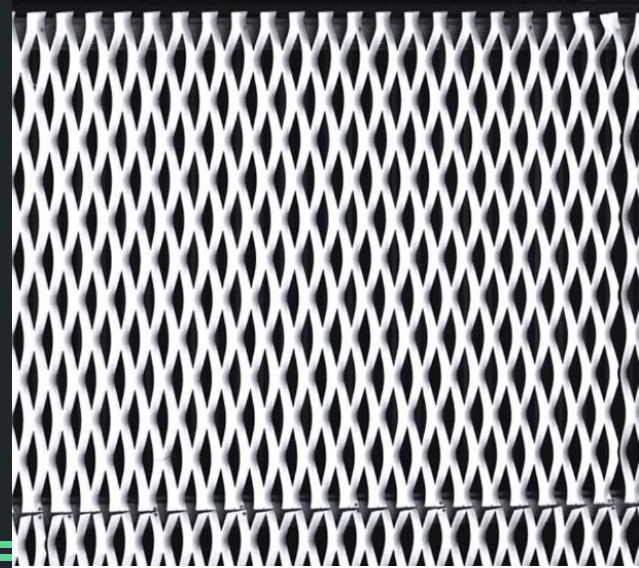


Parallel Carbon

Emissions Reduction *and* Removal

Unique combination of
Direct Air Capture and Water
Electrolysis to produce the
highest quality **CDR Credits**
alongside **Green Hydrogen**





Parallel Carbon's Team

Founders

Ryan Anderson, CEO

PhD Materials Science
10+ years in CCUS
Mineral Chemistry
Techno-Economics

Aránzazu Carmona, CTO

PhD Electrochemical Eng.
Process Engineering
Regulatory affairs
Manufacturing

Partners & Supporters

AIRMINERS
LAUNCHPAD



ClimAccelerator
CARBON REMOVAL



counteract



Barriers to Successful, Affordable DAC Technology

1

Dependence
on Voluntary
Carbon Markets

Temperature-, pressure-, and electro-swing DAC require **new manufacturing** to scale



Growing from 1kt to just 1Mt DAC capacity by 2030 requires manufacturing CAGR of 70% (similar to EV manufacturing growth)

2

Compatibility with
Intermittent
Energy

Carbon-free power is intermittent today, but a grid connection **creates emissions**.

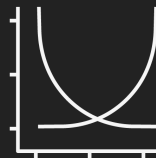


DAC for CDR must account for emissions from the grid's marginal power source. Even in 2030 'clean' grids, DAC would emit.

3

Amortization
Requires High
Uptime

Low DAC utilization leads to **increased capex costs**, but firm power **increases opex**

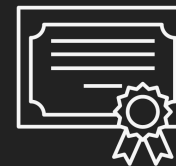


Solar-DAC has cheap power, but capex per ton increases. Geothermal-DAC runs 24/7, spreading capex, but causing opex to soar.

4

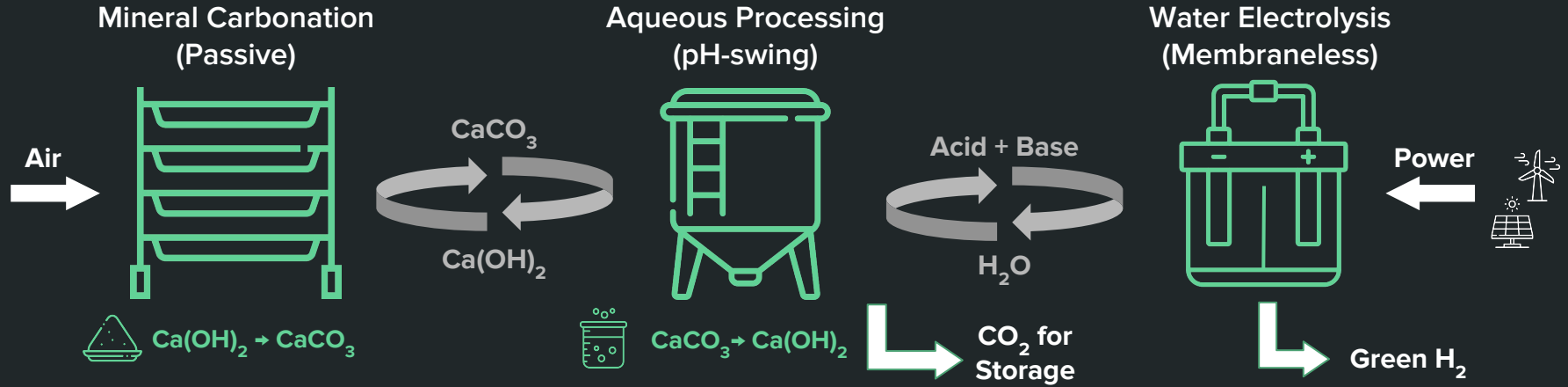
Dependence
on Voluntary
Carbon Markets

Premium prices for carbon credits will **fall** as competition accelerates



Diversified and additional revenue streams reduce financial uncertainty and improve bankability

Parallel Carbon's DAC uses passive, 24/7 CO₂ uptake ensuring minerals are prepared when power arrives



TRL 4

Integrated
Prototype,
Lab Scale



85%
Carbonation,
18 Hours



**No Sorbent
Degradation**



>80%
Efficiency

Parallel Carbon Solves Current DAC Challenges

1

Dependence
on Voluntary
Carbon Markets



Equipment from
Gigawatt and
Gigaton supply
chains

2

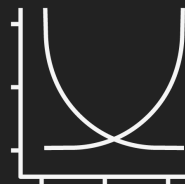
Compatibility
with Intermittent
Energy



Operates with
Hourly renewable
intermittency

3

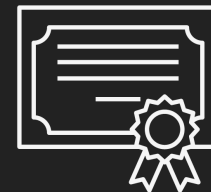
Amortization
Requires High
Uptime



Capex **75%** less
than other DAC
to tolerate **<40%**
utilization rate

4

Dependence
on Voluntary
Carbon Markets

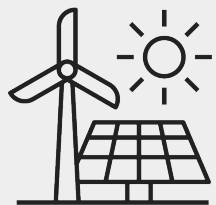


Revenue from **Green
Hydrogen** ensures
profitable DAC
<\$100/tCO₂

Business Model to Profitably Sell H₂ and Remove CO₂

Energy Use:

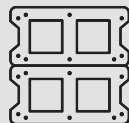
55 kWh/kgH₂



1.2 MWh/tCO₂



Parallel Carbon



Storage
Partner



Market value



Profit sharing



Zero-Carbon Hydrogen

2030 Costs

< \$1 / kgH₂

Revenue

>\$3/kgH₂

High Quality CDR Credits











2030 Costs

< \$100 / tCO₂

Revenue

>\$180/tCO₂

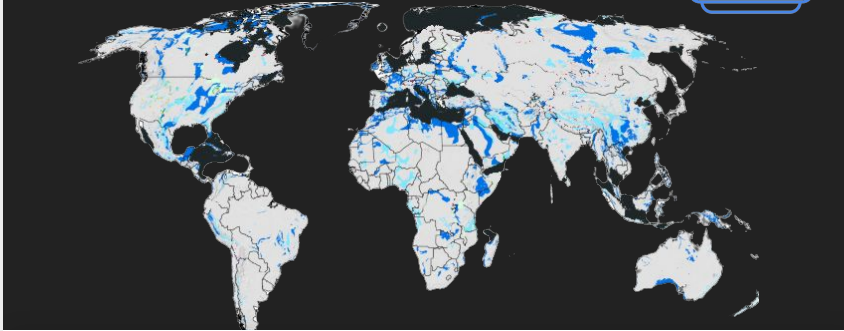
Scaling DAC means surmounting huge obstacles – We simplify deployment, targeting 2GtCO₂/yr DAC Capacity Installed by 2040

| Deployability Characteristics |  VERDOX |  climeworks |  Cajcrite Carbon Removal |  Carbon Engineering |  Heirloom |  Sustaera |  Carbon Capture |  MISSION ZERO TECHNOLOGIES |  REPAIR |  Parallel Carbon |
|-----------------------------------|--|--|--|---|--|---|---|---|--|--|
| Robust supply chain | X | X | ✓ | ✓ | ✓ | ○ | X | ○ | ○ | ✓ |
| Avoids fossil fuels | ✓ | ✓ | X | X | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Intermittent operation | ✓ | ○ | X | X | X | ✓ | ○ | ○ | ○ | ✓ |
| Energy intensity | ✓ | X | X | X | ○ | X | ○ | ✓ | ✓ | X |
| Affordable with only wind / solar | ○ | X | X | X | X | X | X | X | ○ | ✓ |

Our H₂ co-product increases energy use

Designed to leverage massive, established supply chains and the global energy transition

Ubiquitous Minerals

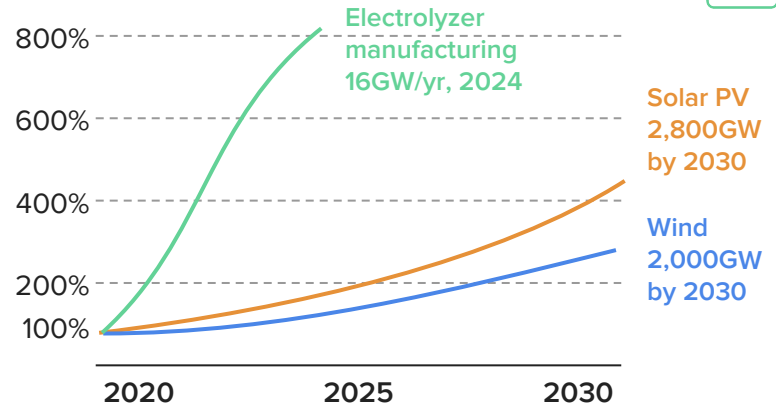


Carbonate rock

- 10% Earth's surface
- 4Gt/yr just to produce cement

■ Only **15Mt CaCO_3** required per gigaton of DAC

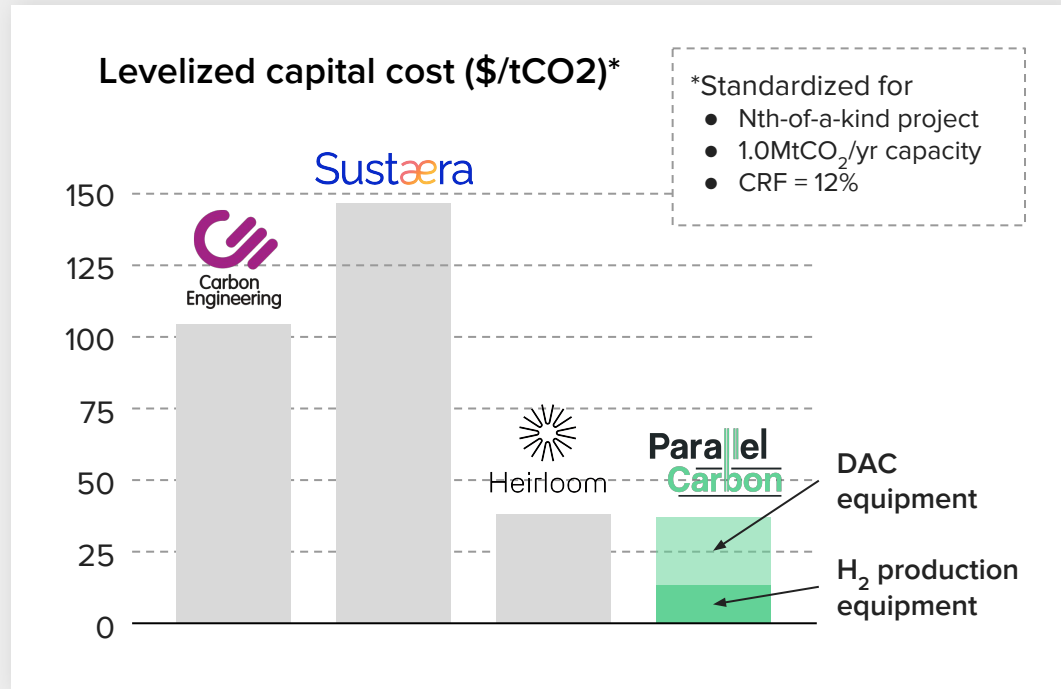
Expanding Capacity



Less than 1% of 2024 electrolyzer manufacturing for megaton DAC

Source: BNEF

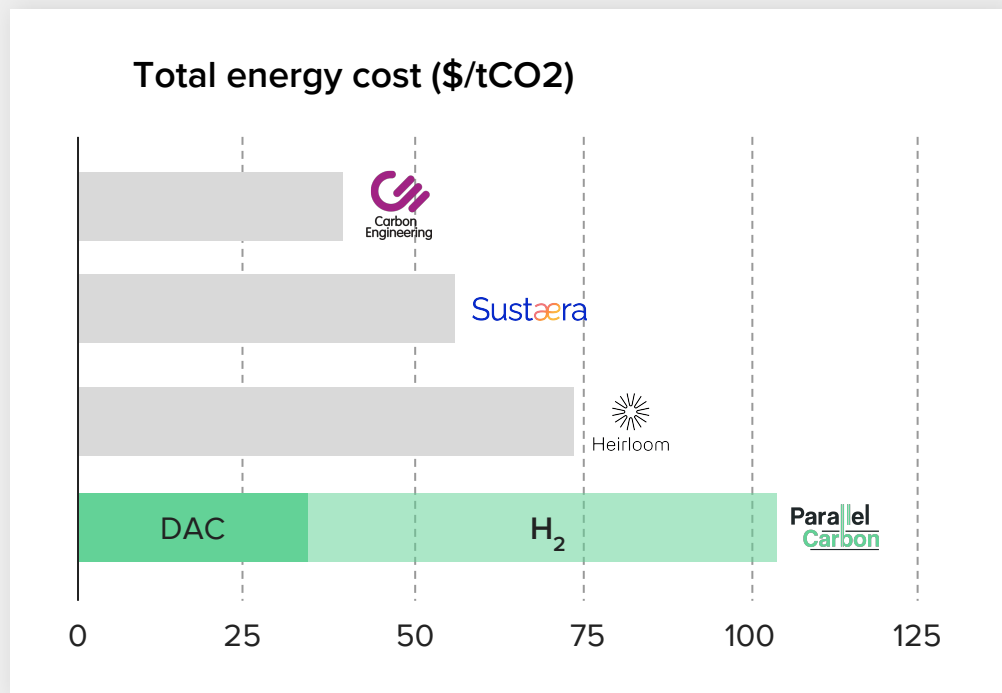
Designing DAC for low capex...



What differentiates our capex?

1. Highly reactive minerals reduce air contactor size
2. Excellent economies of scale for aqueous processing
3. Modular electrolyzer shared by two production processes

...Unlocks **low DAC opex**, and...



What differentiates our opex?

| Energy Use | Energy Cost | Icon |
|--------------------------|----------------------|------|
| 8.8 GJ/tCO ₂ | \$4.4/GJ | |
| 2 MWh/tCO ₂ | \$30/MWh | |
| 1.5 MWh/tCO ₂ | \$30/MWh \$75/MWh | |
| 3.7 MWh/tCO ₂ | \$30/MWh | |

...Creates the most affordable DAC and green hydrogen

Parallel Carbon's technology overcomes critical barriers for gigaton-scale adoption

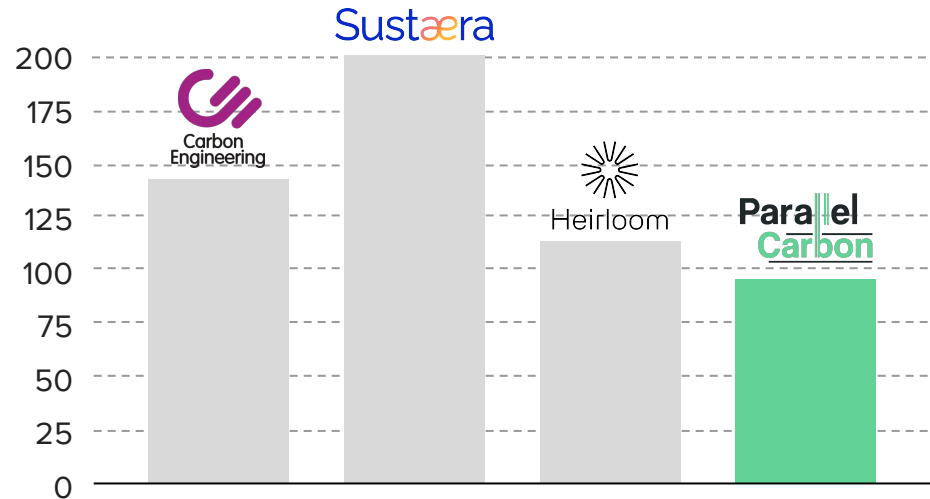


Carbon Removal
< \$ 100 / ton CO₂

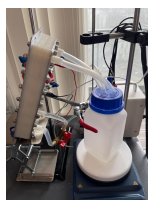
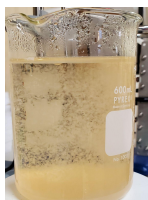


Green Hydrogen
< \$ 1 / kg H₂

Total cost of DAC (\$/tCO₂)



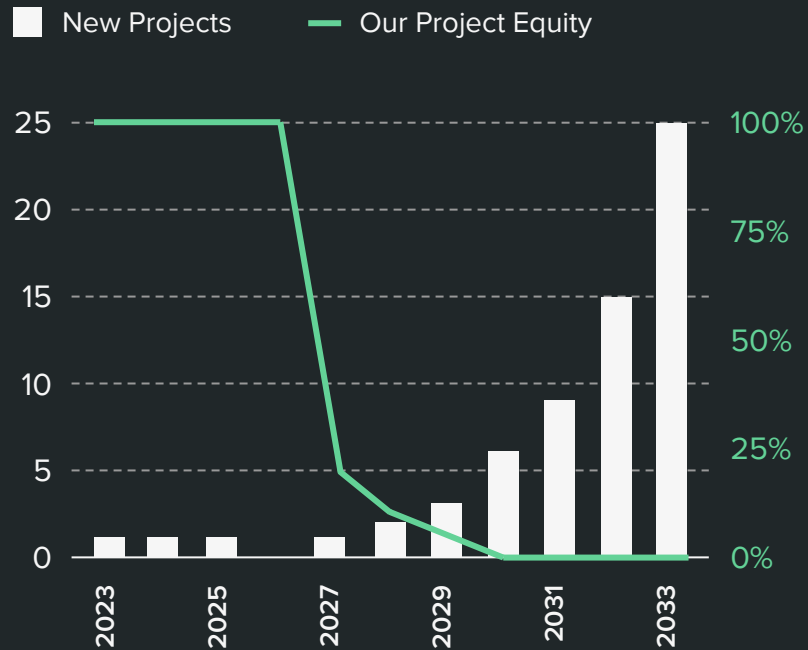
Our Seed Round Will Scale Us **100,000x** in 18 Months



| | Prototype <input checked="" type="checkbox"/> | Pre-Pilot | Commercial Pilot | FOAK |
|------------------|---|--------------------------|----------------------------|----------------------------|
| Goal | Prove the science | Optimize the engineering | Field test with partners | Full-scale Demo |
| Year | 2021–22 | 2023–24 | 2025–26 | 2027–2028 |
| TRL | 1 → 4 | 4 → 6 | 6 → 7 | 8 → 9 |
| Scale | g/d | kg/d → t/d | t/d → kt/y | 60 kt CO ₂ /y |
| Enabling Capital | Pre-Seed (£150k) | Seed (£3.1m) | Series A + Other (£10–15m) | Series B + Other (£40–60m) |

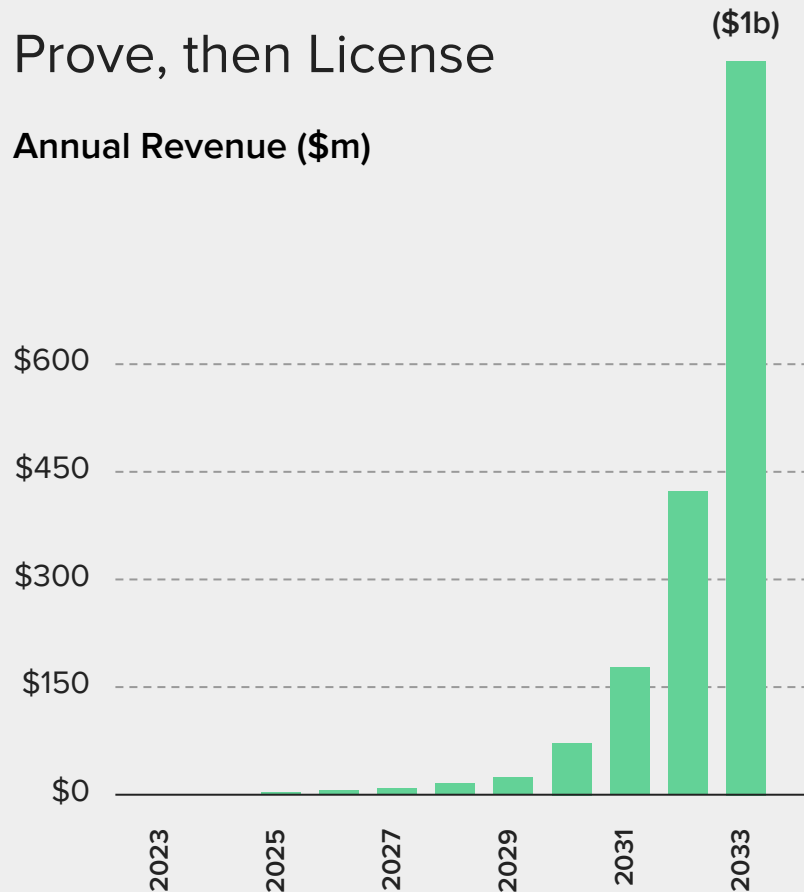
10 Year Scaling Vision

Deployment Model



Prove, then License

Annual Revenue (\$m)



Traction to Date and the Plans for Our **£3.1m** Seed Fundraise

We've proved the science...

From Concept to TRL 4 in 2 years

Proved Electrolyzer back-end

>80% efficient with commercial electrocatalysts
Novel membraneless design: low opex, low ohmic resistance, impurity tolerance - uniquely suited to our dual use case

Demonstrated aqueous process

Regenerating sorbent without drying saves 300–800 kWh/tCO₂ relative to competing approaches

Proved passive low energy capture

Proved 4x faster passive carbonation with our electrochemically regenerated sorbent: 85% in carbonation in 18 hours

Secured IP

International patent filed for end-to-end protection of Parallel Carbon's process.

...Next we'll optimize the engineering

Scaling to 1 ton/day and TRL 6 in 2024

Building 1tCO₂/day + 50kgH₂/d integrated pilot

100tCO₂/yr production to optimize material handling
150kW electrolyser stack for continuous operation

Hiring

Growing the team with 7 core hires across engineering and operations

Financing & offtake

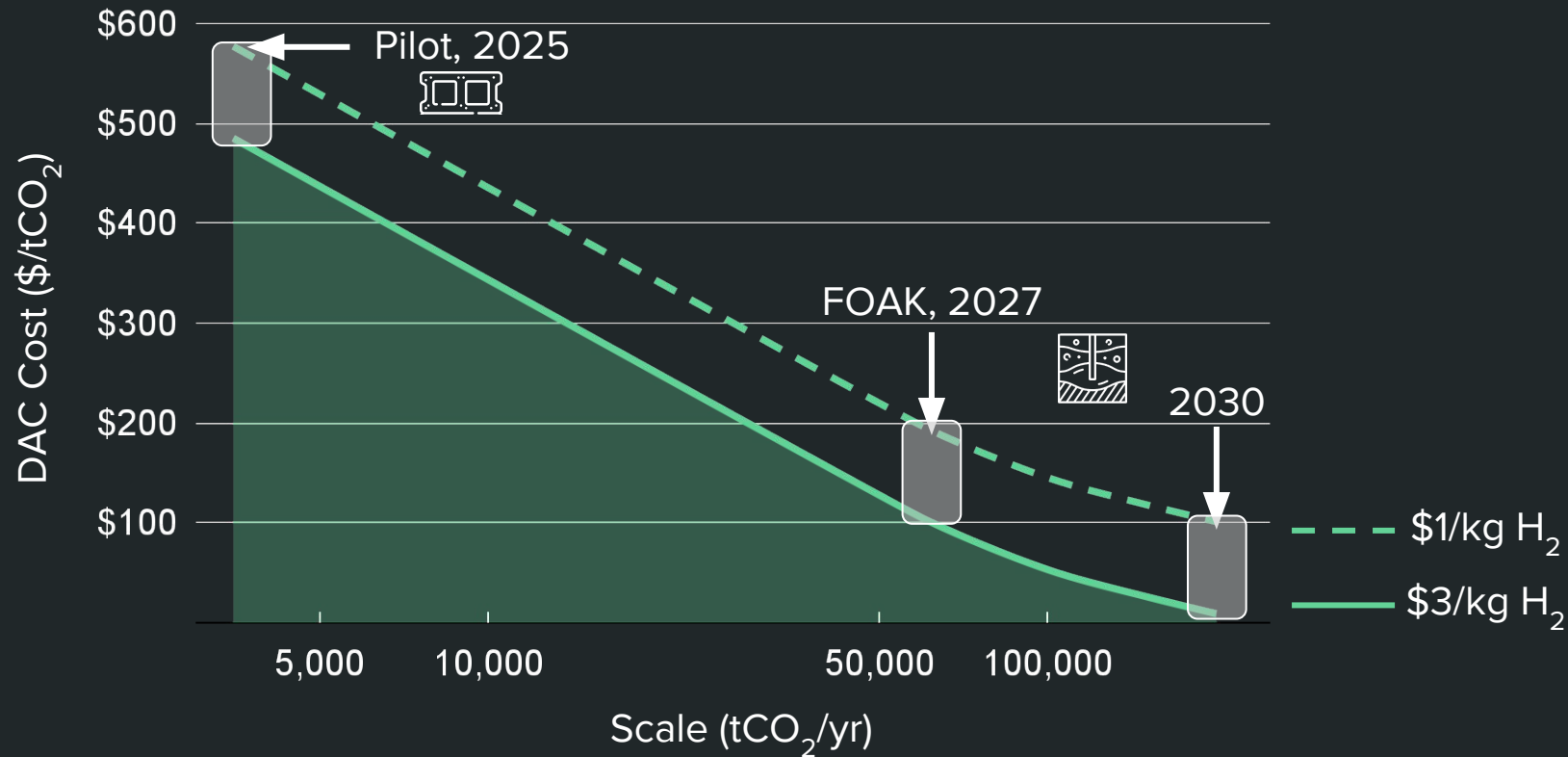
Raising £3.1m seed round In Q2 2023
AMCs / Grant funding applications worth >£0.5m in process
Establish offtake partnership for H₂ & CO₂ (LOIs already secured)

Engineering

Begin front-end engineering and design for first commercial demonstration
Secure supply chains including renewable power provider, electrolyzer manufacturing partner, and project EPCs

Appendix

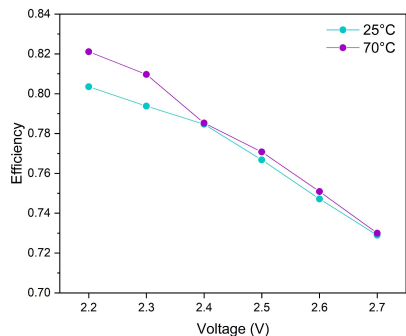
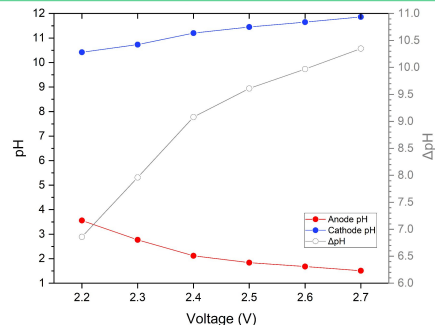
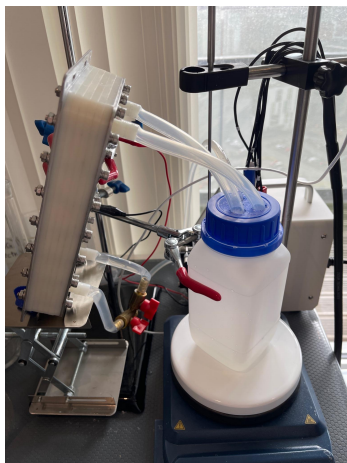
Parallel Carbon's Cost Curve – $\$100/\text{tCO}_2 + \$1/\text{kgH}_2$ by 2030



Parallel Carbon's Ongoing DAC Development

A look at our fully integrated lab-scale prototype

Electrolytic acid+base production

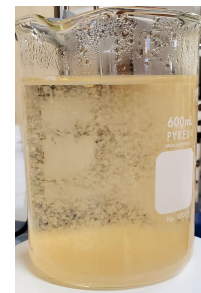


Aqueous Processing and CO₂ Uptake

Acidic dissolution



Basic precipitation

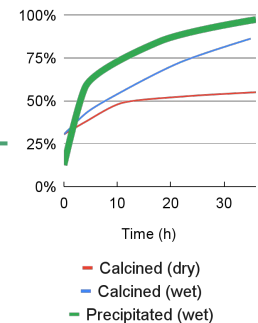


Recovered Ca(OH)₂



Sorbent cycling

CO₂ Uptake by Ca(OH)₂ Source



Green H₂ Differentiation

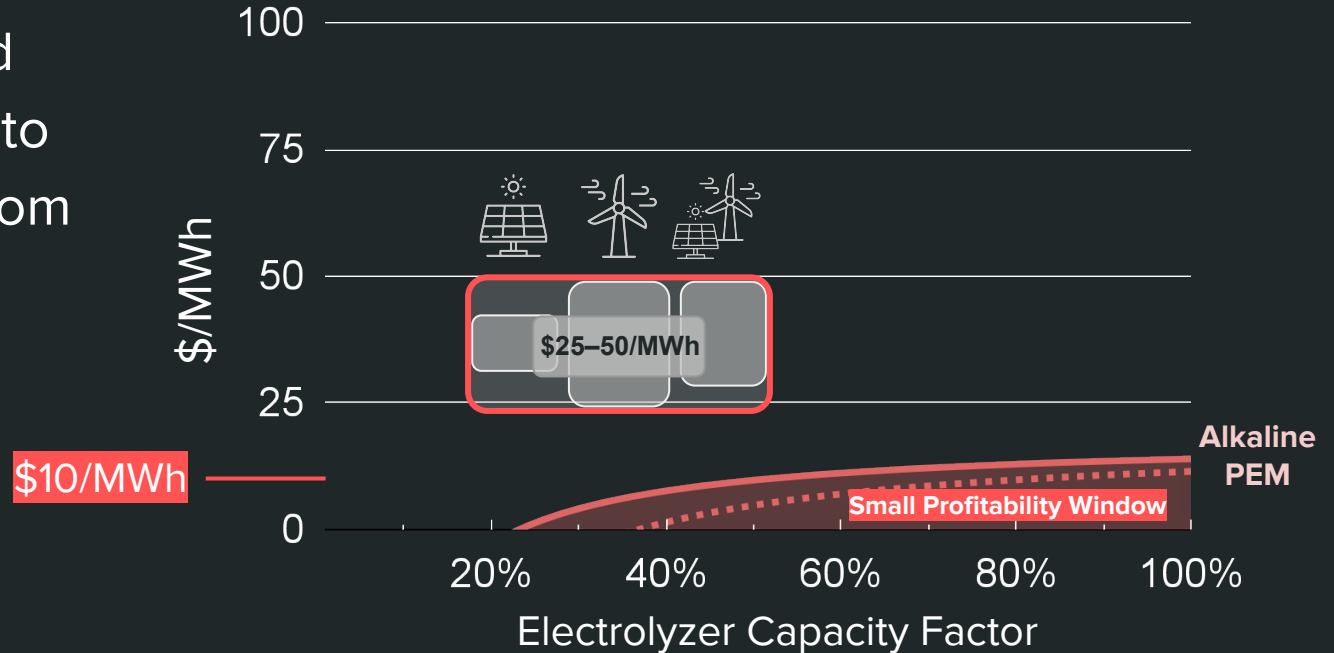
Appendix

Problem:

Wind and solar are too costly for electrolytic hydrogen

Electrolyzers need
<\$10/MWh power to
make hydrogen from
renewables

Breakeven Power Price Curve for \$1/kgH₂

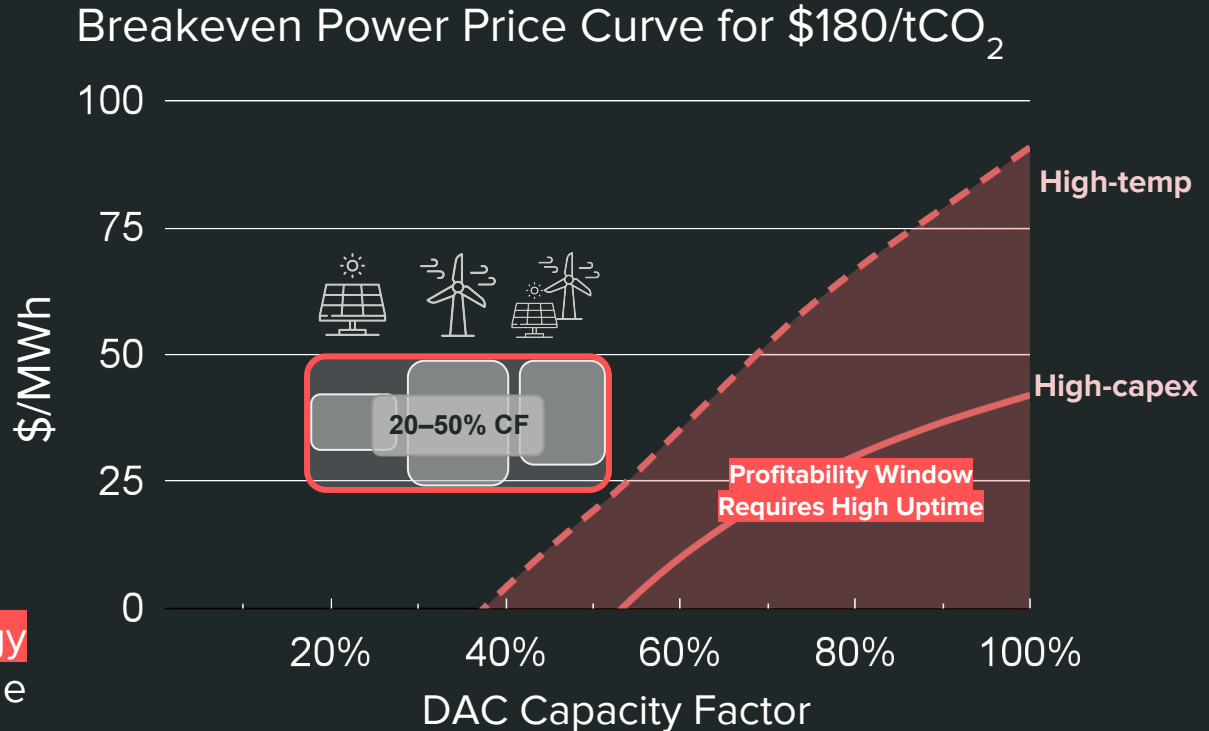


Problem:

Wind and solar are too intermittent for direct air capture

High-temp and
high-capex DAC only
operate affordably
with **continuous***
clean power

***24/7 Carbon-Free Energy**
is not widely available

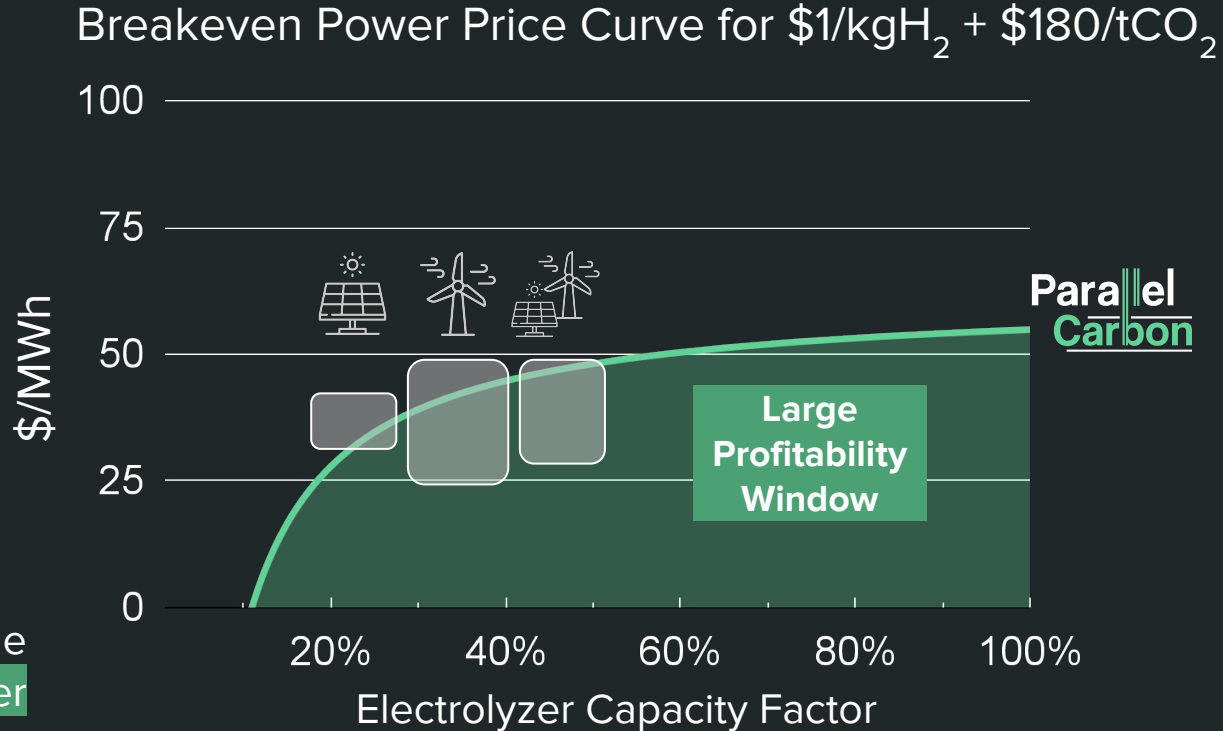


Solution:

Combine H₂ and DAC processes to share equipment

We make green
hydrogen AND
carbon removal
cost-effective*
without subsidies

*with readily-deployable
intermittent wind and solar power



Macro Factors

Appendix

CDR Demand

Existing (775kt)

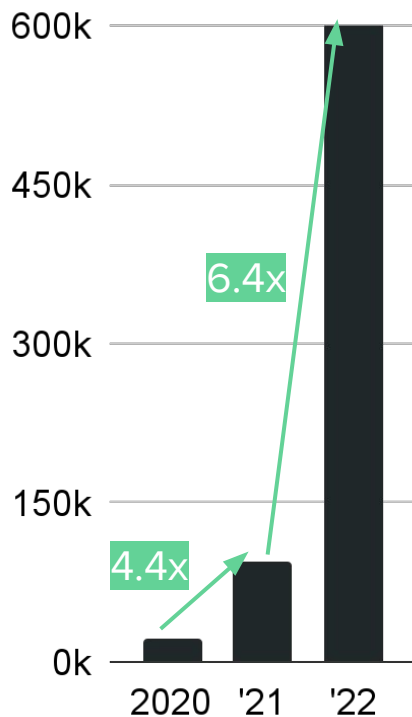
- Aviation
- Tech
- Banks/Finance
- Insurance
- Consumer

Growing (1–2Gt, 2030)

- Marketplaces
- Energy/Industrials
- Governments

Exponential Demand Growth

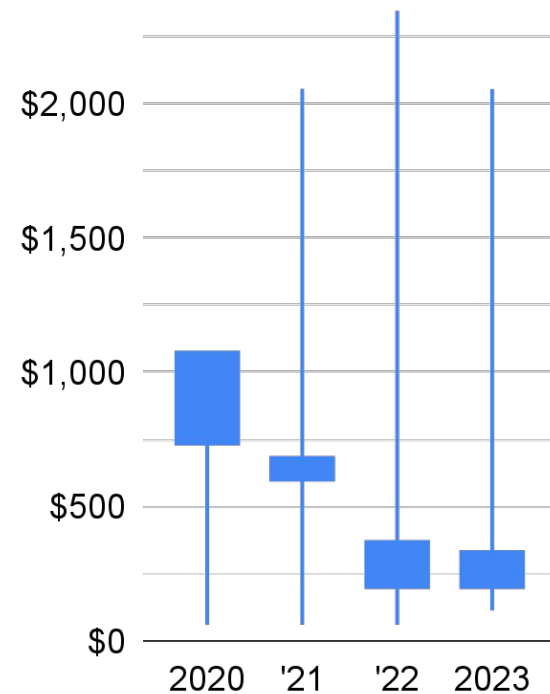
Volume sold (tCO₂)



*data from cdr.fyi

Supplier Pricing Power

Price (\$/tCO₂)



*Early stage DAC price average = \$1200/tCO₂

H₂ Demand

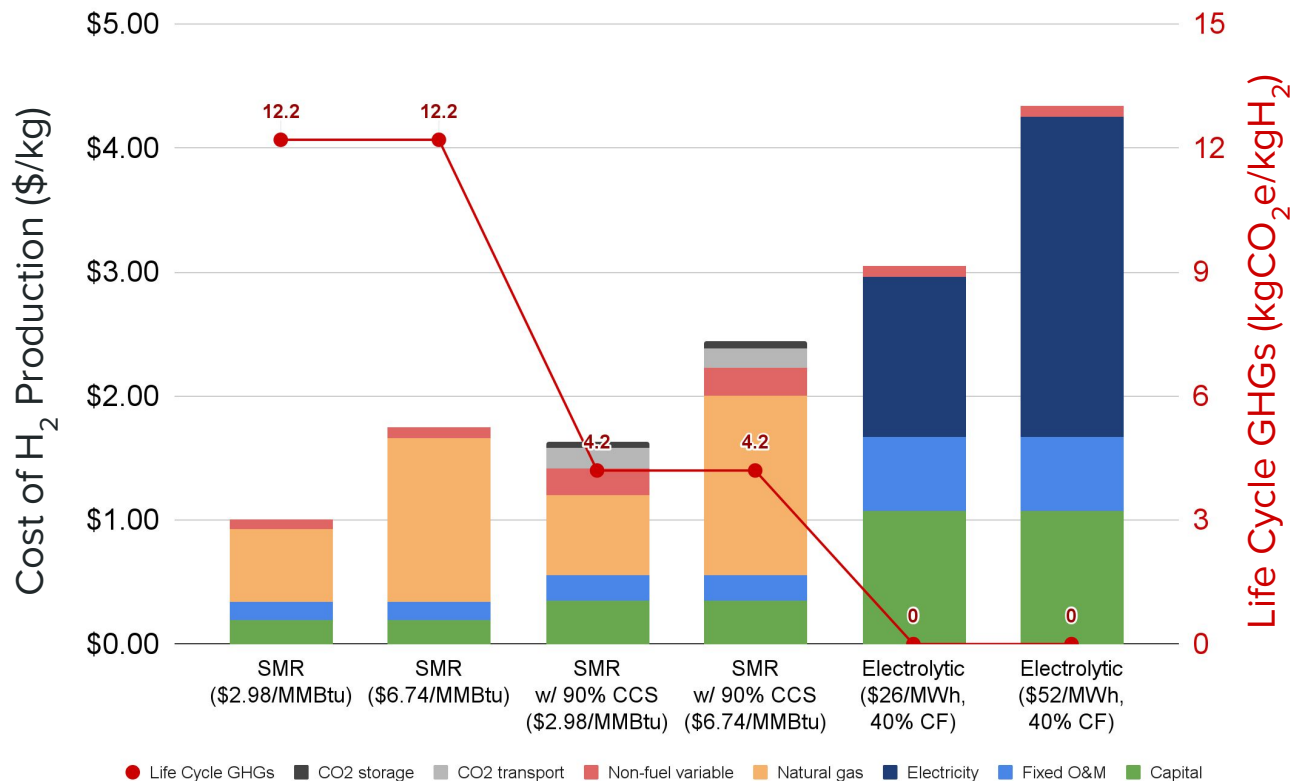
Existing (100Mt, 2021)

- Refining
- Ammonia
- Methanol
- Iron & Steel

Growing (180Mt, 2030)

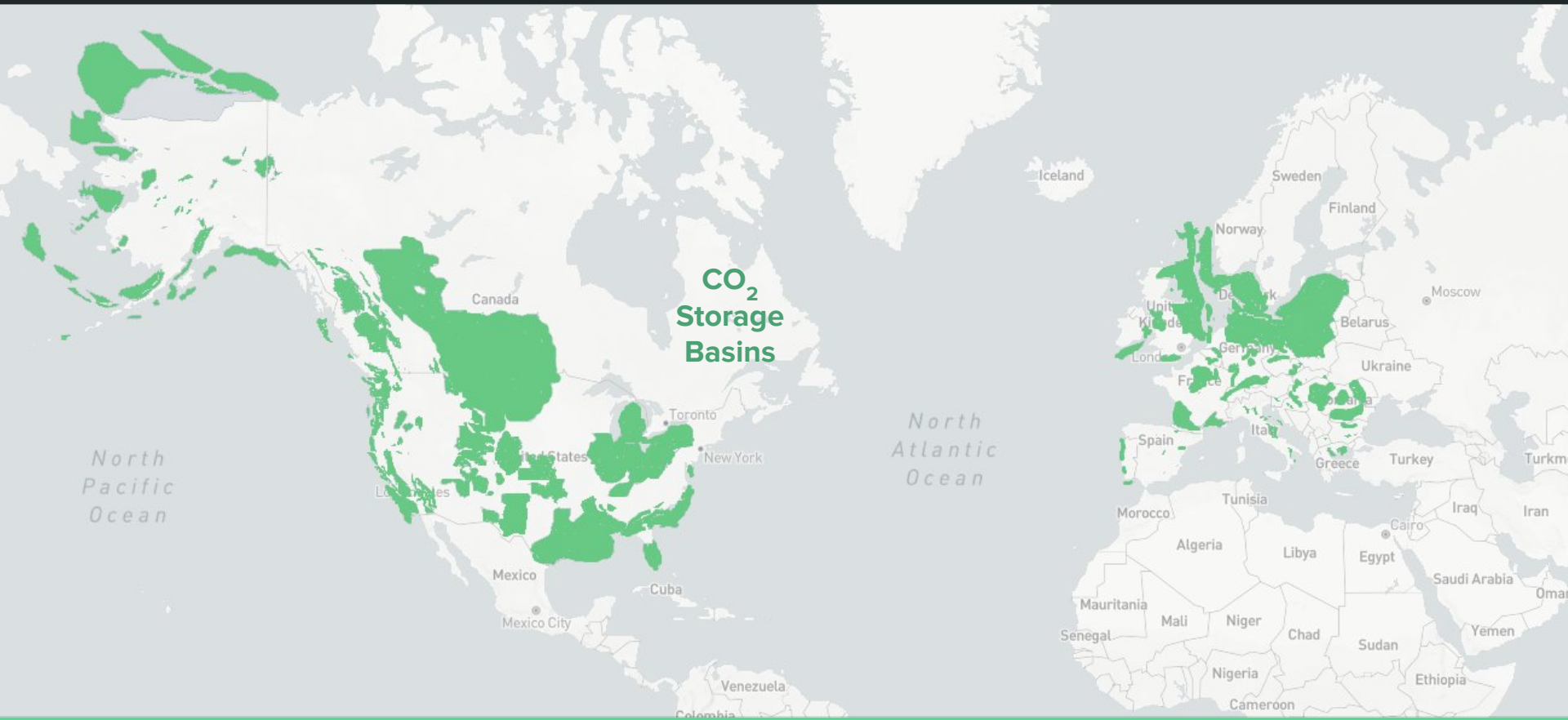
- Freight
- Aviation
- Shipping
- Energy Storage

Competing at Industrial-Scale Requires < \$1/kgH₂

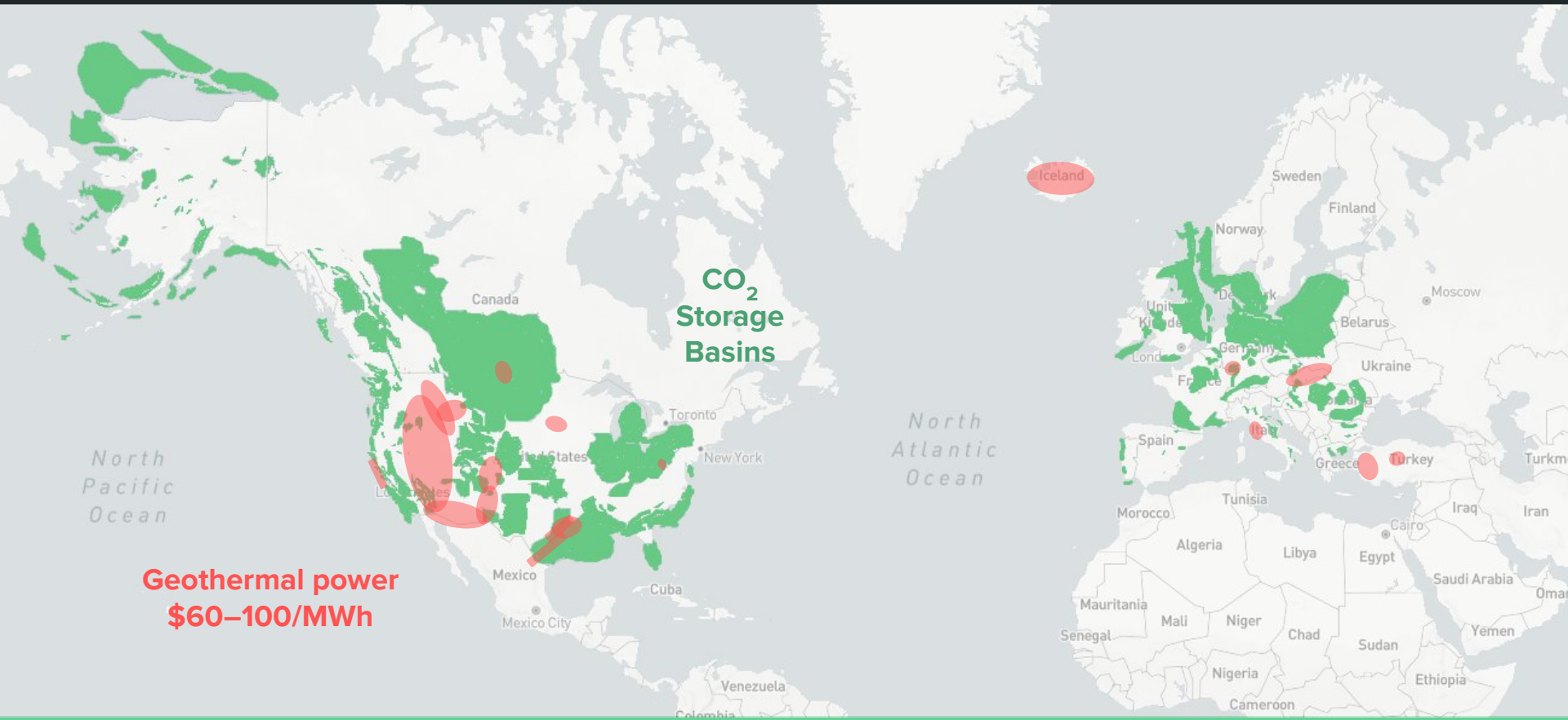


*Source: *The U.S. Hydrogen Demand Action Plan*, Energy Futures Initiative Feb. 2023

Geological CO₂ storage basins offer gigatons of potential, but DAC must be co-located to avoid transport costs



Geothermal electricity is locationally mismatched from most CO₂ storage, and expensive compared to wind and solar PV



Intermittent renewable electricity overlaps gigatons of CO₂ storage while providing low-cost power

