Ter·ra·ment

Solving our trillion-dollar energy storage crisis

hello@terramenthq.com

Terrament pitch deck - draft 0.0.1

This pitch deck draft is not for investors (yet).
Its purpose is to pitch founders to join our team.

Know someone who is a good fit? Please connect us!

hello@terramenthq.com

Problem: We can’t quit carbon without energy storage

 To stop climate change, renewables must replace fossil fuels.

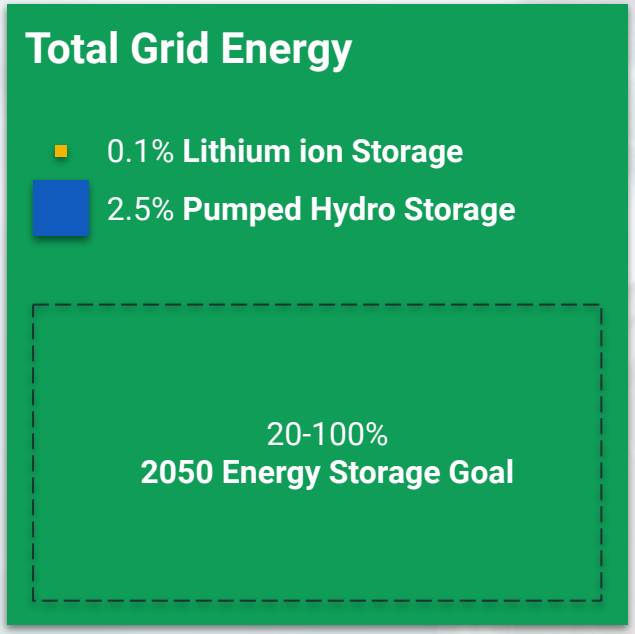
 Renewables require vast amounts of energy storage.

 We don’t have any affordable solutions today.

Problem Context

Today: Pumped Hydro is our only proven solution.

- Almost all energy storage is pumped hydro.
- It's cheap, and reliable.
- But we can't build many more new dams



Problem Context

Future: Other solutions are too costly or unproven.

- Lithium ion will cost too much for too little. Even with price drops.
- Flow batteries are unproven, previous startups have failed.
- Sulfur and alt-chem batteries are unproven, have safety issues.
- Rock-mass gravity storage is unproven, might not scale.

Future?

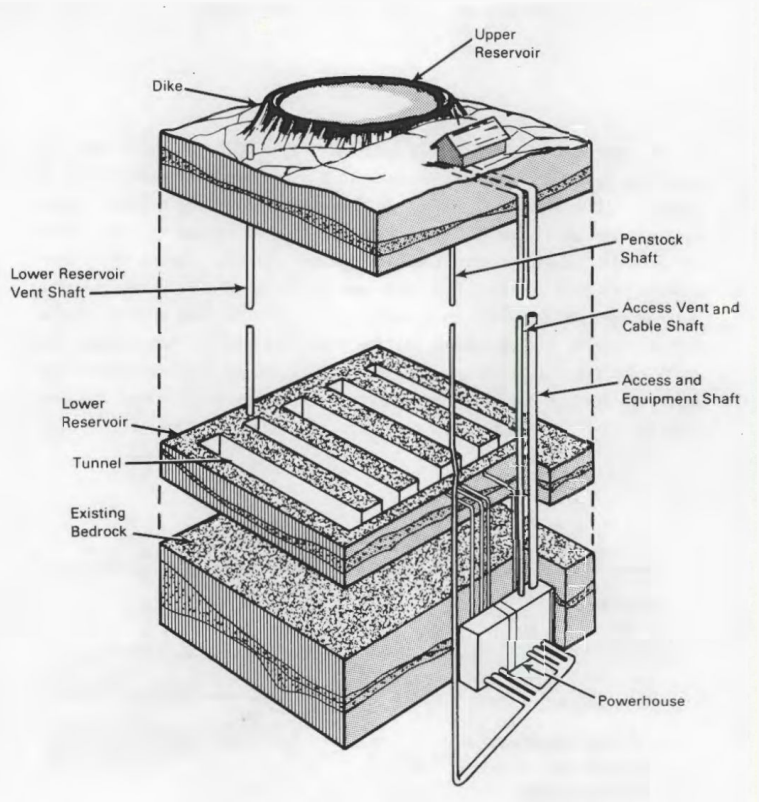
What if pumped storage didn’t need dams?

Solution

UPHS: Underground Pumped Hydro

UPHS is simply pumped hydro with a lower reservoir dug deep underground. Excavated rock forms an upper reservoir.

> *The UPHS concept is technically feasible and economically viable.*
>
> **— U.S. Department of Energy**

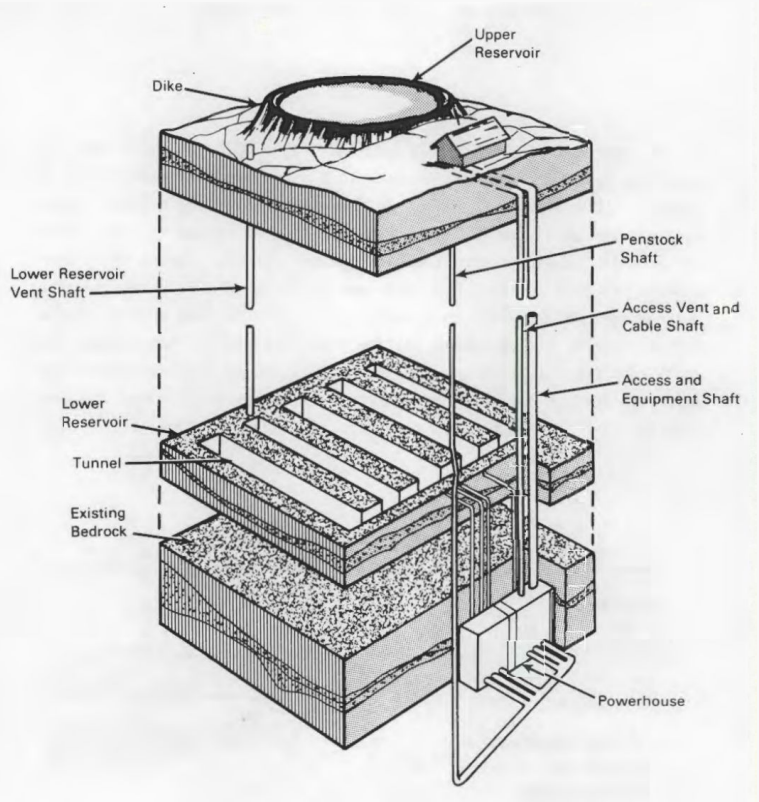


Solution

Underground Pumped Hydro

- Avoids new dams, no eco concern.
- No unproven technologies
- Faster launch with modular design
- 3-15 x cheaper than Lithium ion*

*over 40 years



Underground Pumped Hydro

Why now?

- New energy storage demand
- New public + gov support
- New tunnel-boring tech
- New improved financing

Doing nothing will cost the U.S. more than

$3 Trillion / decade

from damages caused by climate change.

Solving energy storage with Lithium Ion would cost

$2.5 Trillion

for just 4/5 of our goal. Even if the tech improves by 3x.

~~$2.5 Trillion~~

Terrament can do it for far cheaper.

Terrament will be

3-15 x cheaper

than Lithium Ion’s predicted best-case solution.

Terrament will save the U.S. trillions while leading a

$300 Billion U.S. Market

and a multi-trillion dollar global market.

Energy Storage Market

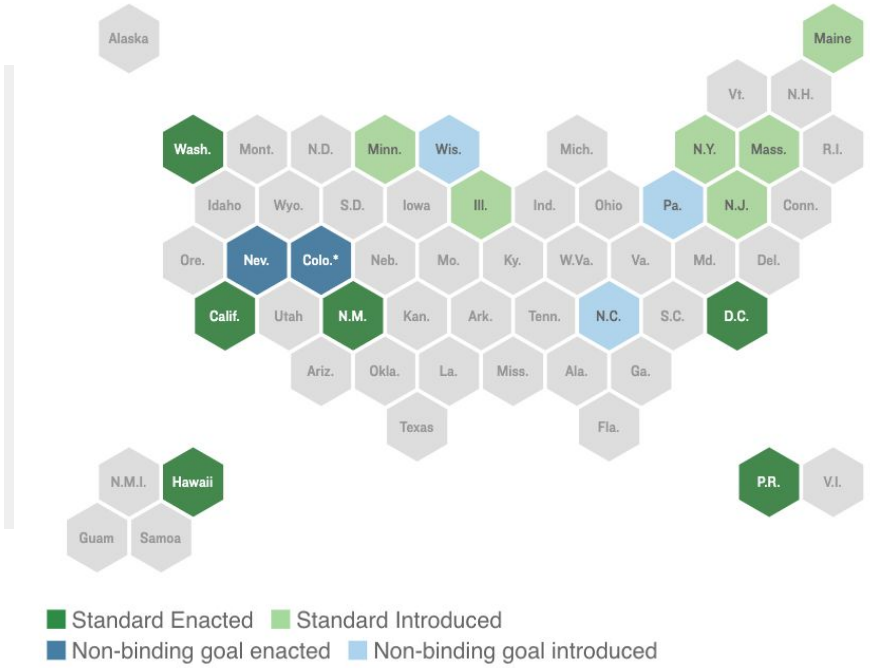
U.S. Market > $300 billion

Governments are pledging to go 100% carbon-free by 2050

4 U.S. States + D.C and P.R.

100+ U.S. Cities

Source: npr.org



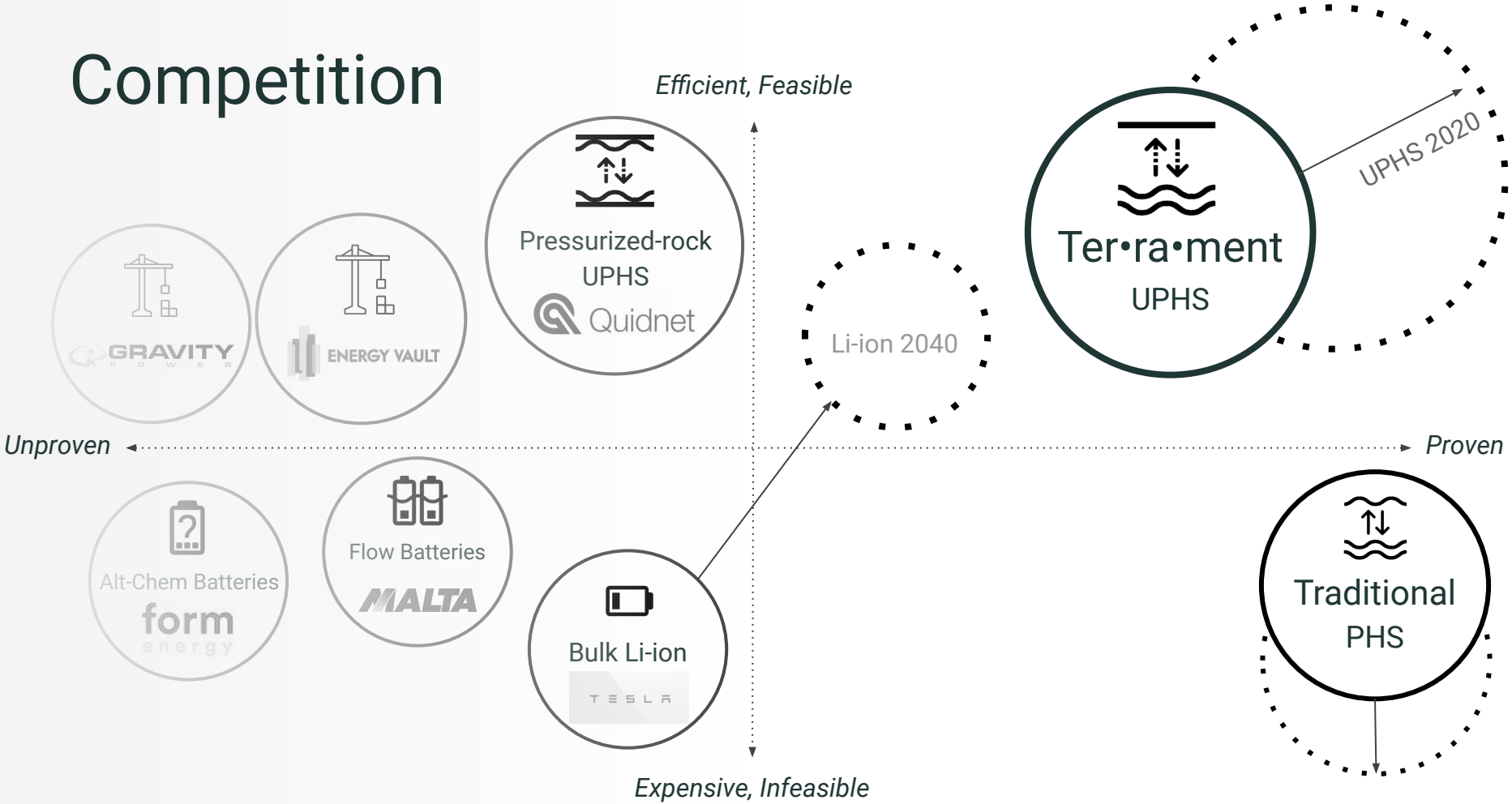
Energy Storage Market

Global Market = $Trillions

> 66 nations have signaled they will pledge to cut carbon emissions to zero by 2050.
>
> *-- U.N. Secretary-General*

66 nations

Competition



Meet the Terrament Team

Eric Chaves

CEO, Technologist

Entrepreneur, Software Developer. Background in Architecture & Engineering

[Civil Eng, PhD]

Chief Engineer

Civil Engineer, Ph.D
Dam & Tunnel Construction
Hydrology and Geology

[MBA, Finance]

COO/CFO

Logistics and Finance
Entrepreneur Vet
Economics Advisor

[Sales, Marketing]

Head of Sales, Marketing

Sales + Marketing Guru
Econ Masters/Ph.D
Eng Industry Background

Why Terrament?

No one else has done this at scale;
We're ahead of the market curve.

While others test new tech, we're adapting proven tech to scale quickly.

As engineers, designers, and industry insiders, our foundation is strong.

And we're not *just* experts. We're ambitious entrepreneurs and activists.

sy·lla·ble

NBC

Google

CUNY School of Professional Studies

TBD CONSULTING ENGINEERS

TBD School of Engineering

Praeter Terram

TBD BUSINESS SCHOOL

TBD Global Mineral Products

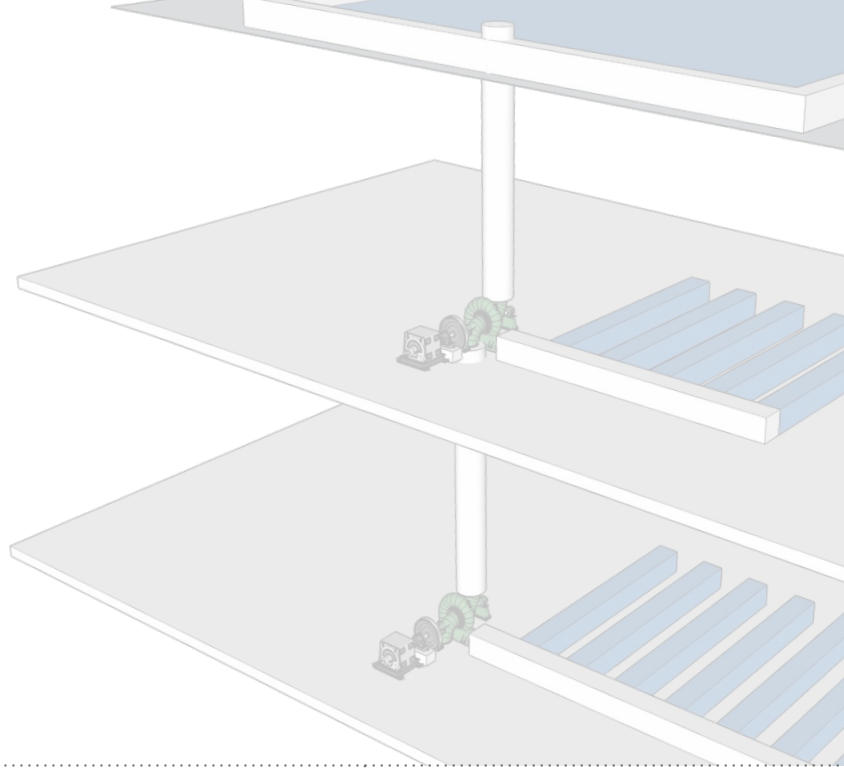
TBD ENERGY

GOING

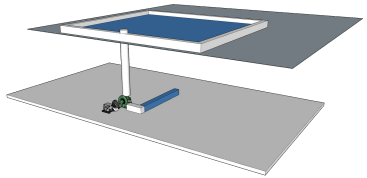
Terrament's Secret Sauce

Modular Design

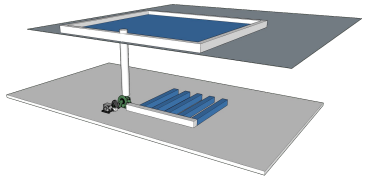
Our modular design allows our UPHS facilities to go online early, then gradually scale up capacity.



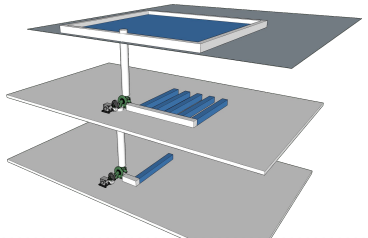
1: Level A minimal operation



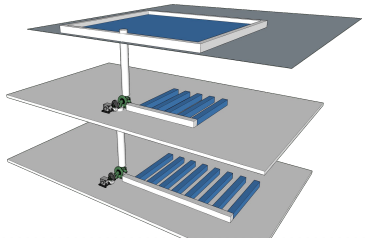
2: Level A fully operational



3: Level B minimal operation



4: Complete



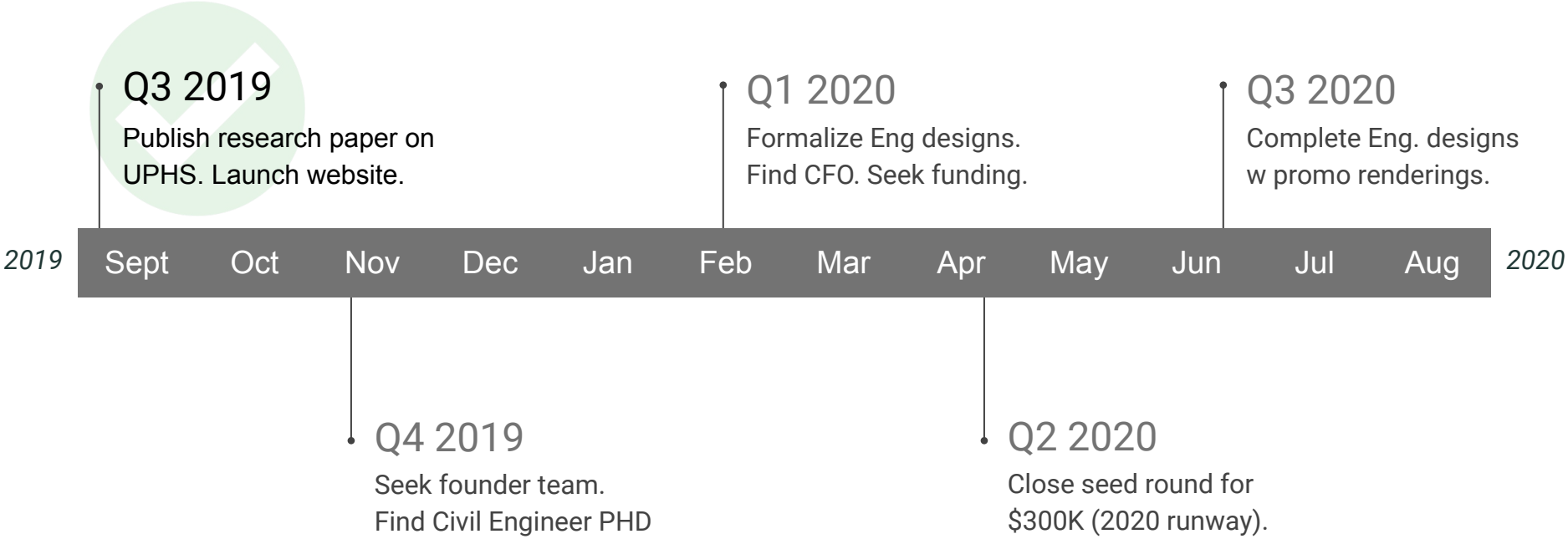
Terrament's Secret Sauce

REDACTED

(Further design details shared with select partners under NDA)

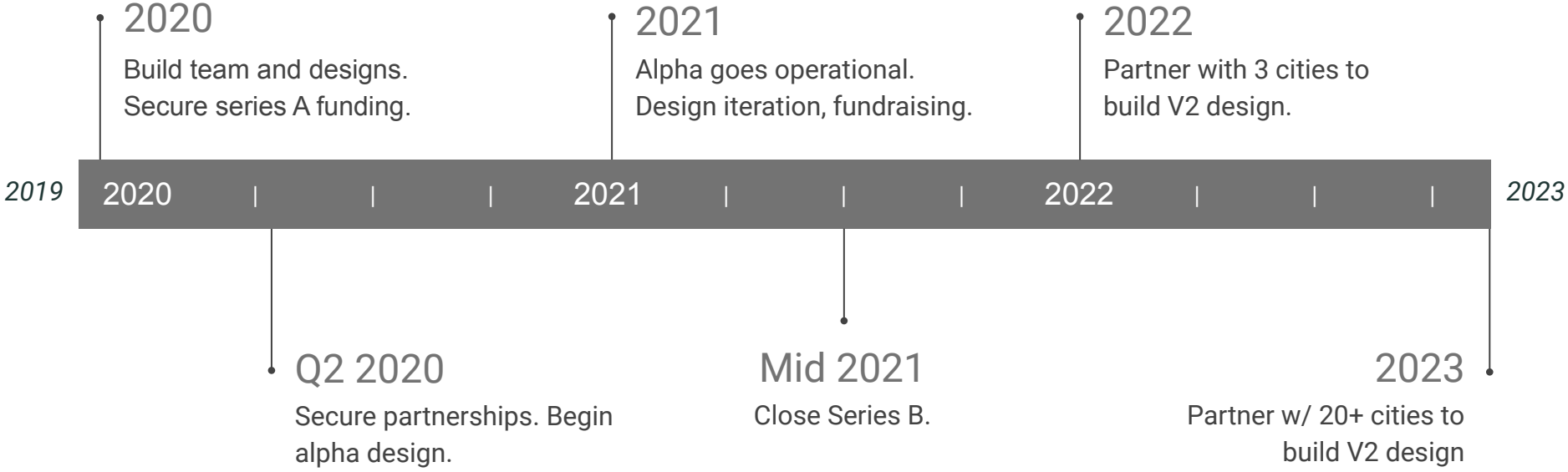
Terrament Milestones

1 year: We will build our team and complete designs



Terrament Milestones

3 years: Based on proven alpha design, we will expand to 20+ cities with V2 design.



Financial Projections

We are a long-term company. We need patient investors seeking huge, long-term returns.

1 yr

Alpha Phase

Debt: $0.25 million
Sales: $0
Profit: $0

- Research and Design

5 yr

U.S. expansion

Debt: $X million
Sales: $XX million
Profit: $0

- 20 completed projects
- 50 gov contracts

10 yr

Global expansion

Debt: $XX million
Sales: $XXXX million
Profit: $XX million

- 100 completed projects
- Begin tech expansion into other energy fields

20 yr

Energy diversification

Debt: 0
Sales: $XXXX **billion**
Profit: $XX **billion**

- Leading global energy company with 100% carbonless technology.

Seed Round Investment

We are seeking $300k from a trusted partner.

With 1 year of runway we will:

- *Finish research & design.*
- *Build 3D models and promotional materials.*
- *Secure letters of intent from key partners and gov agencies.*
- *Secure our series A investment.*

Ter·ra·ment

Thank you

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Appendix

1. *Why not lithium ion?*
2. *Comparison of Pumped Hydro and Lithium Ion*
3. *Research Paper About Underground Pumped Hydro*

Appendix: *Why not lithium ion?*

Underground Pumped Hydro

Why not Lithium Ion?

We can no longer assume that lithium ion is the future.

Li-ion is expensive and not proven at scale.

Li-ion tech improvements are hopeful, but...

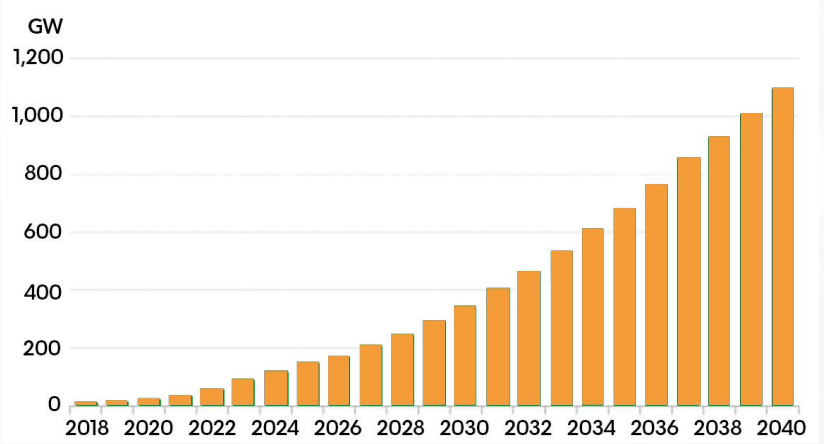
Best-case improvements **still cost more than Pumped Hydro**.

Underground Pumped Hydro

Why not Lithium Ion?

- Li-ion hopes to grow 122x by 2040.
- This would cost $622 billion.
- Yet, is still 10x too little storage.

Projected growth of Stationary Storage (Li-ion) *

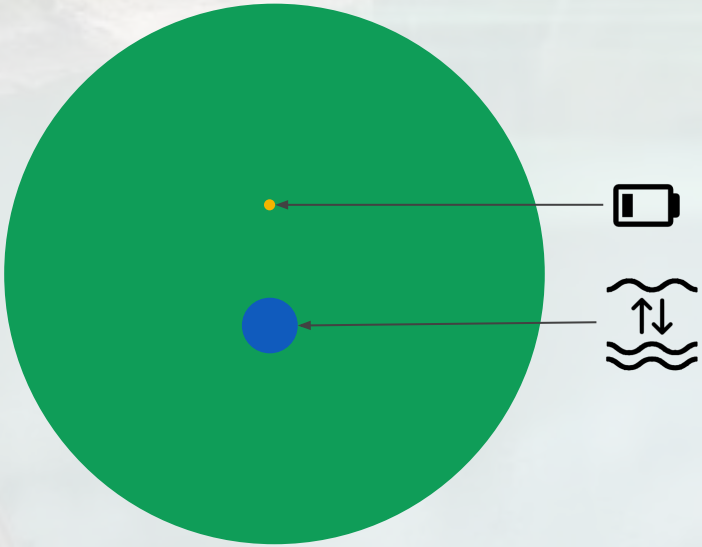


Source: BloombergNEF

* Stationary Storage is mostly Li-ion and does not include PHS

Problem Context

Why not Lithium Ion?

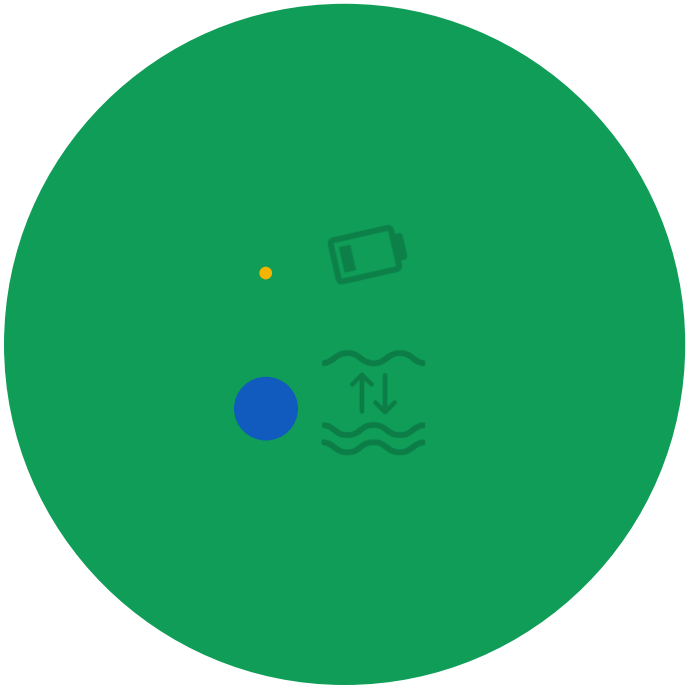


Today, Li-ion stores only 0.1% of our grid.

Pumped hydro stores 20x more.

Appendix: *Comparison of Pumped Hydro and Lithium Ion*

Pumped Hydro is cheaper, even after Li-ion tech gains



Li-ion expects huge tech gains:
3x cost drop and
3x longer life by 2040.

But PHS will still be cheaper than new Li-ion

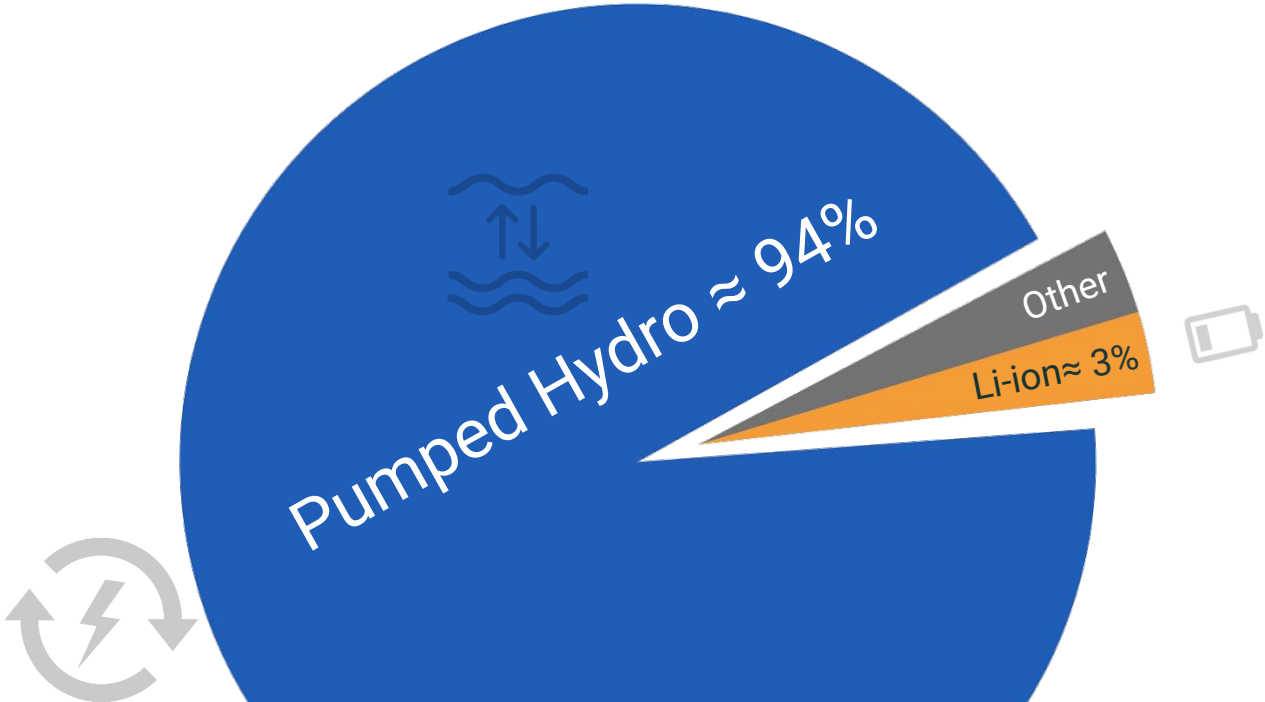
> *"Batteries will remain overall more expensive than pumped storage—possibly 50% more expensive than pumped storage. [40 year LCOE] - San Diego County Water Authority Research*

🪫 Lithium Ion does not scale.

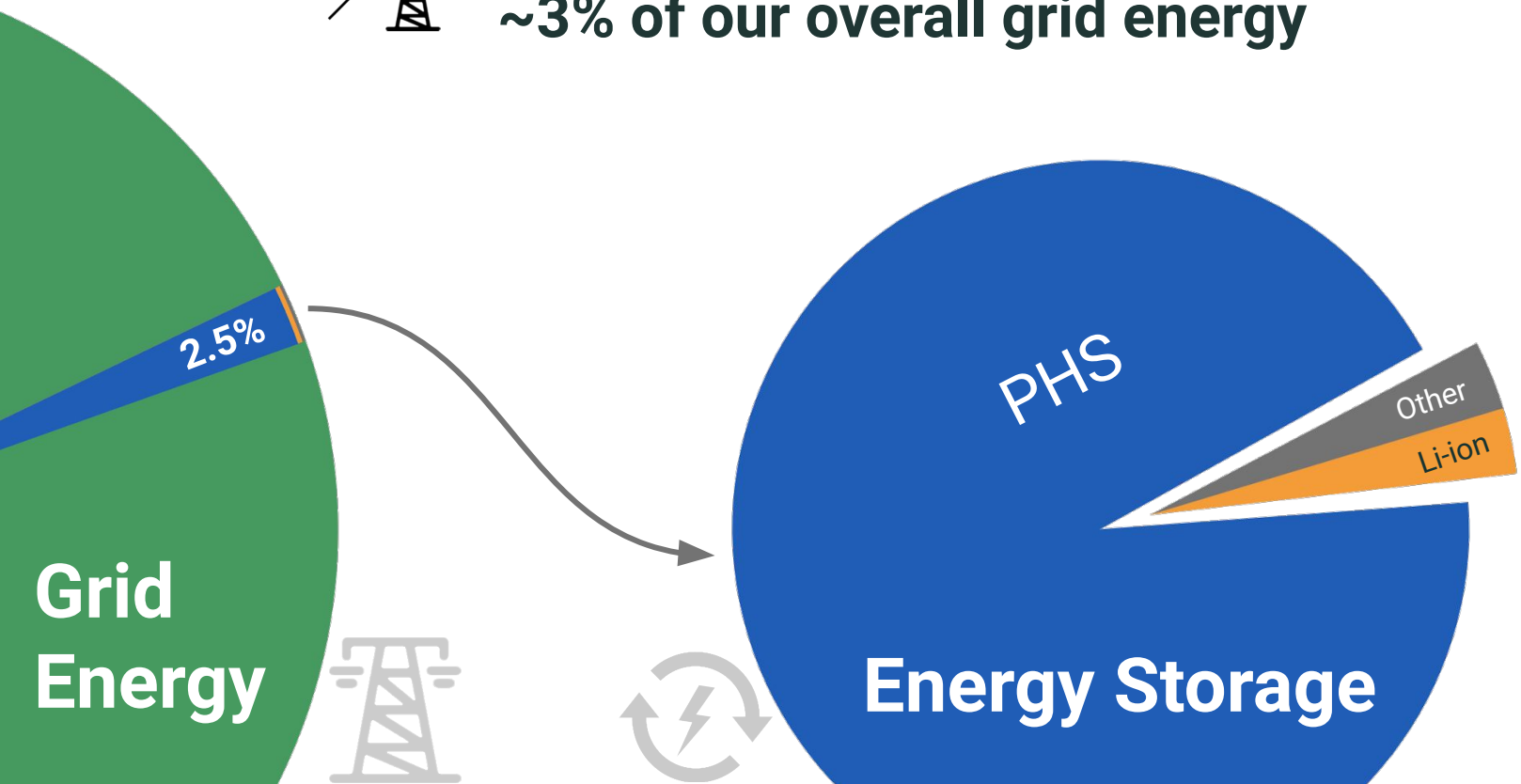
Lithium Ion battery storage is:

- Much more expensive than PHS
- Unproven at grid-scale
- Future risk of mineral shortage
- Future recycle cost or eco-waste

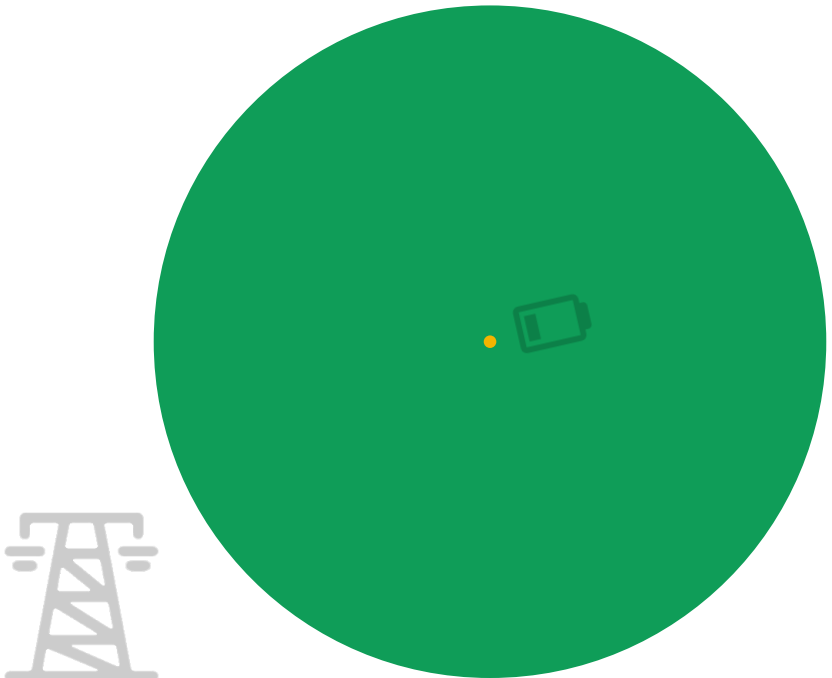
Stationary energy storage (Li-ion) is only ~3% of our ttl energy storage



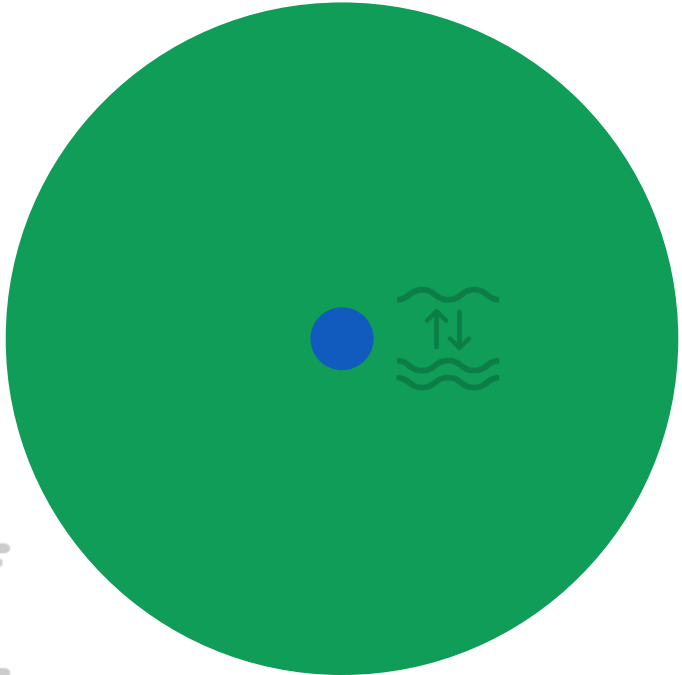
And our ttl energy storage is only ~3% of our overall grid energy



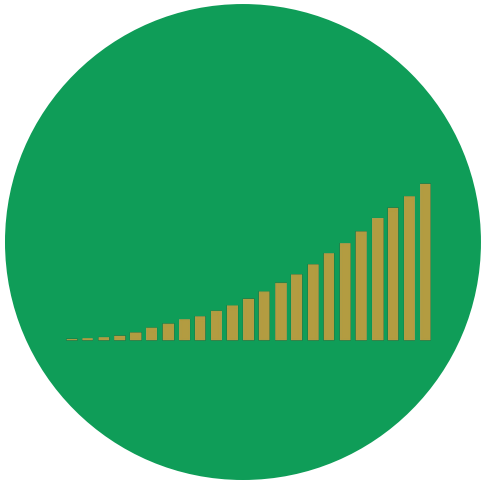
Li-ion is < 0.1%
of our overall grid energy



Pumped Hydro is 2.5% of our grid energy

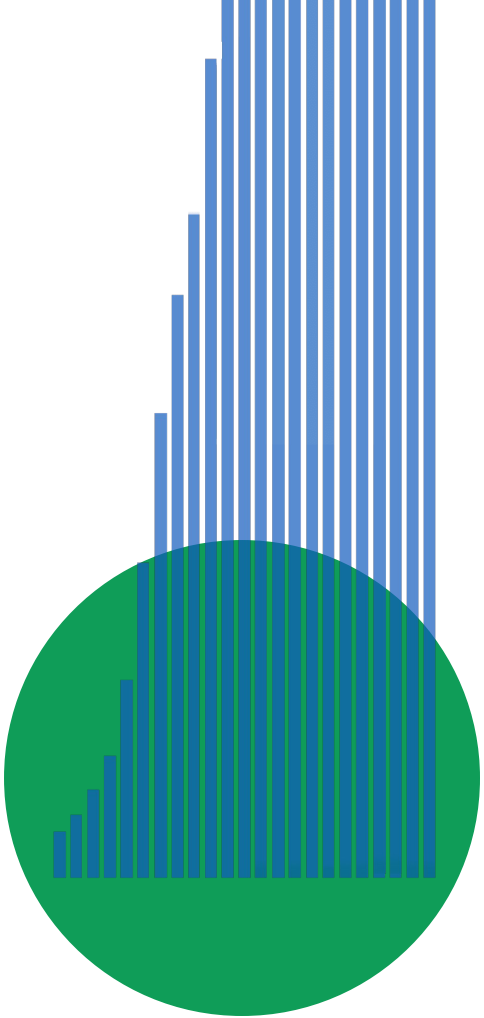


Our ttl energy storage must scale to around 100% of grid energy



Li-ion is:
- Small-scale
- Unproven
- Expensive

PHS is:
- Grid-scale
- Proven
- Affordable



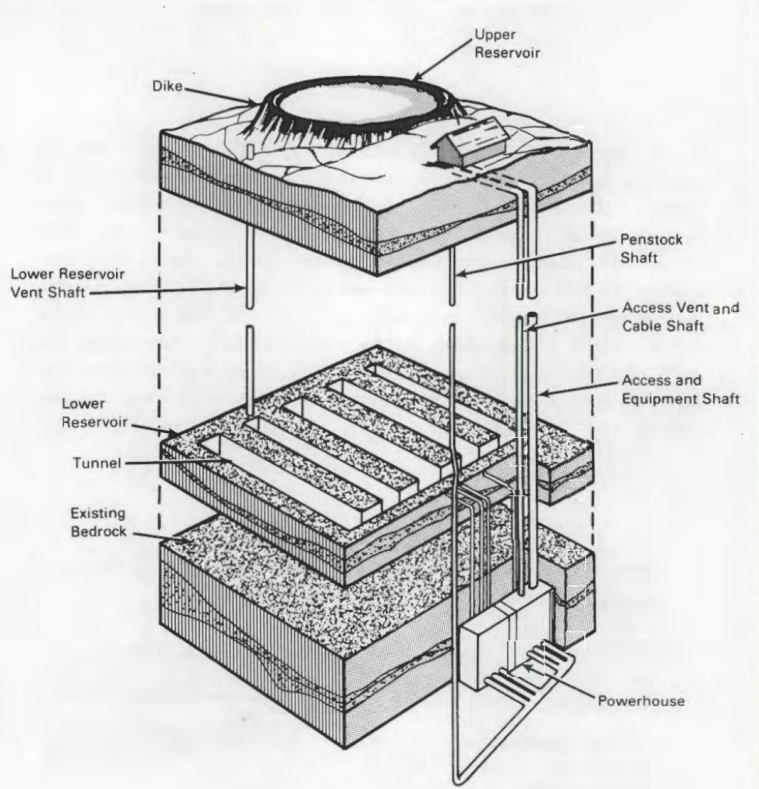
Appendix: *Research Paper About Underground Pumped Hydro*

Research

Underground Pumped Hydro

We have written a draft of a research paper on Underground Pumped Hydro:

https://www.terramenthq.com/research



Thanks

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