




Terrament

Radically Scalable Energy Storage

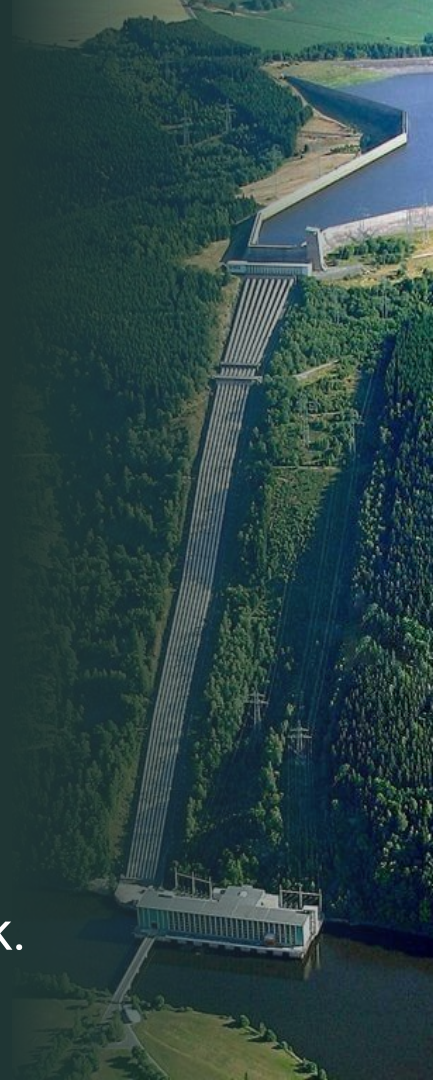
Problem

We need long-duration energy storage

 Wind & solar demand Long-duration energy storage

 Pumped hydro is our only solution, and it's running out.

 We need a new solution that is cheap/scalable/low-risk.



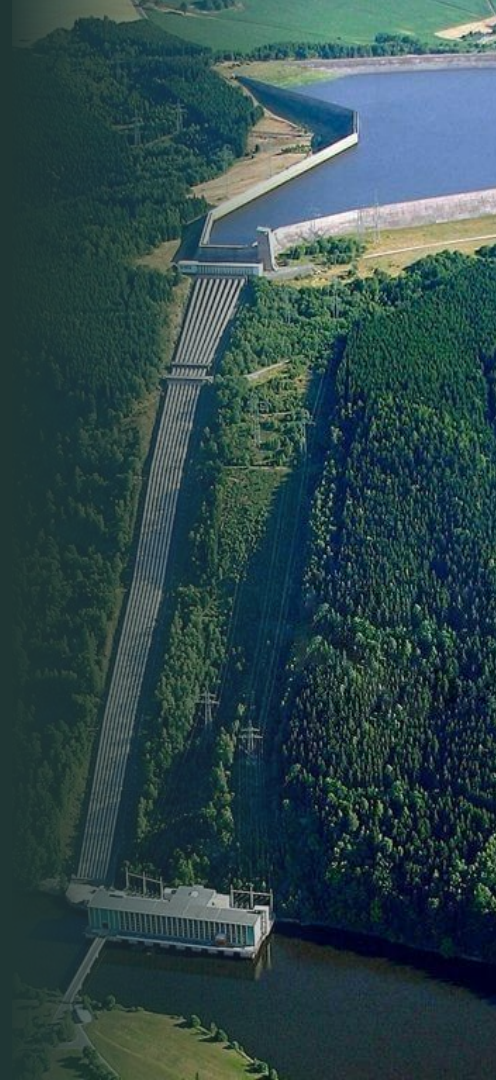
Solution

Old: Pumped Hydro Gravity Storage

$$\underline{Mgh} \rightarrow (\underline{\text{Mass}} \times \text{💧} \times \underline{\text{Height}})$$

⚡ ↻ ↑ High demand? Drop water through turbines

📄 ↓ Low demand? Pump water back uphill



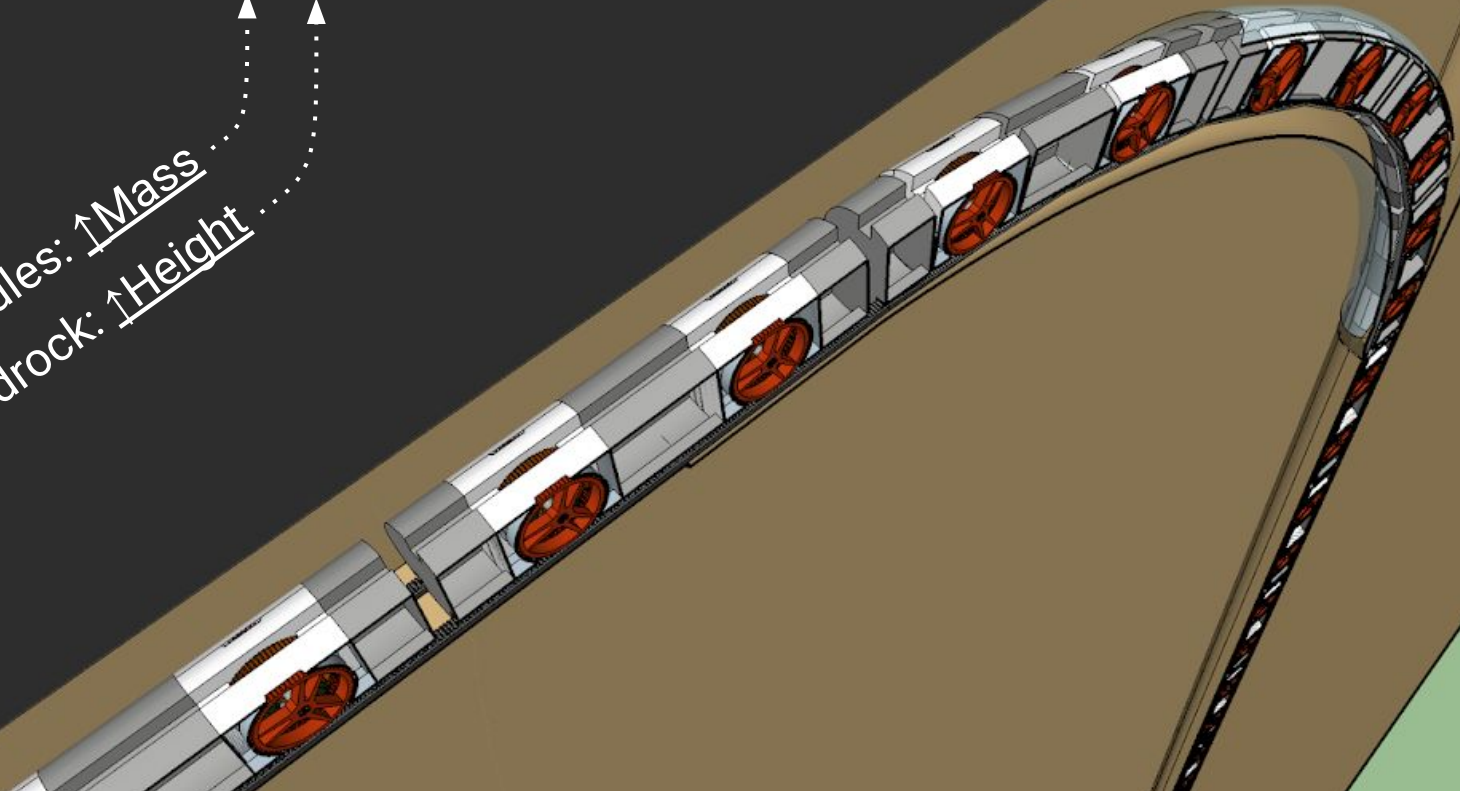
Solution

New: Modular Underground Gravity Storage

Terrament maximizes mgh to win lowest cost

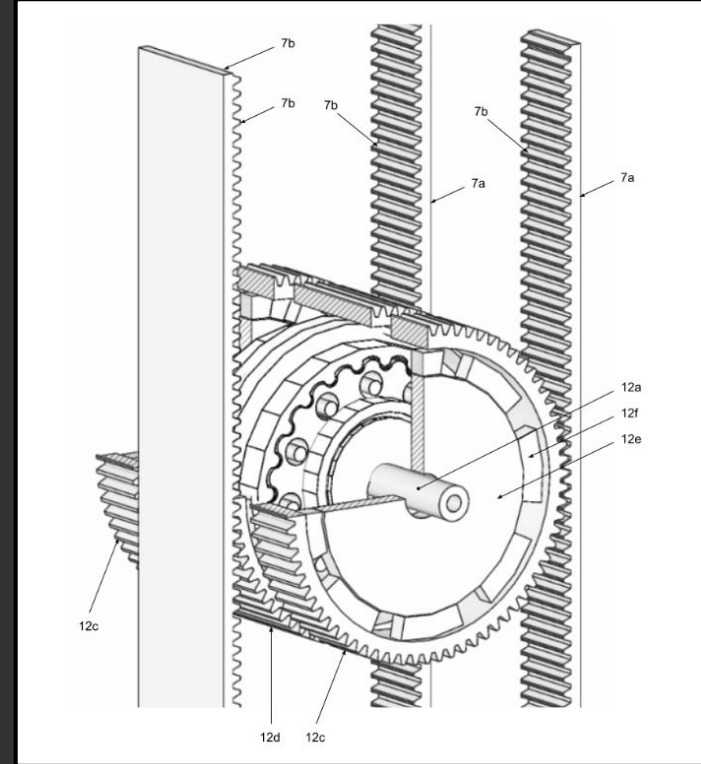
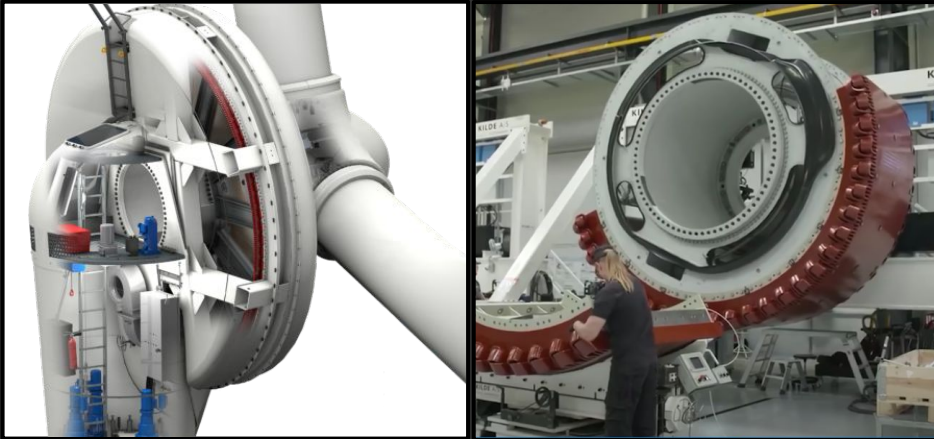
Self-powered modules: ↑Mass

Drill into bedrock: ↑Height



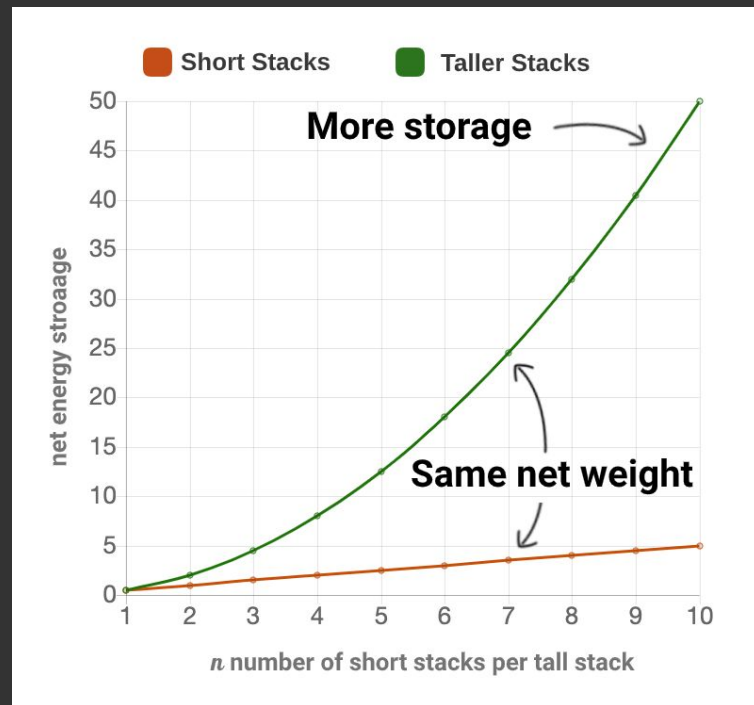
How it works Maximized weight

- Proven wind turbine tech
- Modules support their own weight
- 100% volume. 1 mile concrete stack.



How it works Maximized height

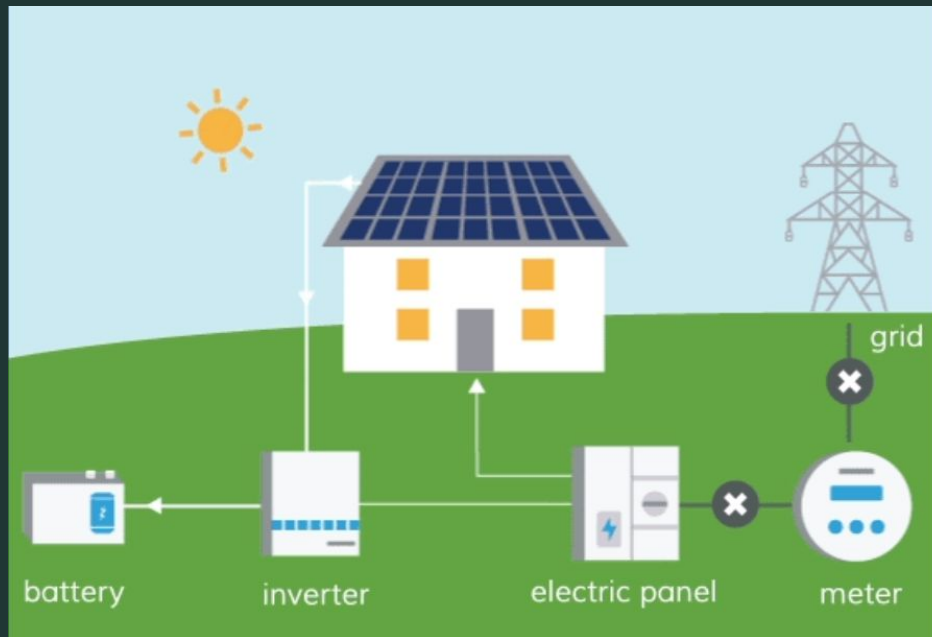
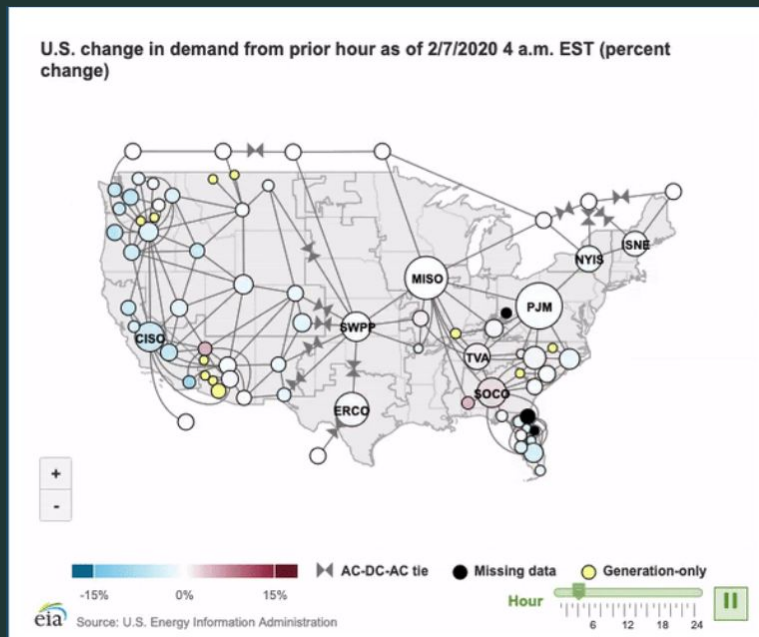
- Proven mining tech
- 1 mile deep
- 10x height gives 10x storage/weight



Environmental Impact

100% Wind & Solar only works if we *balance variability*

Transmission=location balance; **Energy Storage=time balance**



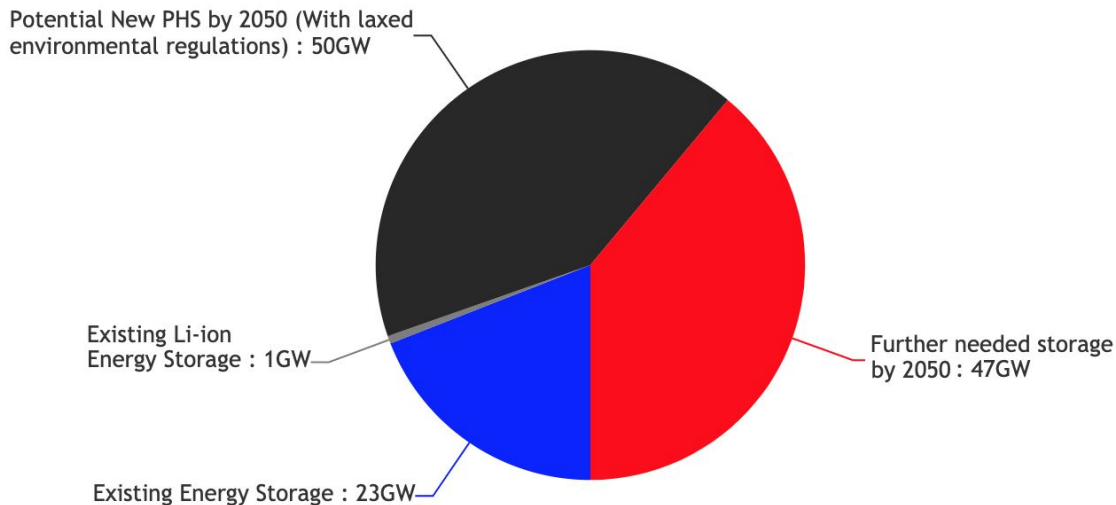
Scale: We need Energy Storage for 80% Renewables by 2050:

U.S. Energy Storage:

- Needs to 5x by 2050
- **Existing:** 23GW
- **Needed:** 120GW by 2050
- Possible PHS under BAU*:
 - *Almost 0*
- Possible PHS with env damage:
 - *Not nearly enough*

**Business as usual*

U.S. Energy Storage Needed by 2050 (GW)

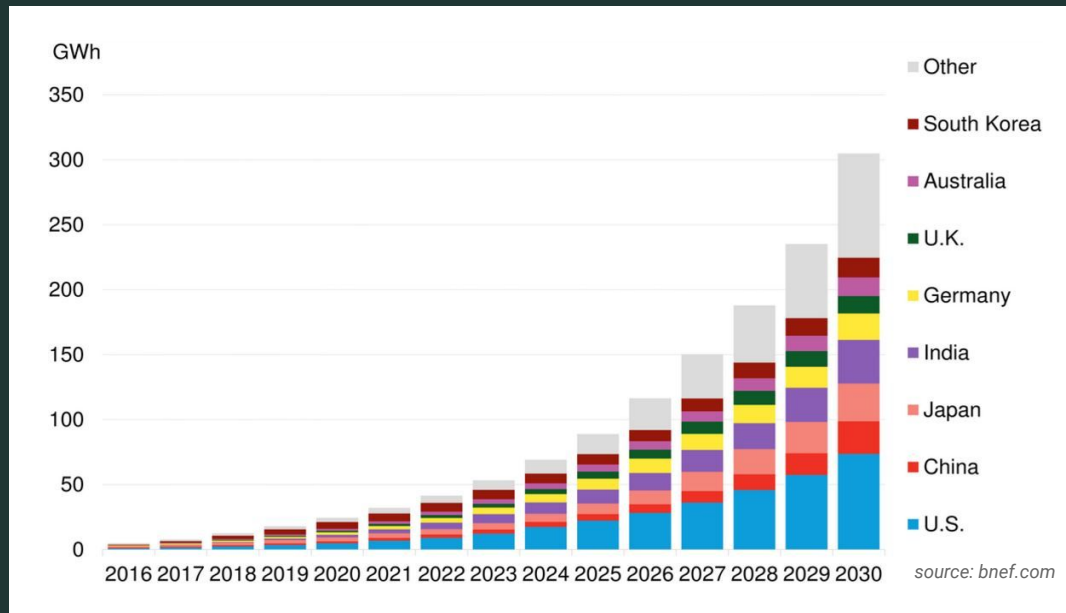


Source: U.S. DOE Hydropower Vision Report 2018

Market Potential (Energy Storage)

TAM, Global: \$1.2 Trillion by 2050

TAM, US: \$135 Billion by 2050



Market Timing

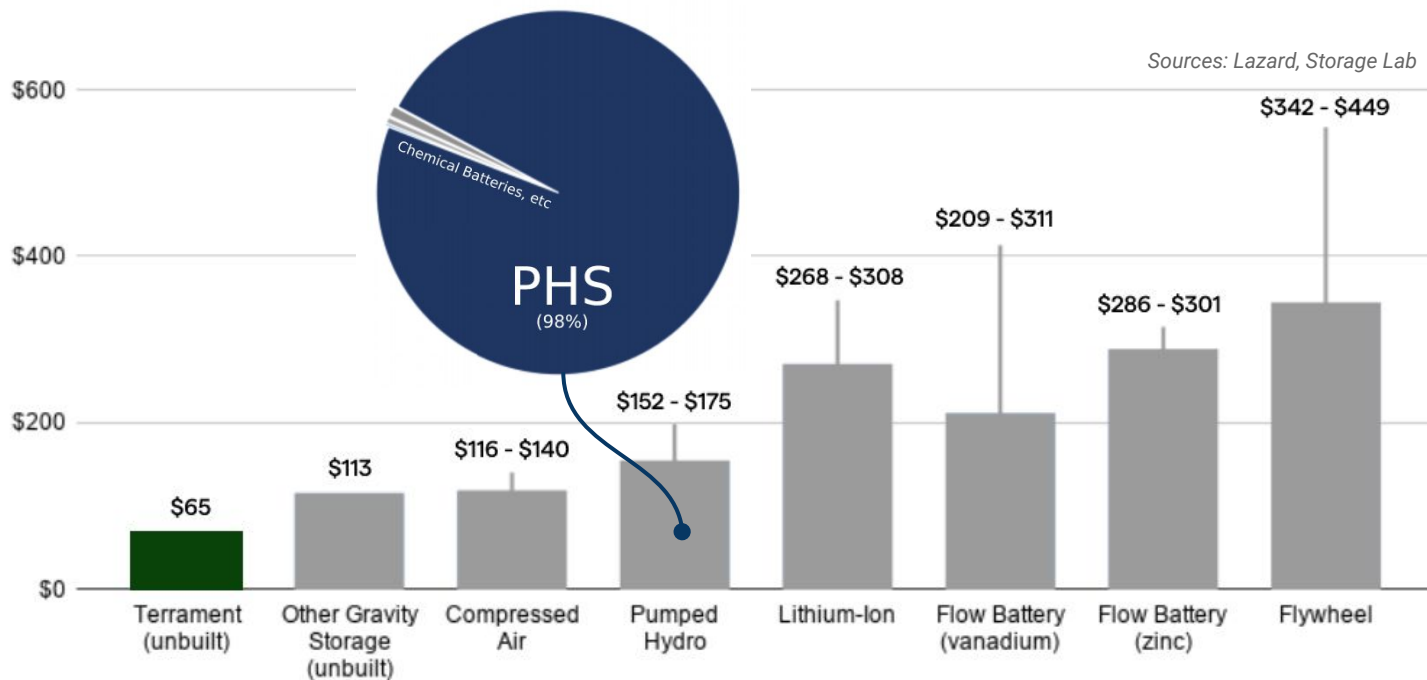
- Pumped Hydro is tapped
- No other market-ready tech
- Favorable low interest rates
- 3.5% projected AAGR

Terrament is Ready

↑Scale ↓Cost ↓Risk

Competition Today

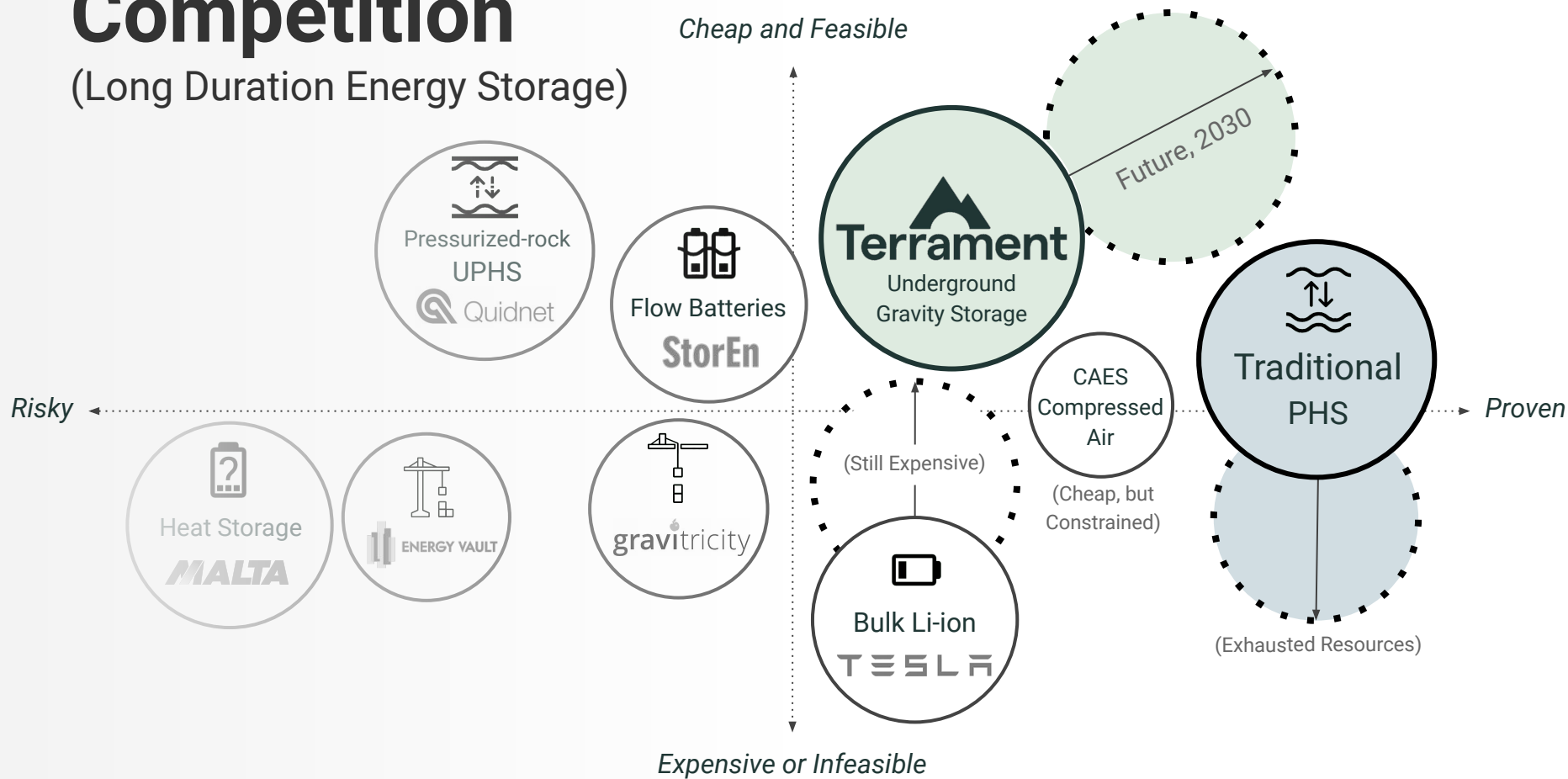
PHS is 98% of market, but it's tapped out. And Terrament is cheaper.



Comparison of Energy Storage Technologies by Levelized Cost (LCOE) in \$/MWh

Competition

(Long Duration Energy Storage)



Terrament Team advisors/potential founders + partners



Eric Chaves

CEO, Technologist

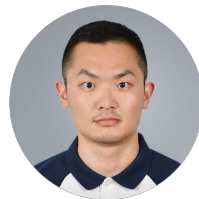
Entrepreneur/Software Engineer.
Background in Architecture,
Engineering, & Industrial Design.



Colin Bateson

Mechanical Engineer, PhD

First Mode: Engineering, analysis
and prototyping for space, mining,
and clean tech industries.



Mengye Chen

Civil Engineer, PhD

Hydrological climate risk modeling.
AI-based flood prediction and supply
chain optimization.



Isabelle Heye

Mechanical Engineer, ME

Robotics Engineer at Intuitive.
Manager on team for da Vinci
robotic-assisted surgical system.



Etinosa Ogiesoba

Electrical Engineer, ME

Energy project developer; Harvard
Business School MBA (candidate).



Gregory R. Scott

Civil Engineer, PE

Project Manager for heavy civil &
industrial projects; bridges, dams.

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Independent R&D Partner

Non-profit Engineering Org

Co-applicant on multiple federal grants.
Will build prototype on their campus.

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Crowdfunding Platform

Marketing Content Sponsor

Funding platform to sponsor our
media content & marketing campaign.

Business Model

Green energy “holy grail”



Renewables + Terrament = 24/7 Green Energy cheaper than oil.

3.5¢ + 6.5¢ = 10¢/kWh < **17¢/kWh** Gas Peaker
< **12¢/kWh** Coal

Sell to Energy Developers and Utilities

- Value Stacking: Arbitrage; Load firming; Curtailment reduction; Transmission upgrade deferral.

Terrament Installation Specs

- Energy: 2 GWh | 200 MW
- Cost: \$400M | \$180/kWh
- **LCOE: 6.5¢/kWh**

Go To Market

Sell expertise. Outsource scale.



What & How

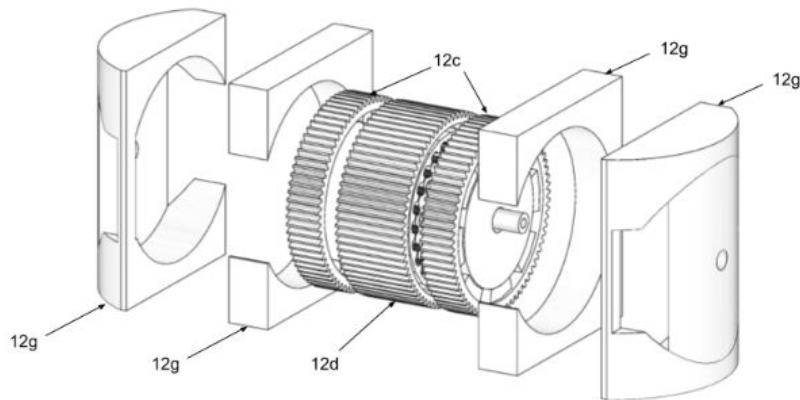
Terrament architects & engineers solutions.

- Leverage patents, license IP
- Manufacture and sell critical components
- License proprietary system software

Who & Where

Utility customers fund, own, & operate installations

- CCAs and small energy utilities
- Large renewable energy developers
- Municipal and government operators
- Early growth in CA, TX, NY → All U.S. → Global



*Partnership-in-progress Logos
(not public)*

Financial Projections

[illegible]

Current Raise: \$1M Angel For a 2-year runway

FUND RAISE	AMOUNT
Angel / Crowd Investments	\$1M
	\$100K
	\$10K
Friends and Family - \$50K	\$1K
TASK TITLE	COST/yr
Staff and Office Costs	
Founder's living-wage stipend	\$80,000
Grant writing consultant	\$24,000
Patent and Lawyer Costs	\$20,000
Interns / Admin	\$36,000
CAD Software, and general Bus. tools.	\$10,000
Employees (Engineering)	\$150,000
Employees (Sales / Customer Support)	\$120,000
Prototype Costs	
Bench-scale prototype 1/100th	\$40,000

Terrament

Radically Scalable Energy Storage



Thank you
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