more cables running than a single story design.

CABLING



UNIQUE ASPECTS OF THE TECHNOLOGY

UNDERGROUND DEEP NOT HIGH

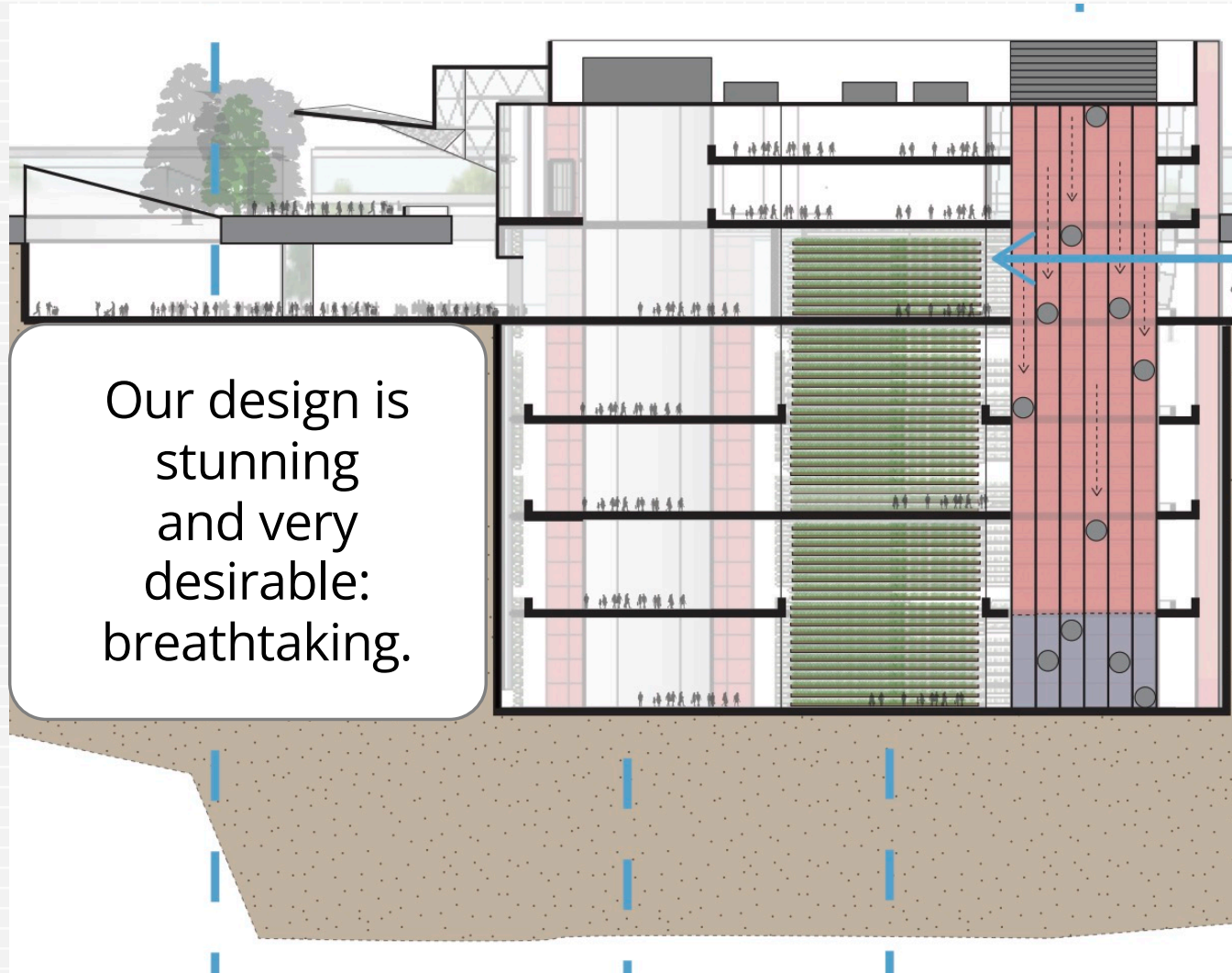


We will build underground or partially underground when possible and desirable.

Our regular construction using basalt is waterproof with grow lights for fresh air ventilation.

UNIQUE ASPECTS OF THE TECHNOLOGY

NATURAL BEAUTY FRESH AIR - SUNLIGHT



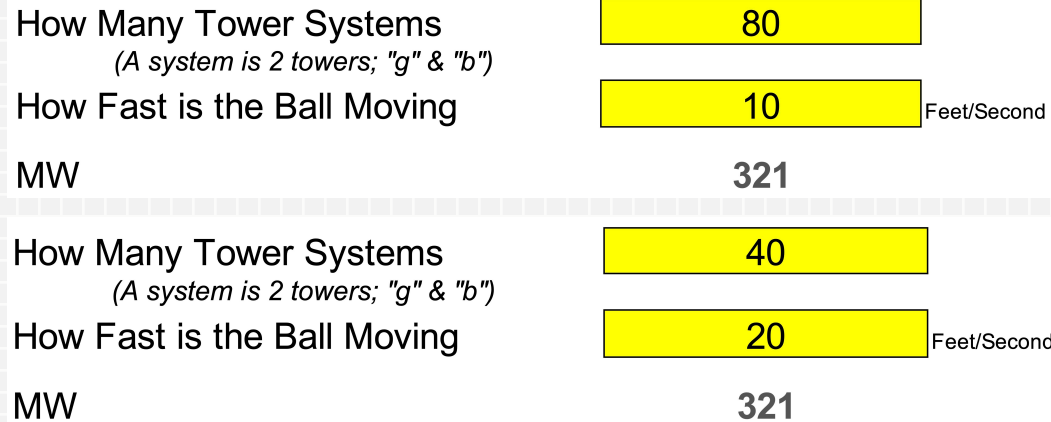
Our design is stunning and very desirable: breathtaking.

The "CEA" (Controlled Environment Agriculture) plants primary purpose is to supply the healthiest freshest local produce.

The secondary purpose is to radiate 5,000-5,500 Kelvin artificial sunlight while consuming CO2 and discharging Fresh Air (Oxygen).



UNIQUE ASPECTS OF THE TECHNOLOGY



INTERNAL REDUNDANCY

Normal operating speed is 10/ft./s: 30% of safe operating speed.

Switching to 60% of safe operating speed; 20/ft./s we can take 50% of the Tower Systems down without a drop in performance.

TIER 5 DATA CENTER

What is tier 1, 2, 3, 4 data center?

These are classifications by the Uptime Institute that define data center reliability and infrastructure:

- **Tier 1:** Basic capacity, no redundancy, ~99.671% uptime
- **Tier 2:** Redundant components, ~99.741% uptime
- **Tier 3:** Concurrently maintainable, multiple power/cooling paths, ~99.982% uptime
- **Tier 4:** Fault-tolerant, fully redundant systems, ~99.995% uptime

Is there any tier 5 data center?

While not officially recognized by the Uptime Institute, some providers use "Tier 5" as a marketing term to describe data centers with extreme security, energy efficiency, and 100% uptime. It's not a standardized certification.

UNIQUE ASPECTS OF THE TECHNOLOGY

| Data Center Space | Area for Racks | AI SERVERS POWER REQUIREMENT | | |
|-------------------|----------------|------------------------------|------------|-----------|
| | | | | |
| 42U Rack | | | 100 | KW |
| 3,000 | 384,000 | 30% | 300 | MW |

Summary Table of Rough Ranges for 300 MW

| Scenario | IT Power (after PUE) | Rack Density | Approx. Racks | Servers per Rack | Total Servers (approx.) |
|---------------------------|----------------------|--------------|---------------|------------------|-------------------------|
| Traditional (low-density) | ~200 MW | 7-10 kW | 20,000-28,000 | 30-40 | 150,000-800,000+ |
| Mixed/Average Modern | ~200-250 MW | 12-27 kW | 8,000-20,000 | 20-40 | 100,000-400,000 |
| AI/High-Density | ~200 MW | 40-60+ kW | 3,000-5,000 | 8-20 | 30,000-100,000 |

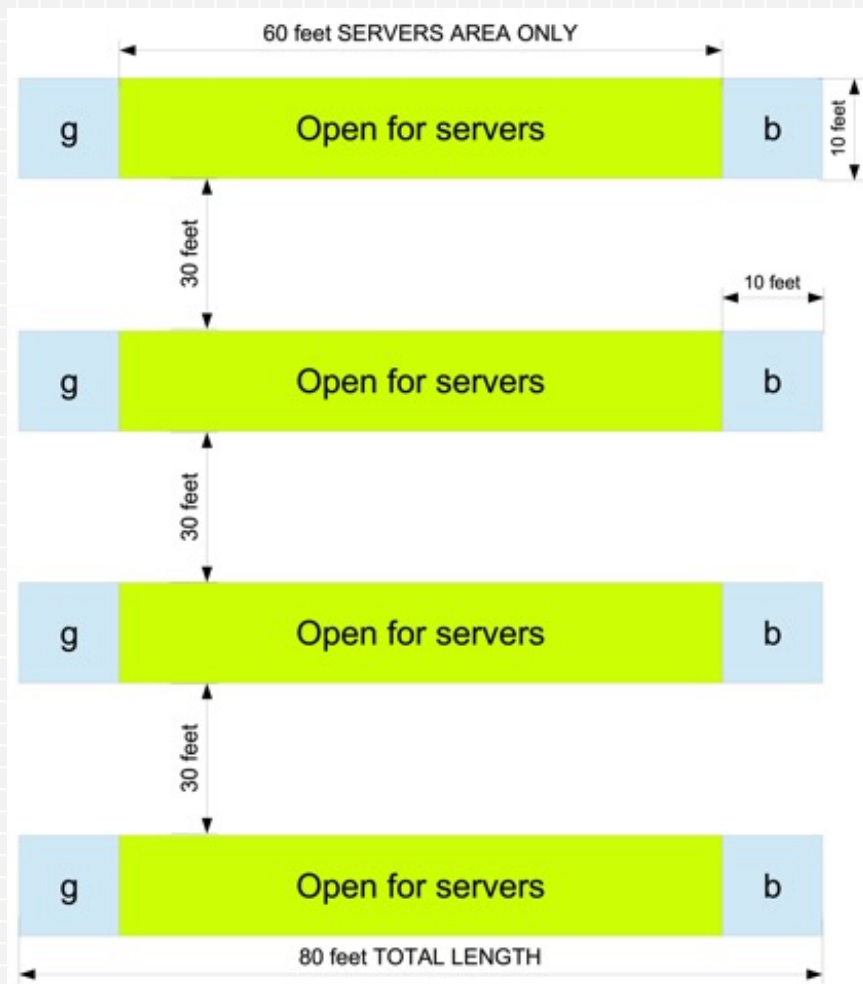
RACK SPACE

BASED ON AI SERVERS

AI / High-Density GPU Servers (Increasingly Common) Per server: 3–5+ kW (GPU-heavy).
Rack power density: 40–100+ kW (often 50–60+ kW average for AI). Fewer dense servers per rack (e.g., 8–16 high-end GPU servers).
Estimates: ~200 MW IT / 50 kW per rack = ~4,000 racks.
 At 8–20 servers/rack → **~30,000–80,000 servers.**
 For very high-density (80–100+ kW racks): Closer to **50,000 or fewer servers.**

UNIQUE ASPECTS OF THE TECHNOLOGY

PHYSICAL LAYOUT



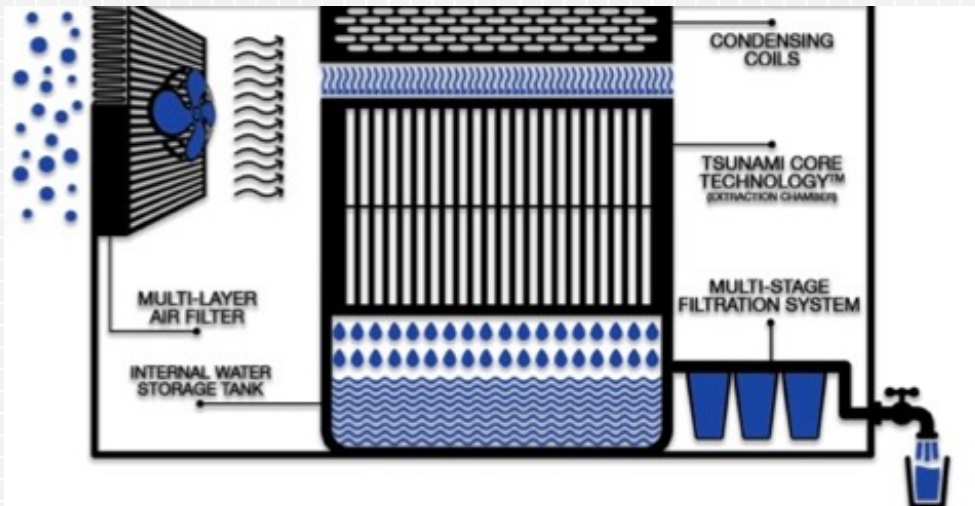
The 18 floors above ground between the “g” & “b” towers are for PARTNER TENANTS.

Data Center Operators do NOT build the floors.

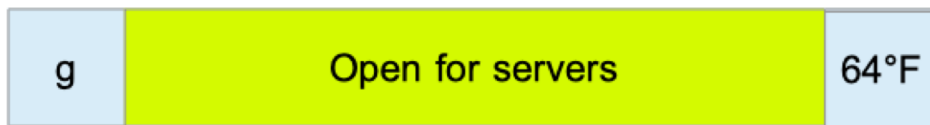
The cost differential to modify the data center space during construction will be insignificant compared to a solo build.

UNIQUE ASPECTS OF THE TECHNOLOGY

THERMAL MANAGEMENT



Millions of Gallons of 64°F water are circulating every minute around the servers behind walls.



Hot air from the Data Center is sent into the 64°F water area to function as a cooling tower.

We are a hydroelectric power plant generating electricity by using tremendous amounts of water.

The building is totally sealed and climate controlled plus atmospheric water generators ("AWG") take the humidity out of the air to put it back as chilled water and blow cold air exhaust.

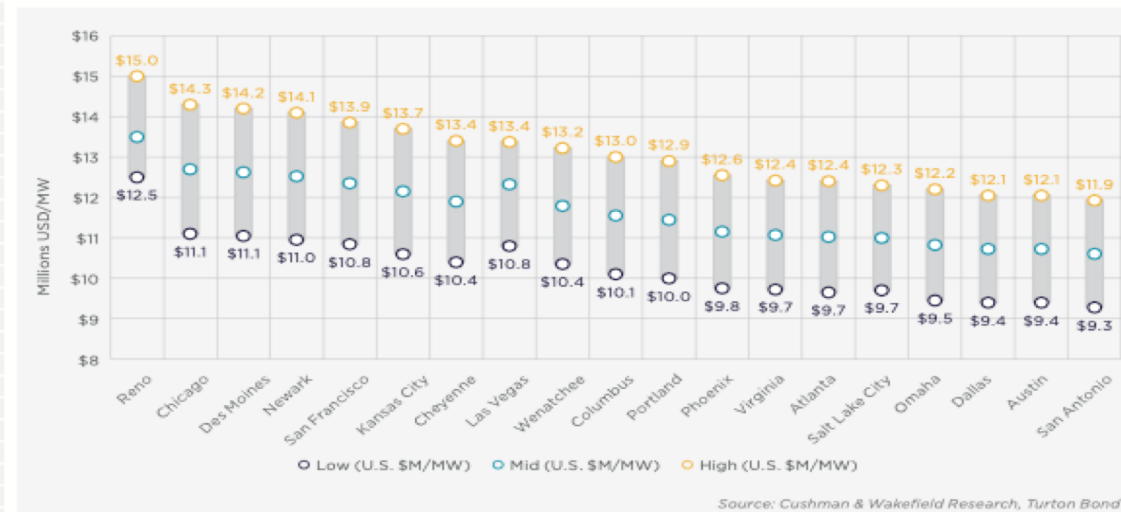
Because we go vertical we can space servers for better air management.

UNIQUE ASPECTS OF THE TECHNOLOGY

| Capital Expense | Floors | 20 | Total Building Capital Expense |
|----------------------------------|-----------|-----|--------------------------------|
| General cost per square foot | \$350 | | |
| Total Building Square Feet | 3,200,000 | ft2 | \$1,120,000,000 |
| Electricity Building Square Feet | 320,000 | ft2 | \$112,000,000 |
| General Building Square Feet | 2,080,000 | ft2 | \$728,000,000 |
| Available for Data Centers | 800,000 | ft2 | \$280,000,000 |

CONSTRUCTION COSTS BY MARKET

SELECT MARKETS: DATA CENTER CONSTRUCTION COST PER MW



DIVIDED CAPITAL EXPENSE

G-SHIP LLC builds the foundations, columns, beams,, HVAC, climate control, atmospheric water generation, etc., to power energy intensive partners.

According to the graph \$9.3M/MW was the lowest cost in any market.

\$280M is \$9.3M/MW.

UNIQUE ASPECTS OF THE TECHNOLOGY

SHARED CAPITAL EXPENSE

| Genergy Preliminary Conceptual Budget for 20 Story 05/26/2015 Power Point Presentation Drawings | | | | | | Genergy Preliminary Conceptual Budget for 20 Story 05/26/2015 Power Point Presentation Drawings | | | | | |
|---|---|----------|------|-----------|---------------|---|-------------|----------|------|-----------|------|
| Gross Building Area (Office, Amenities, Retail) SF 253,500 | | | | | | Gross Building Area (Office, Amenities, Retail) SF 253,500 | | | | | |
| CSI Div. | Description | Quantity | Unit | Unit Cost | Cost | CSI Div. | Description | Quantity | Unit | Unit Cost | Cost |
| Office Building | | | | | | | | | | | |
| 1 | Project General Conditions | | | | \$ 1,170,000 | \$4.62 | | | | | |
| | Project General Conditions | 18 | MOS | \$ | 65,000 | \$4.62 | | | | | |
| 2 | Sitework | | | | \$ 6,335,271 | \$24.99 | | | | | |
| | Sediment Control | 800 | LF | \$ | 5.00 | \$0.02 | | | | | |
| | Sediment Control Maintenance & Removal | 15 | Mos | \$ | 850.00 | \$0.05 | | | | | |
| | Dewatering | 1 | ALLW | \$ | 50,000.00 | \$0.20 | | | | | |
| | Construction Entrance | 1 | EA | \$ | 18,000.00 | \$0.07 | | | | | |
| | Site Clearing / Subsurface Removal | 16,900 | SF | \$ | 0.50 | \$0.03 | | | | | |
| | Demolition of Existing Paving, Storage Area Walls & Fencing | 1 | LS | \$ | 50,000.00 | \$0.20 | | | | | |
| | Perimeter Security Fencing | 800 | LF | \$ | 10.00 | \$0.03 | | | | | |
| | H Pile Retention System | 20,000 | SF | \$ | 38.00 | \$0.77 | | | | | |
| | Basement Excavation | 24,817 | CY | \$ | 18.00 | \$1.77 | | | | | |
| | Mat Excavation for Tank | 1,085 | CY | \$ | 24.00 | \$0.10 | | | | | |
| | Spread Footings Excavation | 1,227 | CY | \$ | 28.00 | \$0.14 | | | | | |
| | Select Fill for SOG | 4,807 | CY | \$ | 32.00 | \$0.62 | | | | | |
| | Backfill at Foundations | 1,688 | CY | \$ | 40.00 | \$0.26 | | | | | |
| | Subsoil Drainage | 16,900 | SF | \$ | 4.00 | \$0.27 | | | | | |
| | Perimeter Drainage at Basement Walls | 4,800 | SF | \$ | 12.00 | \$0.23 | | | | | |
| | Site Grading | 16,900 | SF | \$ | 1.25 | \$0.08 | | | | | |
| | Site Utilities | 1 | ALLW | \$ | 225,000.00 | \$0.89 | | | | | |
| | Water Line for Champions Golf Course Allowance | 5,280 | LF | \$ | 650.00 | \$13.24 | | | | | |
| | Refurbish Paving | 129,600 | SF | \$ | 3.50 | \$1.79 | | | | | |
| | Street Cuts / Median Work for Utilities | 1 | LS | \$ | 75,000.00 | \$0.30 | | | | | |
| | Striping for Parking Lot | 1 | LS | \$ | 10,000.00 | \$0.04 | | | | | |
| | Communications Rough-in | 1 | LS | \$ | 25,000.00 | \$0.10 | | | | | |
| | Site Lighting Allowance | 1 | ALLW | \$ | 75,000.00 | \$0.30 | | | | | |
| | Landscaping & Irrigation Allowance - Ground Level | 1 | ALLW | \$ | 200,000.00 | \$0.79 | | | | | |
| | Landscaping & Irrigation Allowance - Elevated Green Areas | 1 | ALLW | \$ | 50,000.00 | \$0.20 | | | | | |
| 3 | Concrete / Formwork / Reinforcing | | | | \$ 3,408,603 | \$13.45 | | | | | |
| | Water Tank Mat Foundation | 926 | CY | \$ | 225.00 | \$0.82 | | | | | |
| | Steel Slabs | 14,400 | SF | \$ | 3.00 | \$0.17 | | | | | |
| | Spread Footings | 1,227 | CY | \$ | 226.00 | \$1.09 | | | | | |
| | Basement Perimeter Wall | 20,000 | SF | \$ | 28.00 | \$2.21 | | | | | |
| | Retail Slab On Grade | 12,000 | SF | \$ | 6.00 | \$0.28 | | | | | |
| | Slab on Deck | 253,500 | SF | \$ | 5.50 | \$5.50 | | | | | |
| | Miscellaneous Concrete | 253,500 | SF | \$ | 0.40 | \$0.40 | | | | | |
| | Tower Crane & Operator | 15 | MOS | \$ | 32,228.00 | \$1.91 | | | | | |
| | Field Engineering | 18 | MOS | \$ | 15,000.00 | \$1.07 | | | | | |
| 3 | Architectural Precast Concrete | | | | \$ 907,200 | \$3.58 | | | | | |
| | Office Tower (20% of skin) | 20,160 | SF | \$ | 45.00 | \$3.58 | | | | | |
| 4 | Stone | | | | \$ 615,000 | \$2.43 | | | | | |
| | Stone Flooring Allowance | 4,800 | SF | \$ | 75.00 | \$1.42 | | | | | |
| | Stone Wall Allowance | 2,400 | SF | \$ | 90.00 | \$0.85 | | | | | |
| | Restroom Tops | 26 | EA | \$ | 1,500.00 | \$0.15 | | | | | |
| 4 | Masonry | | | | \$ 67,200 | \$0.27 | | | | | |
| | CMU Package (Walls in Basement) | 4,800 | SF | \$ | 14.00 | \$0.27 | | | | | |
| 5 | Metals | | | | \$ 10,200,300 | \$40.24 | | | | | |
| | Structural Steel Fabrication (18lbs/SF) | 2,282 | TONS | \$ | 2,500.00 | \$22.50 | | | | | |
| | Structural Steel Installation | 253,500 | SF | \$ | 13.50 | \$13.50 | | | | | |
| | Miscellaneous Steel & Erection | 253,500 | SF | \$ | 1.40 | \$1.40 | | | | | |
| | Kicker Steel for Precast | 20,160 | SF | \$ | 2.50 | \$0.20 | | | | | |
| | Miscellaneous Steel at Restrooms (Partitions & Subtops) | 26 | EA | \$ | 2,750.00 | \$0.28 | | | | | |
| | Exit Stairs (3 Sets) | 37 | SETS | \$ | 12,800.00 | \$1.82 | | | | | |
| | Retail Stairs | 3 | SETS | \$ | 20,000.00 | \$0.24 | | | | | |
| | Ornamental Metals | 1 | ALLW | \$ | 75,000.00 | \$0.30 | | | | | |
| 6 | Wood & Plastics | | | | \$ 273,200 | \$1.08 | | | | | |
| | Rough Carpentry | 253,500 | SF | \$ | 0.20 | \$0.20 | | | | | |
| | Restroom Sub-Tops | 26 | EA | \$ | 250.00 | \$0.03 | | | | | |
| | Architectural Millwork at Retail & Offices | 2,400 | SF | \$ | 90.00 | \$0.85 | | | | | |
| 7 | Thermal & Moisture Protection | | | | \$ 1,117,535 | \$4.41 | | | | | |
| | Caulking | 253,500 | SF | \$ | 0.15 | \$0.15 | | | | | |
| | Waterproofing at Below Grade Walls | 20,000 | SF | \$ | 6.00 | \$0.47 | | | | | |
| | Elevator Pit Waterproofing | 1 | EA | \$ | 7,500.00 | \$2.33 | | | | | |
| | Level 2 Retail/Offices Roof | 12,000 | SF | \$ | 14.50 | \$0.89 | | | | | |
| | Main Roof | 16,900 | SF | \$ | 14.50 | \$245,050 | \$0.97 | | | | |
| | Penthouse Roof (Elevator Machine Room) | 400 | SF | \$ | 14.50 | \$5,800 | \$0.02 | | | | |
| | Edge of Deck Firestopping | 5,780 | LF | \$ | 3.50 | \$20,160 | \$0.08 | | | | |
| | Sprayed Fireproofing & Insulation | 253,500 | SF | \$ | 2.00 | \$507,000 | \$2.00 | | | | |
| 8 | Doors, Frames and Hardware | | | | \$ 124,200 | \$0.49 | | | | | |
| | Interior Doors, Frames, Hardware Package | 108 | EA | \$ | 1,150.00 | \$124,200 | \$0.48 | | | | |
| 8 | Glass & Glazing | | | | \$ 6,185,300 | \$24.40 | | | | | |
| | Curtainwall (80% of Skin) | 80,640 | SF | \$ | 75.00 | \$6,048,000 | \$23.86 | | | | |
| | Main Entry Doors | 1 | EA | \$ | 12,500.00 | \$12,500 | \$0.05 | | | | |
| | Retail Entry Doors | 4 | EA | \$ | 3,500.00 | \$14,000 | \$0.06 | | | | |
| | Restroom Mirrors | 26 | EA | \$ | 800.00 | \$20,800 | \$0.08 | | | | |
| | Amenity Level Glazing at Office Area | 1,200 | SF | \$ | 75.00 | \$90,000 | \$0.36 | | | | |
| 9 | Finishes | | | | \$ 3,101,625 | \$12.24 | | | | | |
| | Drywall | 144,000 | SF | \$ | 6.50 | \$936,000 | \$3.69 | | | | |
| | Acoustical Ceilings | 24,000 | SF | \$ | 3.00 | \$72,000 | \$0.28 | | | | |
| | Plaster Soffit at Ground Level (Loading Dock) | 3,000 | SF | \$ | 25.00 | \$75,000 | \$0.36 | | | | |
| | Painting & Wall Covering | 144,000 | SF | \$ | 0.50 | \$72,000 | \$0.28 | | | | |
| | Epoxy Sealed Floors | 253,500 | SF | \$ | 5.75 | \$1,457,625 | \$5.75 | | | | |
| | Ceramic Tile at Restrooms | 26 | EA | \$ | 15,000.00 | \$390,000 | \$1.54 | | | | |
| | Flooring Retail & Offices | 24,000 | SF | \$ | 3.50 | \$84,000 | \$0.33 | | | | |
| 10 | Specialties | | | | \$ 229,250 | \$0.99 | | | | | |
| | Specialties & Toilet Partitions | 26 | EA | \$ | 8,800.00 | \$228,800 | \$0.90 | | | | |
| | Fire Extinguisher Cabinets | 78 | EA | \$ | 275.00 | \$21,450 | \$0.08 | | | | |
| 12 | Furnishings | | | | \$ 690,000 | \$2.72 | | | | | |
| | Rolling Window Coverings | 12 | LVLs | \$ | 45,000.00 | \$450,000 | \$2.13 | | | | |
| | Graphics Package Allowance | 1 | ALLW | \$ | 150,000.00 | \$150,000 | \$0.59 | | | | |
| 13 | Equipment | | | | \$ 165,000 | \$0.65 | | | | | |
| | Window Washing Equipment Package | 1 | ALLW | \$ | 150,000.00 | \$150,000 | \$0.59 | | | | |
| | Loading Dock Equipment | 2 | EA | \$ | 7,500.00 | \$15,000 | \$0.06 | | | | |
| 14 | Elevators | | | | \$ 1,360,000 | \$5.36 | | | | | |
| | Service Elevator (500 FPM) | 1 | EA | \$ | 930,000.00 | \$930,000 | \$3.67 | | | | |
| | Passenger Elevators - (700 FPM) | 1 | EA | \$ | 350,000.00 | \$350,000 | \$1.38 | | | | |
| | Temporary Use Agreements | 2 | EA | \$ | 40,000.00 | \$80,000 | \$0.32 | | | | |
| 15 | Mechanical | | | | \$ 12,685,400 | \$50.04 | | | | | |
| | Fire Protection | 253,500 | SF | \$ | 2.15 | \$545,025 | \$2.15 | | | | |
| | Typical Plumbing (GRs, Floor Drains, Water Risers, Roof Drains) | 253,500 | SF | \$ | 5.50 | \$1,394,250 | \$5.50 | | | | |
| | Process Piping for Aquaculture (See Assumptions-Clarifications 11-20) | 1 | ALLW | \$ | 6,900,000.00 | \$6,900,000 | \$25.54 | | | | |
| | H. V. A. C. | 253,500 | SF | \$ | 14.75 | \$3,739,125 | \$14.75 | | | | |
| | Building Controls | 253,500 | SF | \$ | 2.00 | \$507,000 | \$2.00 | | | | |
| 16 | Electrical | | | | \$ 14,083,250 | \$55.56 | | | | | |
| | Typical Electrical (Lighting/Convenience Power/Fire Alarm) | 253,500 | SF | \$ | 15.50 | \$3,929,250 | \$15.50 | | | | |
| | Power Gear and Generators (See Assumptions-Clarifications 21-27) | 1 | ALLW | \$ | 9,500,000.00 | \$9,500,000 | \$37.48 | | | | |
| | Exterior Façade Lighting | 1 | ALLW | \$ | 250,000.00 | \$250,000 | \$0.99 | | | | |
| | Temporary Power | 18 | MOS | \$ | 18,000.00 | \$324,000 | \$1.28 | | | | |
| | Temporary Power T&C Package (From CenterPoint) | 1 | LS | \$ | 80,000.00 | \$80,000 | \$0.32 | | | | |
| | Miscellaneous | | | | \$ 342,150 | \$1.35 | | | | | |
| | OW Final Cleaning | 100,800 | SF | \$ | 0.50 | \$50,400 | \$0.20 | | | | |
| | Final Cleaning | 253,500 | SF | \$ | 0.25 | \$63,375 | \$0.25 | | | | |
| | Material Hoists | 16 | MOS | \$ | 11,000.00 | \$176,000 | \$0.85 | | | | |
| | Building Permit | 1 | LS | \$ | 63,375.00 | \$63,375 | \$0.25 | | | | |
| | Subtotal Cost of the Work | | | | \$ 63,081,485 | \$248.84 | | | | | |
| | Contingency | | | | 5.00% | 3,154,074 | \$12.44 | | | | |
| | Insurance & Subguard | | | | 1.75% | 1,103,926 | \$4.37 | | | | |
| | Fee | | | | 5.00% | 3,154,074 | \$12.44 | | | | |
| | Payment & Performance Bond | EXCL | | | 0.00% | \$0.00 | \$0.00 | | | | |
| | TOTAL | | | | \$ 70,764,415 | \$279.15 | | | | | |

Sharing space: building the power plant to house the data center eliminates soft and hard costs.

Building vertical with multiple internal generators saves cabling expense and no substation needs to be built.

No UPS backup required.

100% UP Time is possible with quadruple redundancy.

THE END OF THE DATA CENTER INFORMATION

**THE BEGINNING OF UNDERSTANDING MORE
ABOUT OUR UNIQUE TECHNOLOGY**

UNDERSTANDING PATENT US8981582B2

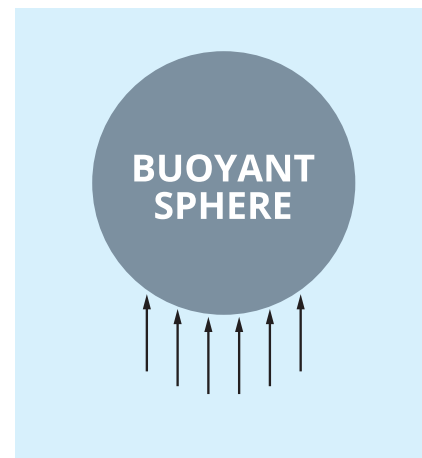
BUOYANCY ENERGY

("B" Energy)

WATER PATH

Buoyancy energy pushes UP on a buoyant sphere in water.

The "Water Path"



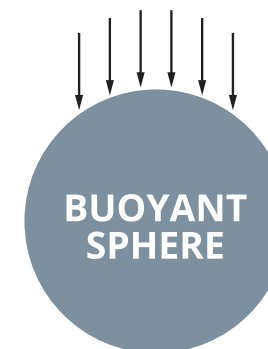
GRAVITY ENERGY

("G" Energy)

AIR PATH

Gravity pulls DOWN on a buoyant sphere in the air.

The "Air Path"



A UNIQUE, SCIENTIFICALLY VALIDATED SOLUTION

- A three-year Applied Research Study with the School of Engineering at a prestigious university, in partnership with Wolfram Consulting concluded:
- The model produced “Net energy...” that did not violate the “Laws of Thermodynamics” nor was a “Perpetual Motion Machine.”
- Patent validates the retention of 98% of energy produced through (“ $E=pv$ ”)
- The “G” side uses the weight of water inside spheres with a density of 80% (making the spheres both HEAVY & BUOYANT) to produce hydroelectric power.
- The “B” side floats the balls up to the top and complete a never-ending cycle. Our patent (US8981582B2) explains how we conserve and recover energy that generates net positive energy.

PRESSURE ENERGY RECOVERY

- **THEORY:**
The Proof of Concept Model required a 15,000-watt powered gate valve.
- ▶ **IN ACTUALITY:**
With our patented technology applied, it only needed 300 watts.

KEY NATURAL FORCES AT PLAY

- Newton’s Law of Gravitational Energy applied to produce mechanical energy from the mass of water to spin an electric generator is a definition of Hydroelectric Power Generation.
- Archimedes Principal, Motion with Linear Drag and Boyle’s Law applied to float buoyant spheres is clearly understood.

KEY COMPONENTS



Hydro-Sphere®



Valve Assembly



Annular Injector



Genergy Hydro Electric Power Tower
Under Construction in Houston

NEWTONIAN PHYSICS



Object Falling from Rest

As an object falls from rest, its **gravitational potential energy** is converted to **kinetic energy**. Conservation of energy as a tool permits the calculation of the velocity just before it hits the surface.

By conservation of energy:
Energy before = Energy after

$$PE = mgh$$

$$KE = 0$$

$$mgh = \frac{1}{2}mv^2$$

The beginning energy is all potential energy. The final energy is all kinetic energy. The m on both sides tells you that the final velocity doesn't depend upon the mass.

The velocity just before impact is $v = \sqrt{2gh}$

$$KE = \frac{1}{2}mv^2$$

$$PE = 0$$

If an object is dropped from height $h = 100$ m, then the velocity just before impact is $v = 44.27$ m/s. If the mass is $m = 400$ kg, then the kinetic energy just before impact is equal to $K.E. = 392000$ J, which is of course equal to its initial potential energy. The accuracy of this calculation depends upon the assumption that **air friction** is negligible, and that the height of drop is small compared to the radius of the earth.

GRAVITY

Impact Force from Falling Object

Even though the application of conservation of energy to a falling object allows us to predict its impact velocity and kinetic energy, we cannot predict its impact force without knowing how far it travels after impact.

If an object of mass $m = 400$ kg is dropped from height $h = 100$ m, then the velocity just before impact is $v = 44.27$ m/s. The kinetic energy just before impact is equal to its **gravitational potential energy** at the height from which it was dropped:

$$PE = mgh$$

$$KE = 0$$

$$K.E. = 392000 \text{ J}$$

$$v = \sqrt{2gh}$$

But this alone does not permit us to calculate the force of impact!

If in addition, we know that the distance traveled after impact is $d = 3$ m, then the impact force may be calculated using the **work-energy principle** to be **Average impact force = $F = 130666$ N.**

Greater penetration implies smaller impact force. Harder ground, less penetration, higher impact force. If it bounces back, the impact force is even greater because of the greater change in momentum.

Motion with Linear Drag

Falling in a viscous medium:

$$F_{net} = mg' - bv$$

Penetration into a resistive medium:

$$F_{net} = -bv$$

Motion equations: Sinking object

Motion equations: Penetration distance $x = \frac{m}{b} v_0$

BUOYANCY

Consider a sphere of mass $m = 400000$ gm = 400 kg and density $\rho = 0.8$ gm/cm³ = 800 kg/m³ corresponding to radius $r = 49.237$ cm = 0.49237 m

If such a sphere sinks through a fluid of density 1 gm/cm³ = 1000 kg/m³ the initial gravitational acceleration will be $g' = -2.45$ m/s² = -0.25 g.

If the fluid viscosity is $\eta = 0.01$ poise = 1 η_{water} then this sinking motion will be characterized by a terminal velocity $v_t = -10556$ m/s and a characteristic time $\tau = 43098.7$ seconds.

If this object is released from rest, then in time $t = 11$ sec, it will fall to depth $d = -14821$ cm = -148.21 m and will have velocity $v = -2694.6$ cm/s = -26.946 m/s

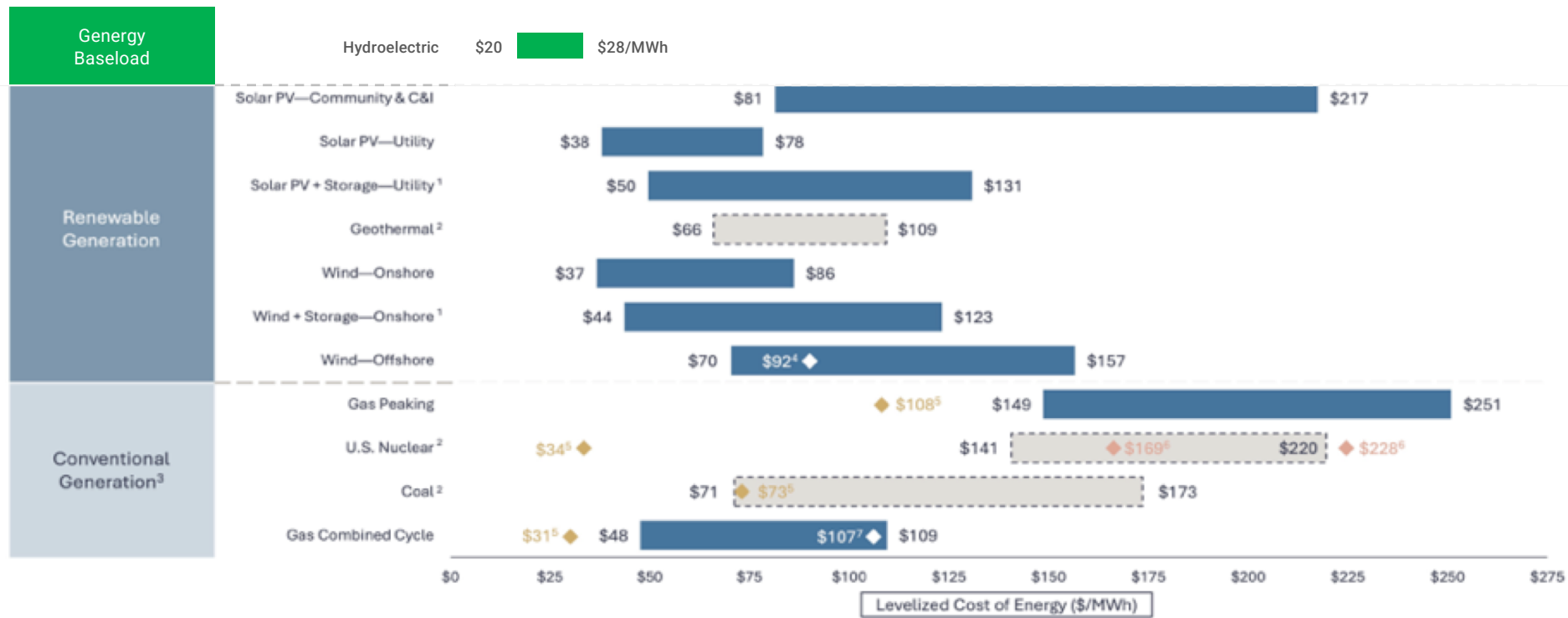
COST ENERGY COMPARISON



A LAZARD'S LEVELIZED COST OF ENERGY ANALYSIS—VERSION 18.0

Levelized Cost of Energy Comparison—Version 18.0

Selected renewable energy generation technologies remain cost-competitive with conventional generation technologies under certain circumstances



G-Ship is Non-Variable
Capacity Factor:

90%

Solar is Variable
Capacity Factor:

25%

Wind is Variable
Capacity Factor:

35%

Natural Gas is Non-Variable
Capacity Factor:

58.8%

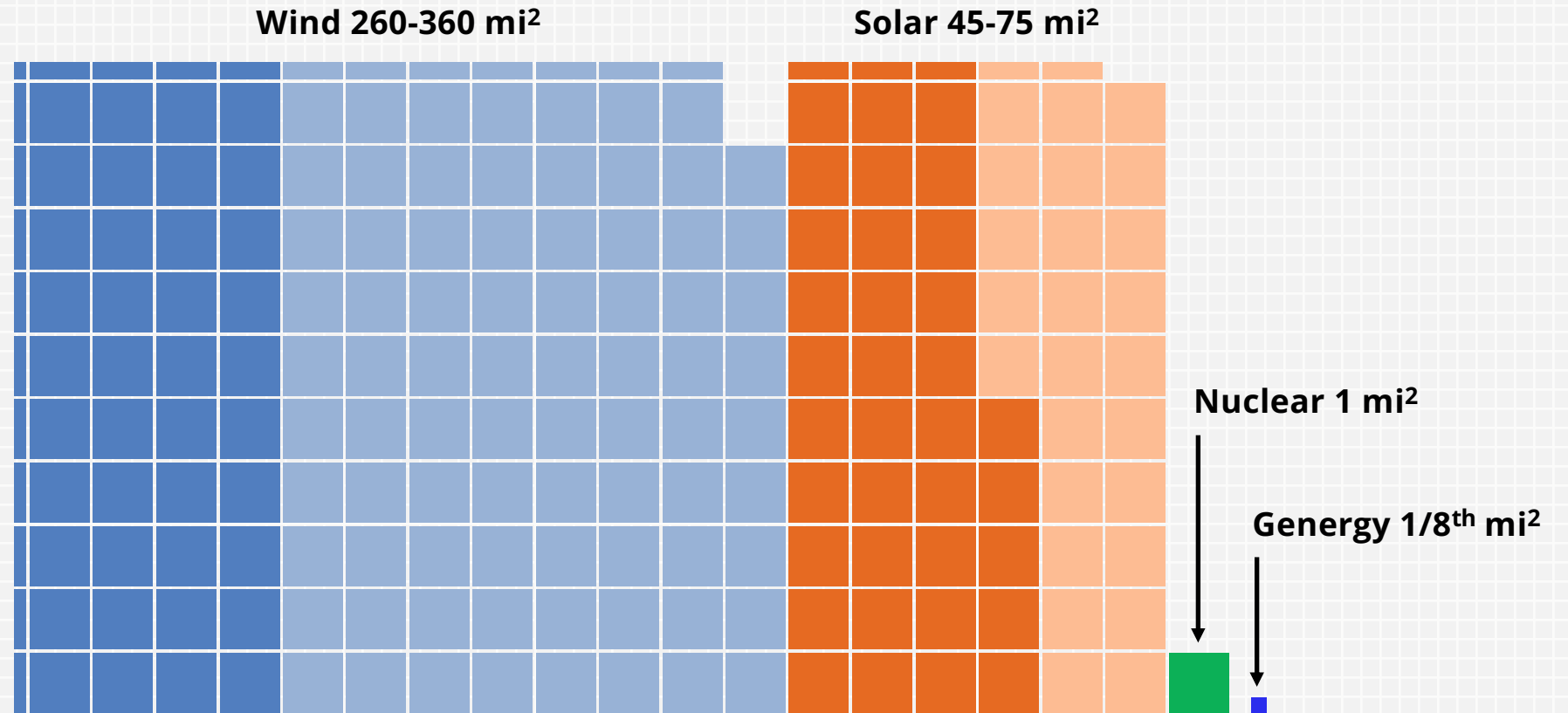
GENERGY FOOTPRINT COMPARISON

GENERGY REQUIRES:

1/8th
the land of Nuclear

1/360th
the land of Solar

1/2080th
the land of Wind

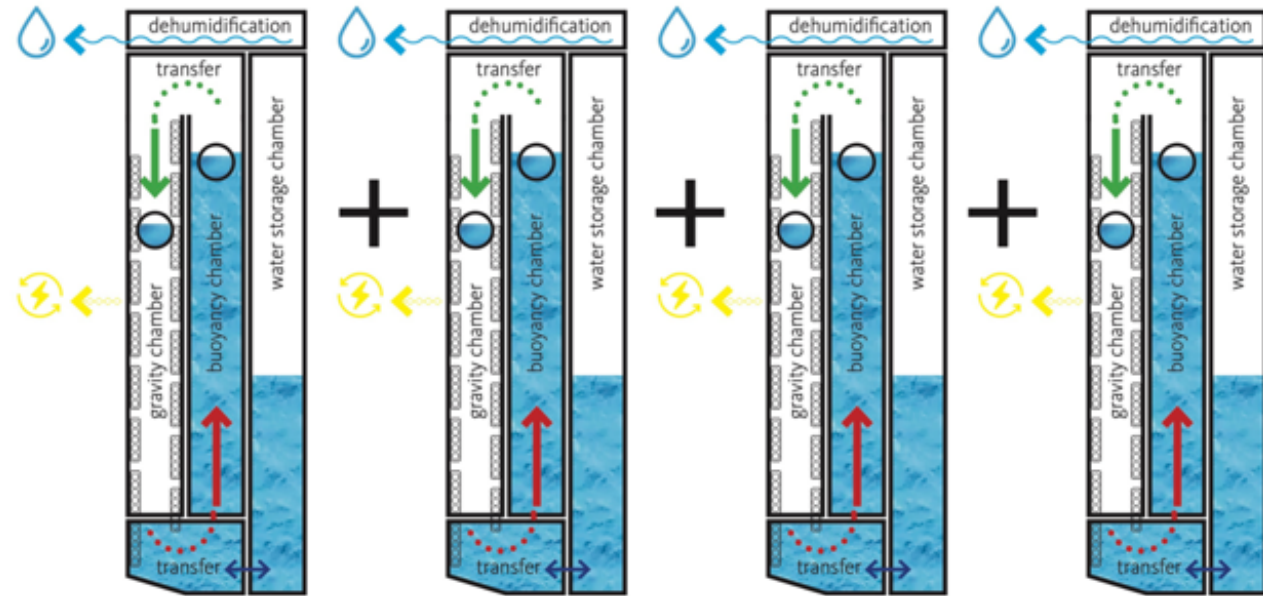


Nuclear Energy Institute ("NEI"), June 2015, Land Requirements for Carbon-Free Technologies

See also: USNRC, Table 8.2 Environmental impacts of operating 1000-MW(e)-equivalent electric power plants for non-nuclear alternative generating

KEY BENEFITS

- 24-Hour a Day Up Time
- Independent of the Local Power Grid
- Quiet Operation
- Minimal Space Requirements
- Fast and Easy to Install
- Inexpensive to Operate



Each 4-pack G:ENERGY module generates approximate 6MW of electricity, enough to power 4500 homes at once.

(https://www.energy.ca.gov/glossary/ISO_GLOSSARY.PDF)

1,944 square feet

BUILDING IT

- G-SHIP LLC has EPC Contractors
- Hydro Electric Power Towers rise fast
- Fabrication occurs offsite while construction occurs onsite
- Ultra fast modular design



HARVEY...
CLEARY

Gensler

BURNS  MCDONNELL

“Based on your design, we will fast track your permits. Your technology complies with all of our regulations and does not have the negative environmental cost of other technologies.”

- STATE OF CALIFORNIA

COMPANY HISTORY & VIABILITY

G-Ship LLC was founded in 2014 and is privately held.

Our partner architectural, construction and engineering firms are world-renowned and include Gensler, Harvey, Burns & McDonnell and our other vendor partners who are ready to build our Hydro Electric Power Towers immediately.

G-SHIP LLC is in negotiations with India, UAE, numerous African nations and with The State of Texas for Hydro Electric Power Towers with data centers integrated into the design



G-SHIP LLC HISTORY

| DATE | CATEGORY | DESCRIPTION |
|------------|--|--|
| 2005/08/04 | Patent | Dictated 1 st Patent |
| 2008/06/14 | Prototype | Built 1 st Physical Model |
| 2009/07/08 | Patent | 1 st Provisional Patent |
| 2009/11/19 | Letter of Support | Texas A&M University "TCAT" |
| 2010/01/10 | Patent | 1 st Patent Filed |
| 2010/09/03 | Prototype | 2 nd Physical Model in Pool |
| 2011/03/11 | Wolfram Consulting | 3D Model & Simulation Started |
| 2011/03/29 | State of California | California CEC Appeal Hearing |
| 2011/04/16 | Wolfram Consulting | Wolfram Mathematica Model Successful |
| 2011/04/25 | State of California | CEC Commissioners Grant PreCertification |
| 2012/04/09 | State of California | SPGCA-1, LLC Precertified by CEC-61230C |
| 2012/05/08 | Prototype | 3 rd Physical Model in Machine Shop |
| 2012/09/22 | SoCal University | Electromagnetic linear motor model starts |
| 2014/02/02 | Patent | CA. Dept. of Water Resources Tech Brief 1 |
| 2014/10/16 | Fabrication | CA. Dept. of Water Resources Tech Brief 2 |
| 2015/02/19 | SoCal University | Engineering School Validates Mathematica |
| 2015/03/17 | Patent | Patent granted |
| 2016/05/01 | Fabrication | 4 th Physical Model Houston Begins |
| 2016/10/11 | United Arab Emirates | ADEWA, DEWA, & UAEWA Meetings UAE |
| 2017/02/23 | Prototype – Proof of Concept Done | 4 th Physical Model 30 Foot Tower Success |
| 2021/04/01 | Fabrication | 1 st Commercial Power Plant Begins Houston |
| 2022/05/10 | Fabrication | Pad, Bottom 2 Towers, and Valve Standing |
| 2022/08/17 | Fabrication | 3 rd Valve Placed In Concrete Tank |
| 2022/11/02 | Commercial Sale | 1 st Sale "MVP" to Houston Rig Fab Facility |
| 2025/07/10 | Letter of Support | ZERA – Zimbabwe Energy Regulatory Authority |
| 2025/07/15 | Letter of Support | UMEDA – uMgungundlovu Economic Development Agency |
| 2025/09/09 | Letter of Support | ZIMBABWE – Minister of Energy & Power Development |
| 2025/09/17 | Letter of Support | ZIMBABWE – Minister of Finance, Economic Development |