



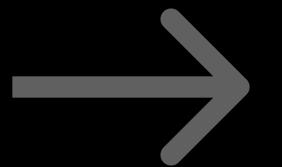
Hydrogen Revolution

Powering Tomorrow

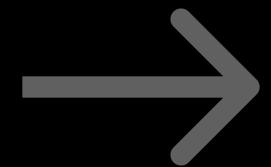
Apr 30, 2025

Irene, Jenny, Linda, Manasi, Roy and Sai

To Build a More Sustainable Future



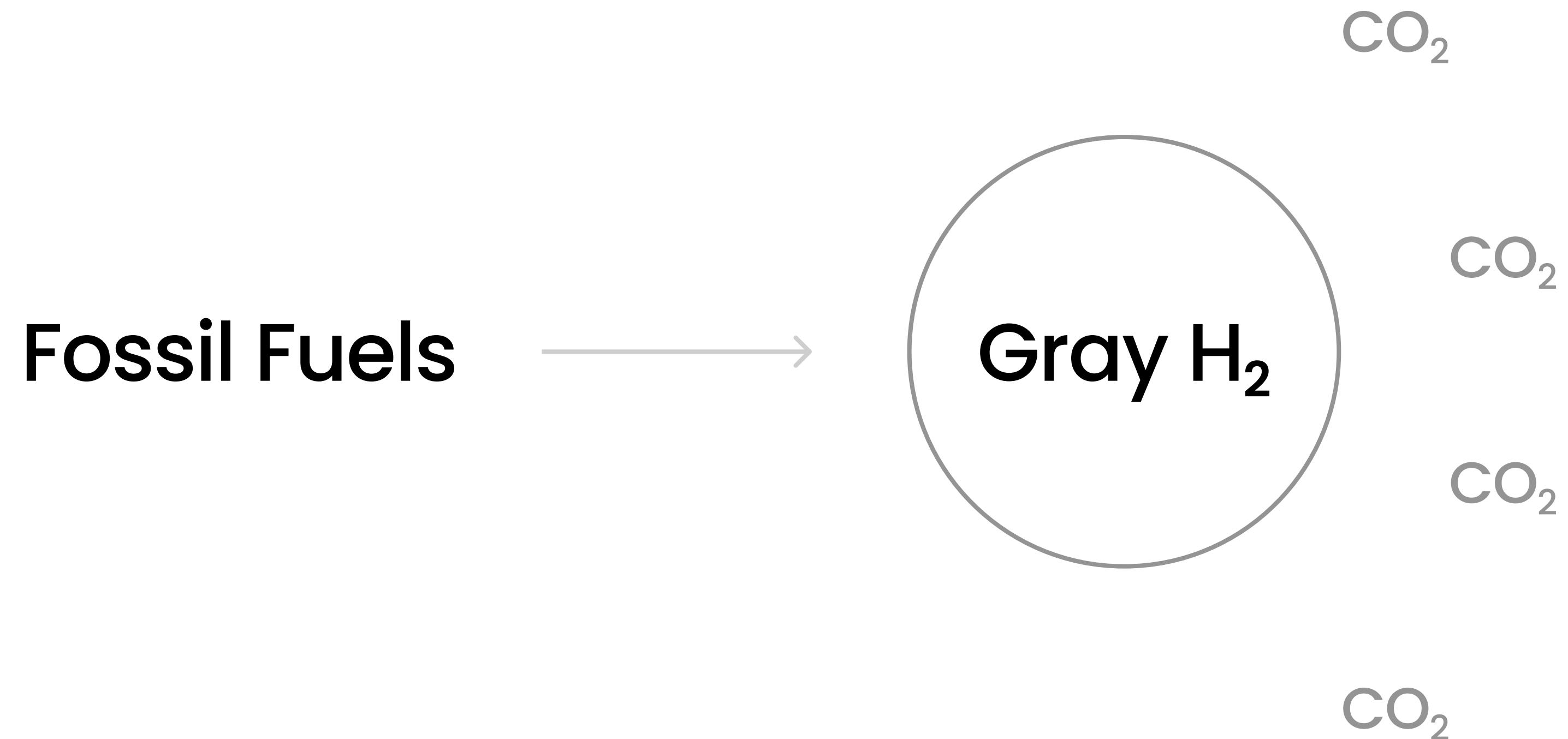
We Need to Transition to Cleaner Energy Sources



H₂ isn't readily available in pure form

H_2 isn't readily available in pure form
it must be extracted or produced from other compounds.

Most Common Way of Producing H₂ is from Fossil Fuels



There is a Cleaner Way to Produce Hydrogen

Renewable
Source



Green H_2

There is a Cleaner Way to Produce Hydrogen

**Renewable
Source**

Water
Electrolysis
→



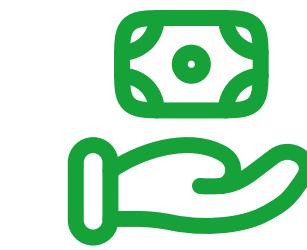
Green H₂

World is Heading Towards Green H₂

Government Incentives

Electrolyzer Innovation

Industrial Decarbonization



\$3/kg U.S. tax credit for clean H₂ production and \$30B+ in global subsidies

Source: [U.S. Green Hydrogen Market Size, Trends, Forecast 2025-33](#)

World is Heading Towards Green H₂

Government Incentives

Electrolyzer Innovation

Industrial Decarbonization



Companies are investing in next-generation electrolyzers to optimize H₂ production

Source: [U.S. Green Hydrogen Market Size, Trends, Forecast 2025-33](#)

World is Heading Towards Green H₂

Government Incentives

Electrolyzer Innovation

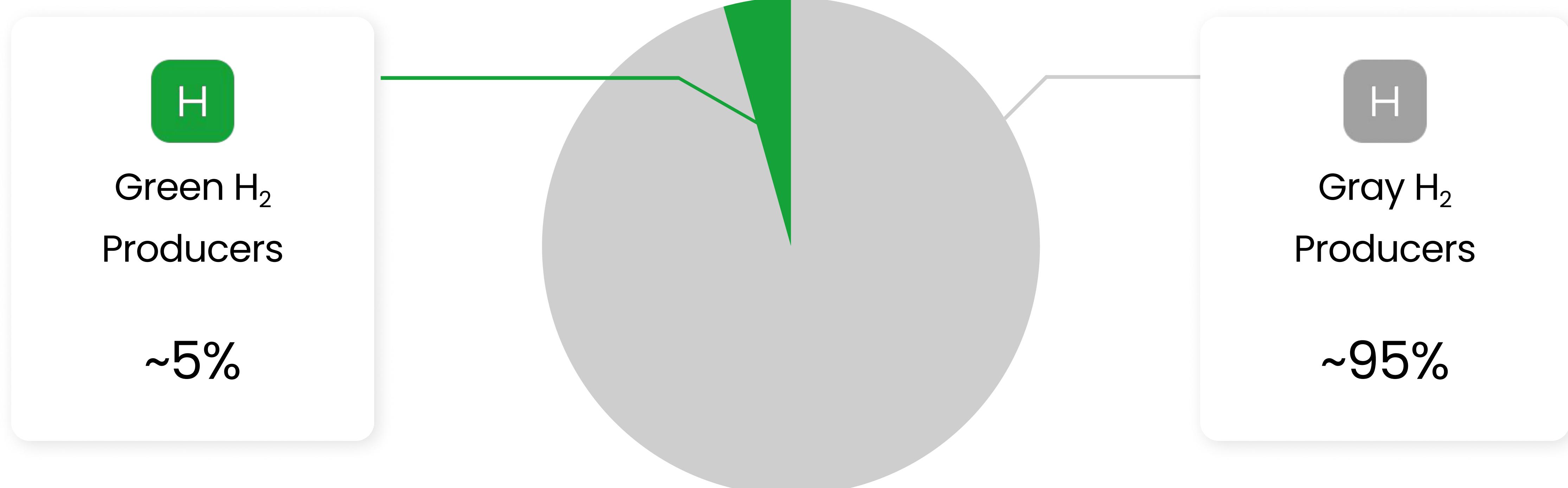
Industrial Decarbonization



The steel, chemical, and power generation sectors are adopting Green H₂

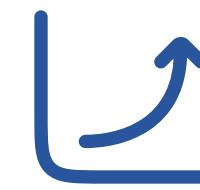
Source: [U.S. Green Hydrogen Market Size, Trends, Forecast 2025-33](#)

However, the Transition is Slow



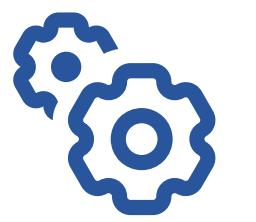
Source: Grand View Research, Allied Market Research

Transition to Green H₂ Faces Major Roadblocks



High Production Costs

Green H₂ is 6x the cost of Gray H₂



Infrastructure Complexity

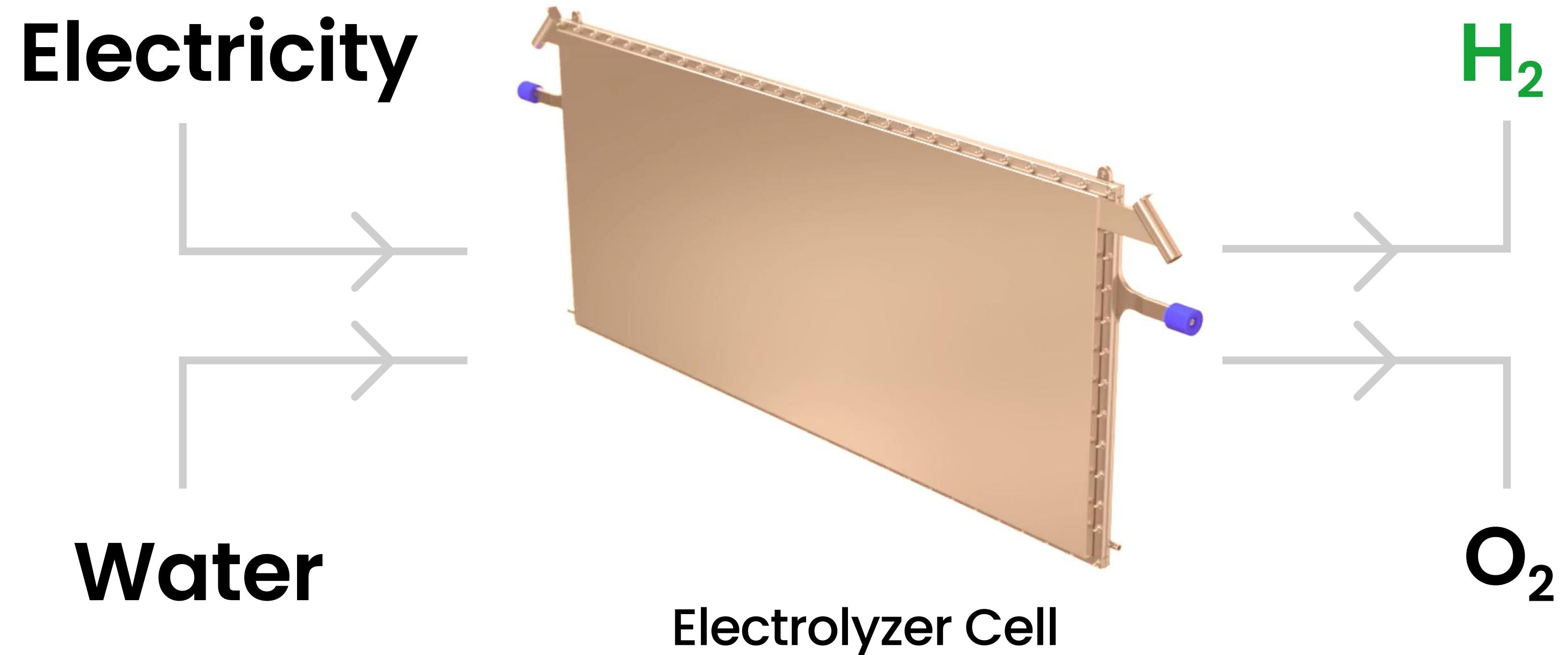
Land, architecture, pipelines, operations



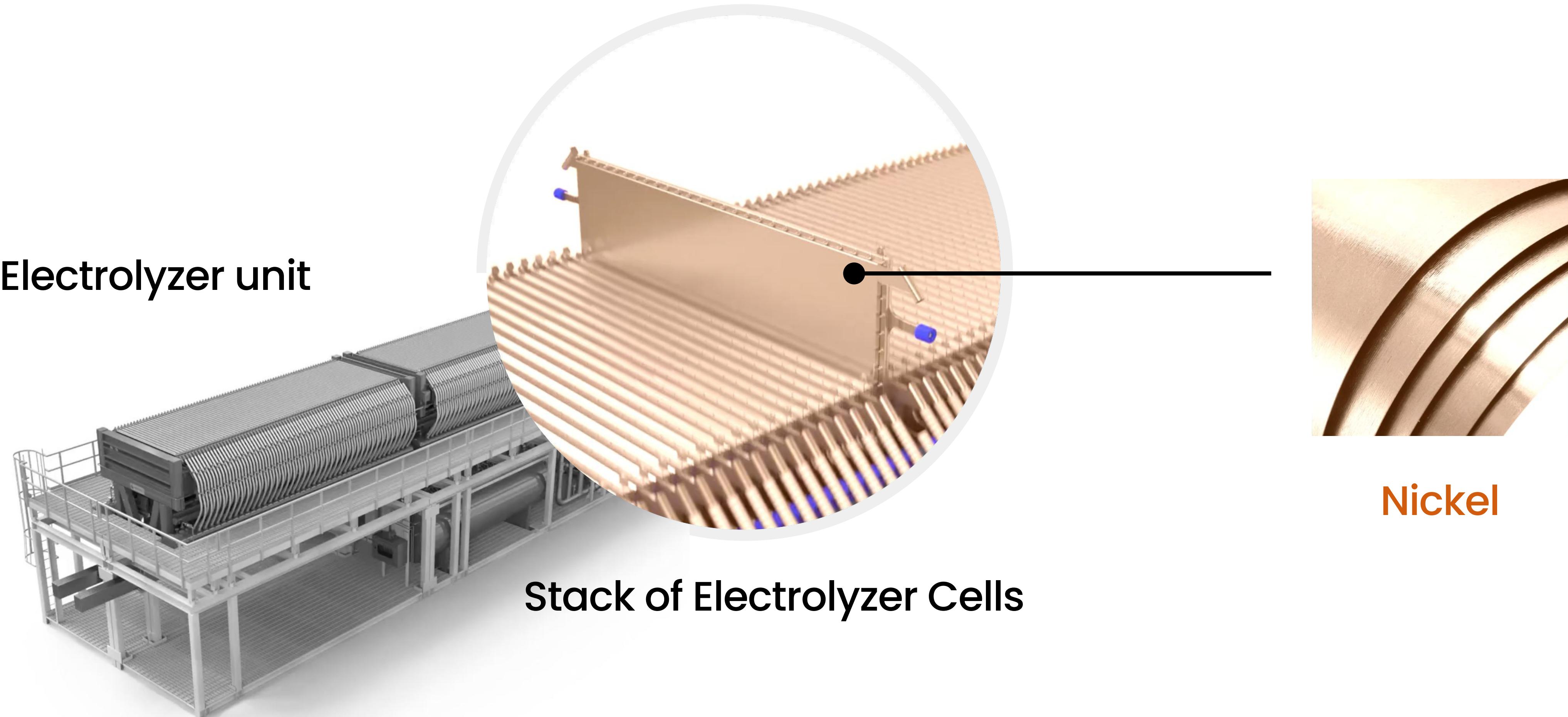
Resource Depletion Risks

Nickel supply is volatile

Nickel Enables the Electrolysis Process

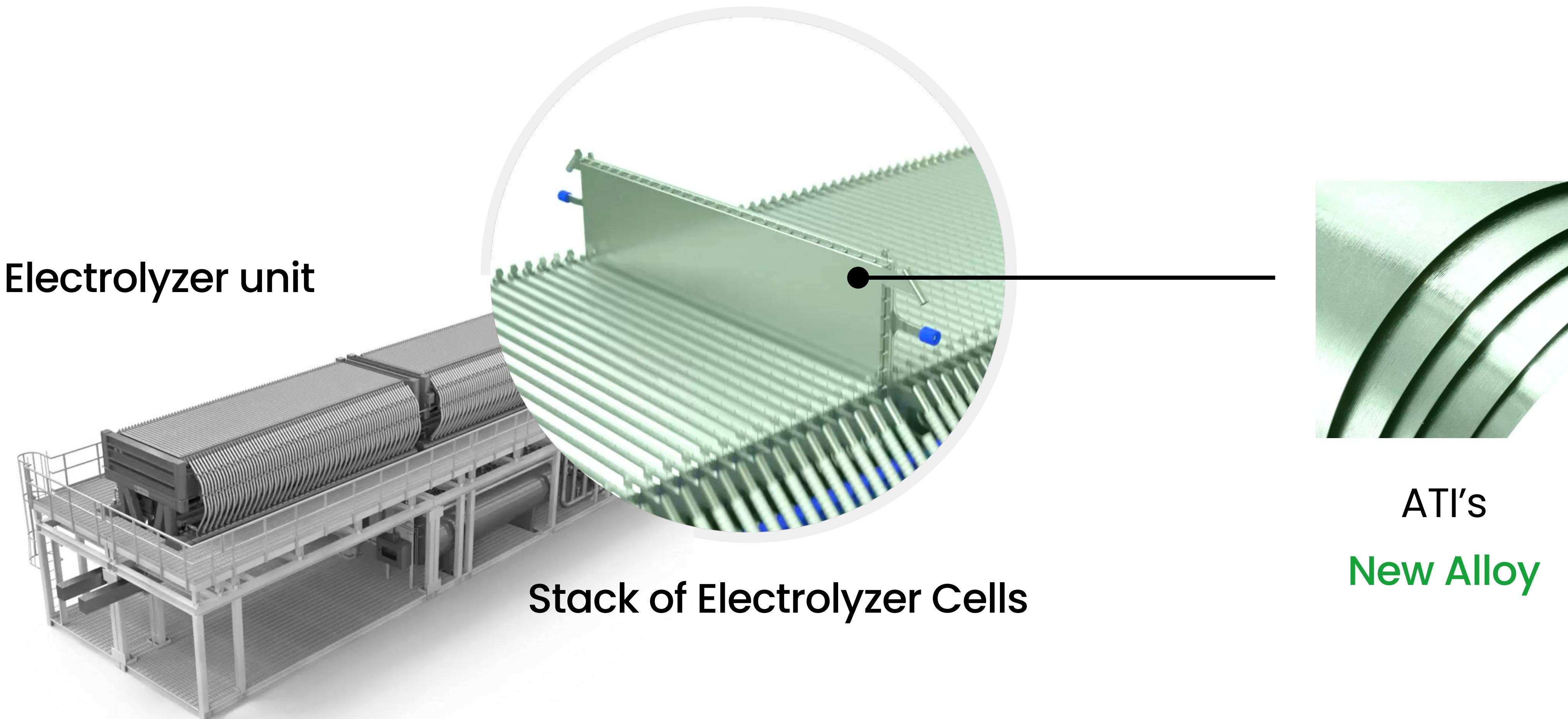


80% of a Electrolyzer Unit is Made of Nickel



Source: Expert Interview

ATI's New Alloy Offers a Better Alternative to Nickel



ATI's New Alloy is **20% lesser cost** compared to Nickel



ATI's
New Alloy



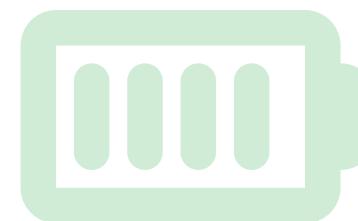
20% Cost
Savings



Greatly Improved
Supply



50% Shorter Lead
Time



95% performance
Efficiency

ATI's New Alloy is **more abundant than Nickel**



ATI's
New Alloy



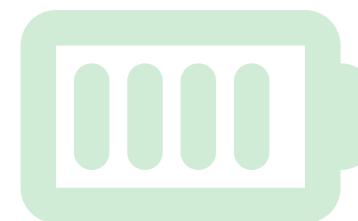
20% Cost
Savings



Greatly Improved
Supply



50% Shorter Lead
Time



95% performance
Efficiency

ATI's New Alloy is produced 50% faster than Nickel



ATI's
New Alloy



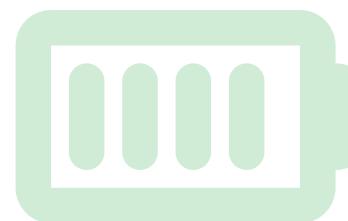
20% Cost
Savings



Greatly Improved
Supply



50% Shorter Lead
Time



95% performance
Efficiency

ATI's New Alloy Delivers Nickel-Equivalent Performance



ATI's
New Alloy



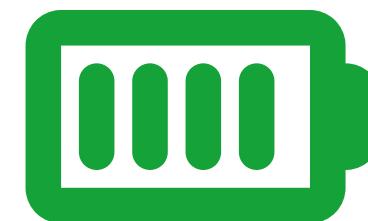
20% Cost
Savings



Greatly Improved
Supply

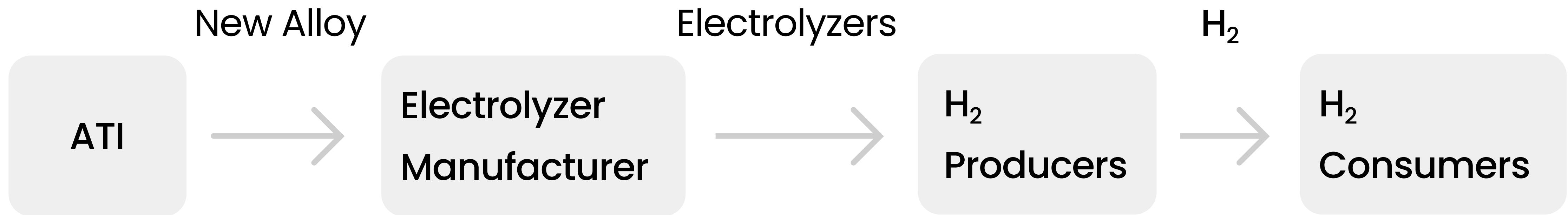


50% Shorter Lead
Time

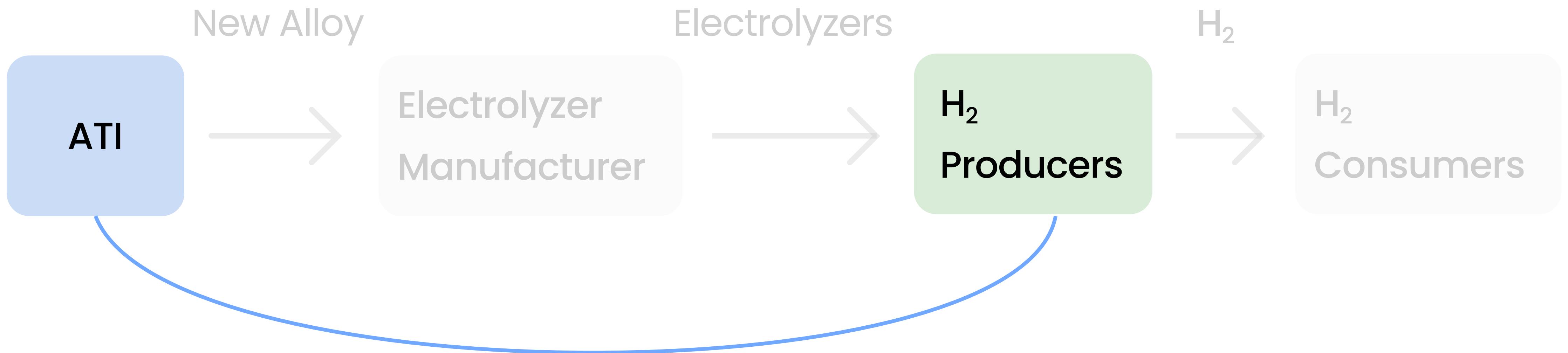


95% Performance
Efficiency

ATI's Role in Green H₂ Supply Chain



ATI's New Alloy Is a Key Enabler of Green H₂ Production



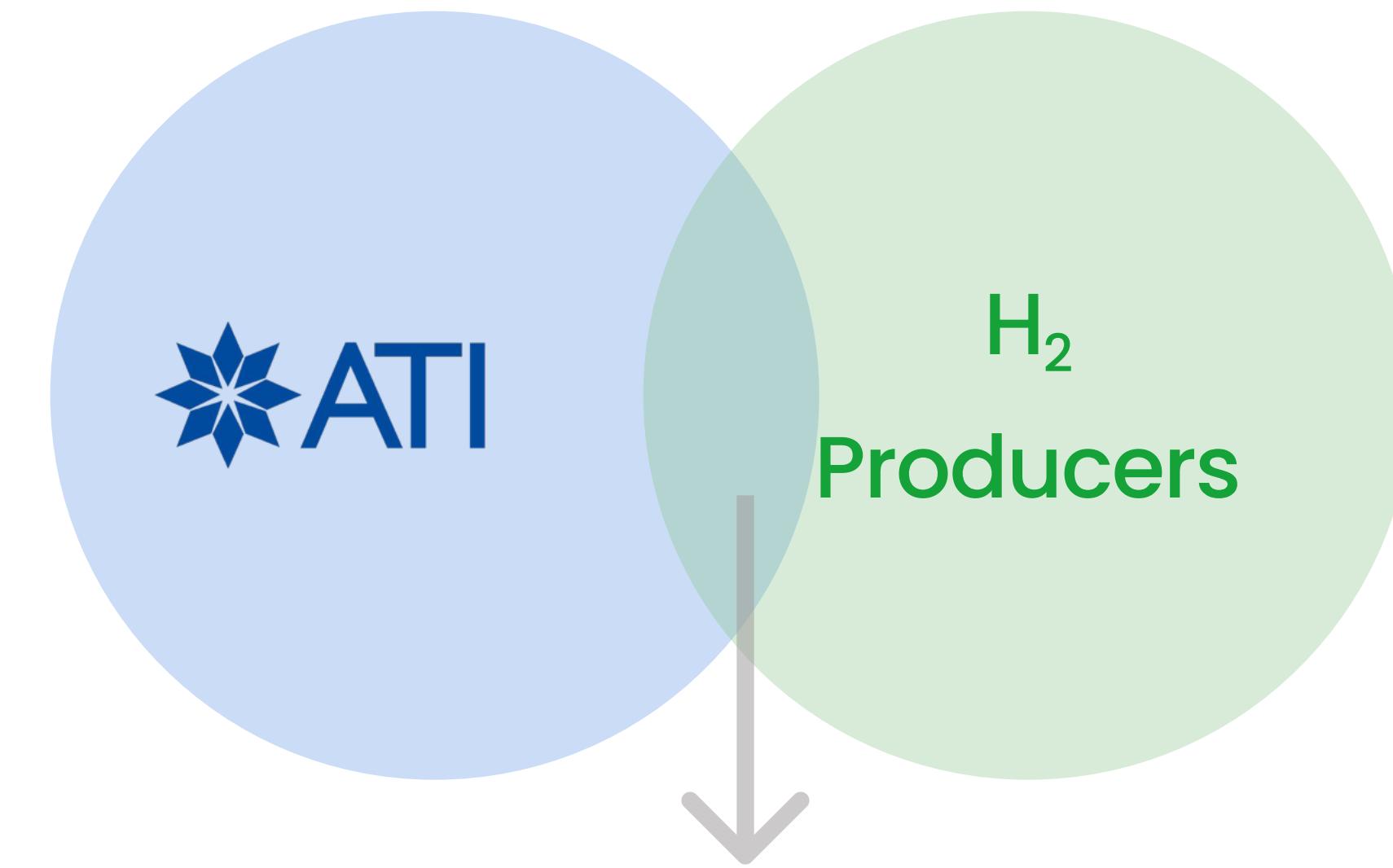
Aligning ATI & H₂ Producers Goals



- Increase demand for the new alloy
- Become a global supplier

H₂ Producers

- Lower production costs
- Enhance scalability & reduce lead time
- Minimize disruption to existing production



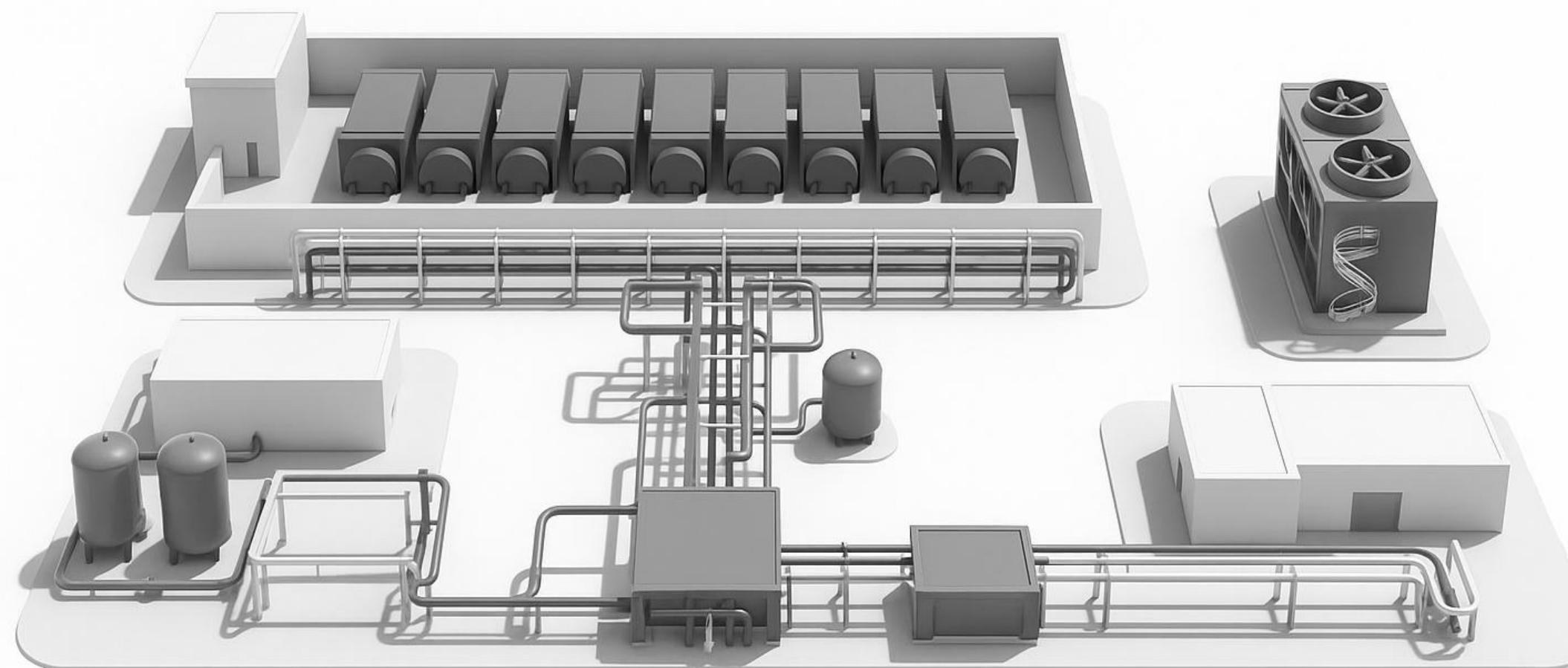
A solution that **lowers the adoption barriers**
for Green H₂ through enhanced
Cost-efficiency, Scalability, and Compatibility



HydroPort

Enabling Green Hydrogen Adoption

Traditional Green H₂ Plant Requires High Upfront Cost



Traditional Green H₂ Plant [10 x 20 MW]

Challenge #1

High Upfront Cost

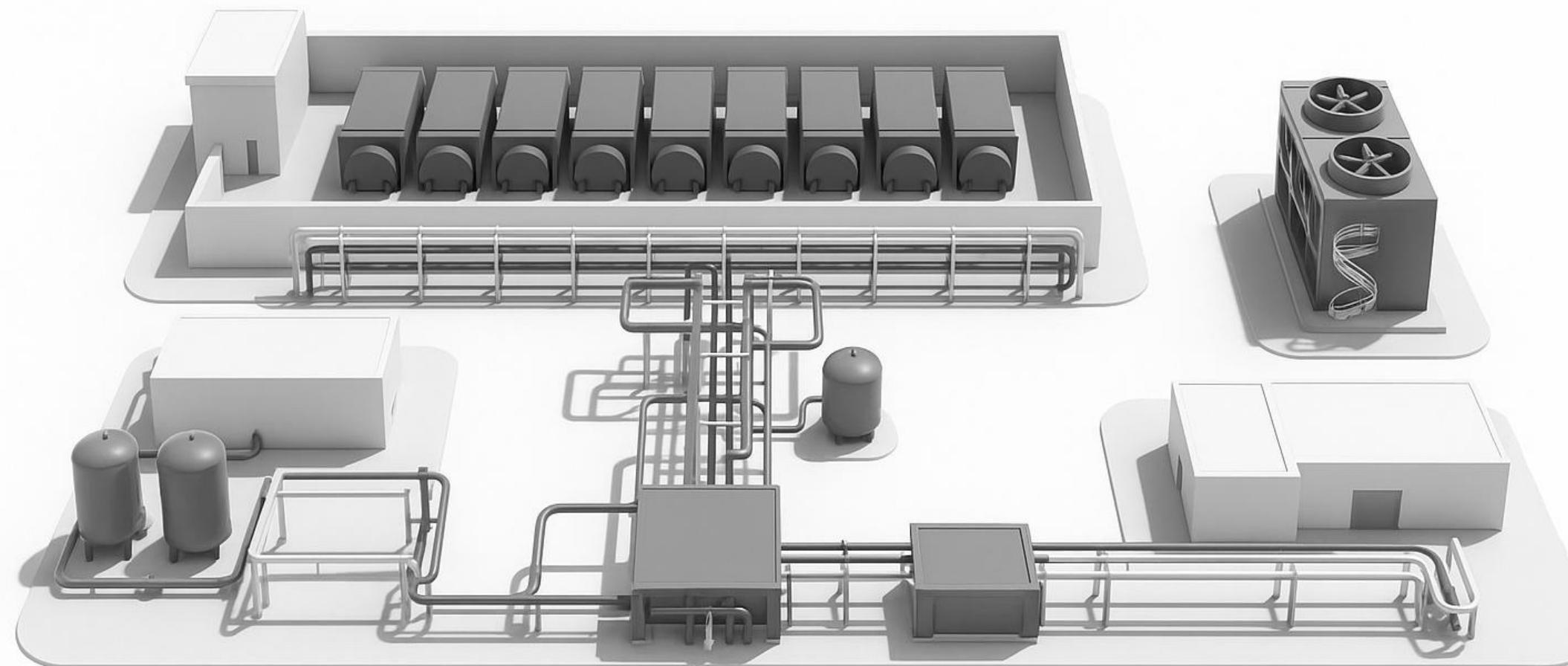
Challenge #2

Fixed Capacity

Challenge #3

Hard to Build

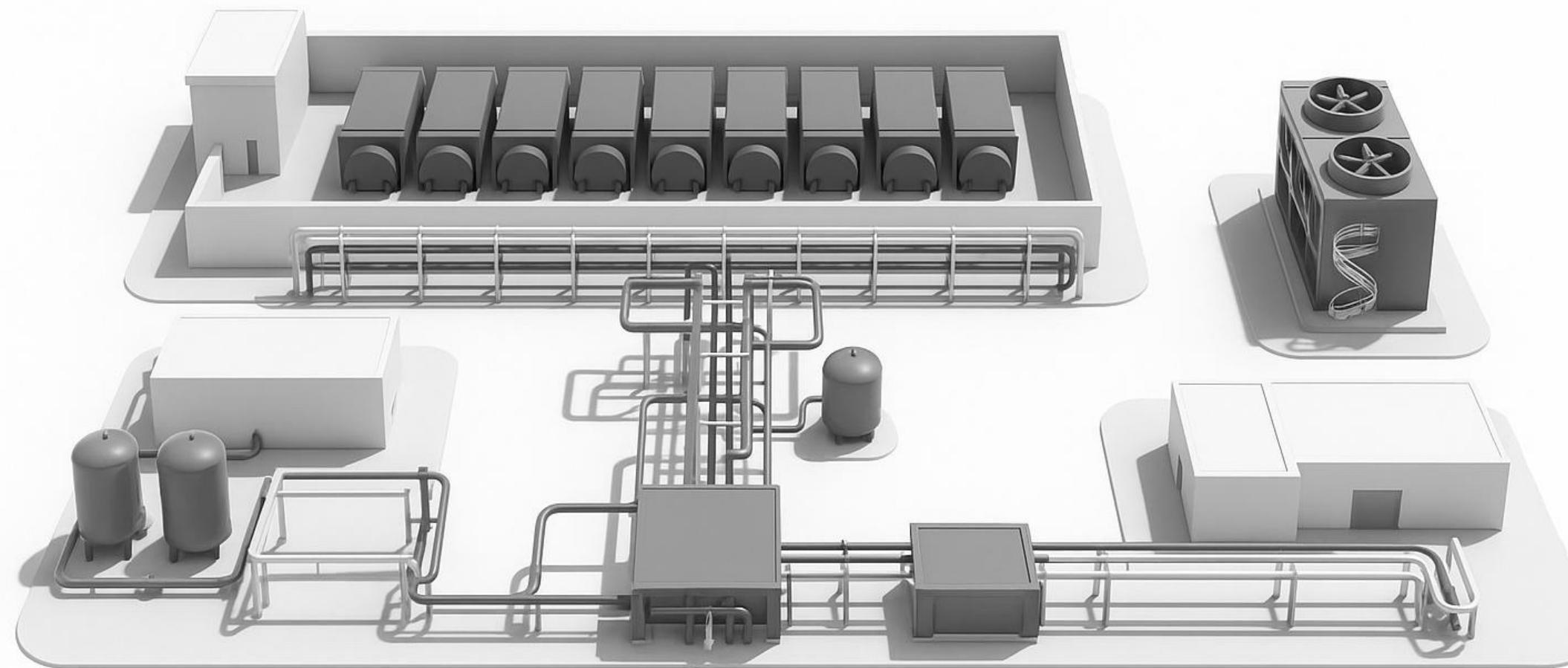
Traditional Green H₂ Plant Requires High Upfront Cost



Traditional Green H₂ Plant [10 x 20 MW]

Building Cost = **\$45M**
(site + electrolyzers)

Traditional Green H₂ Plant Requires High Upfront Cost



Traditional Green H₂ Plant [10 x 20 MW]

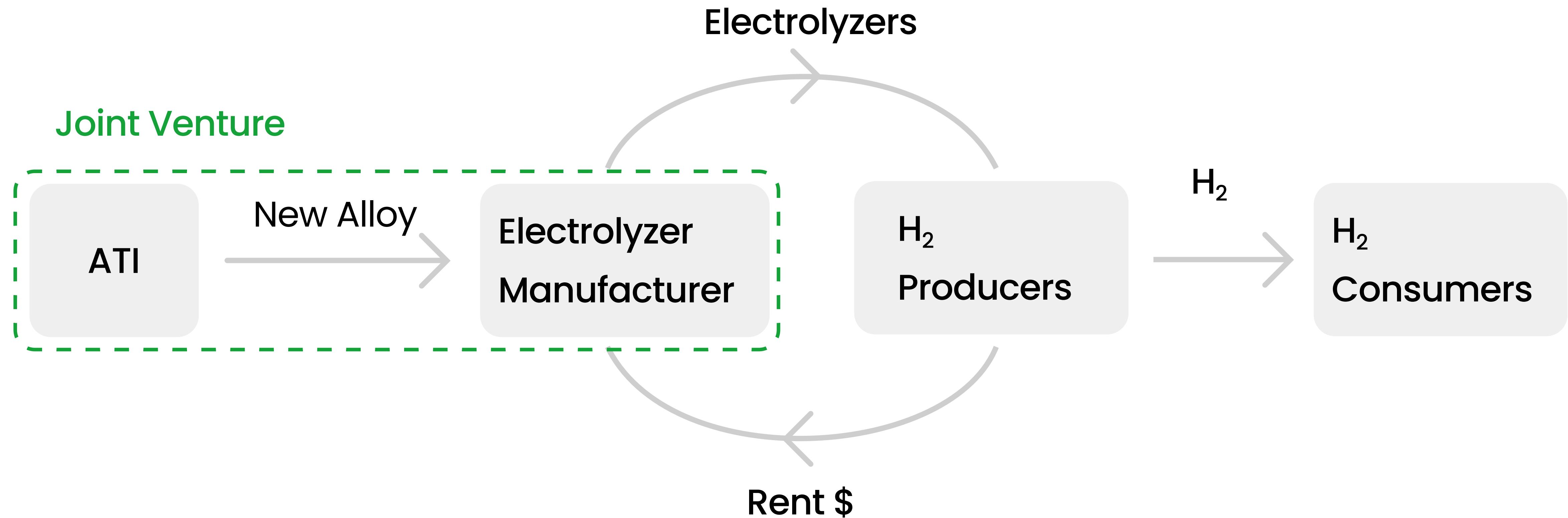
Building Cost = **\$45M**
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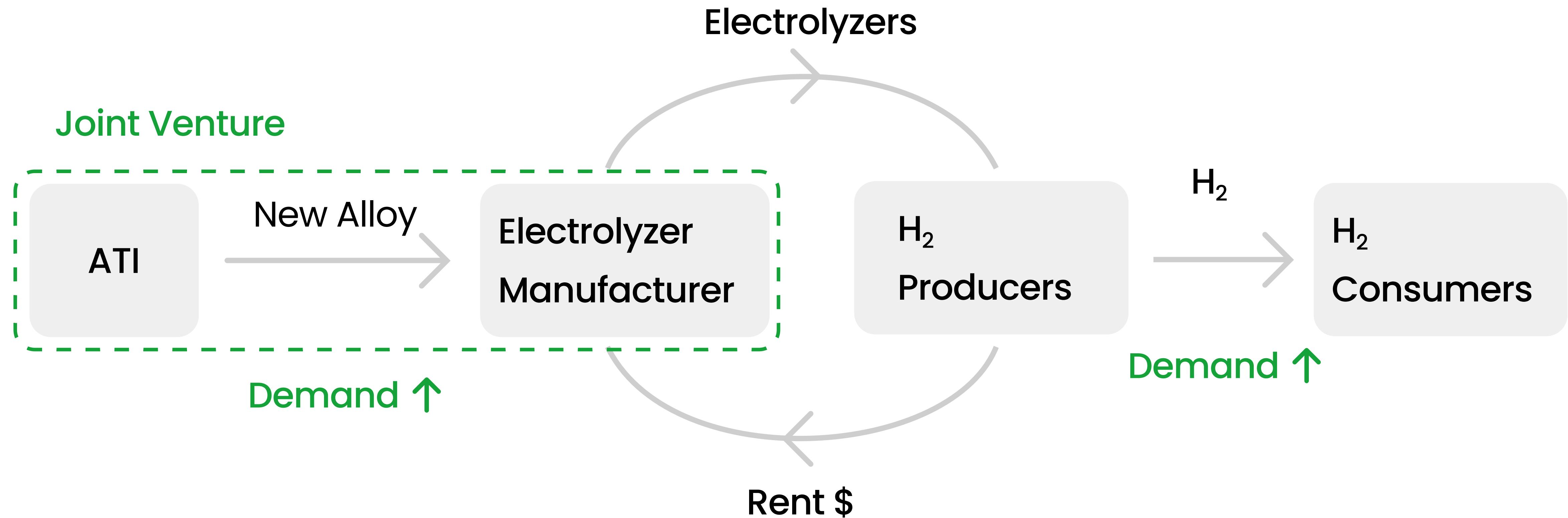
- ✗ High Financial Risk
- ✗ Permanent Investment
- ✗ Unclear ROI

What if you could rent electrolyzer units?

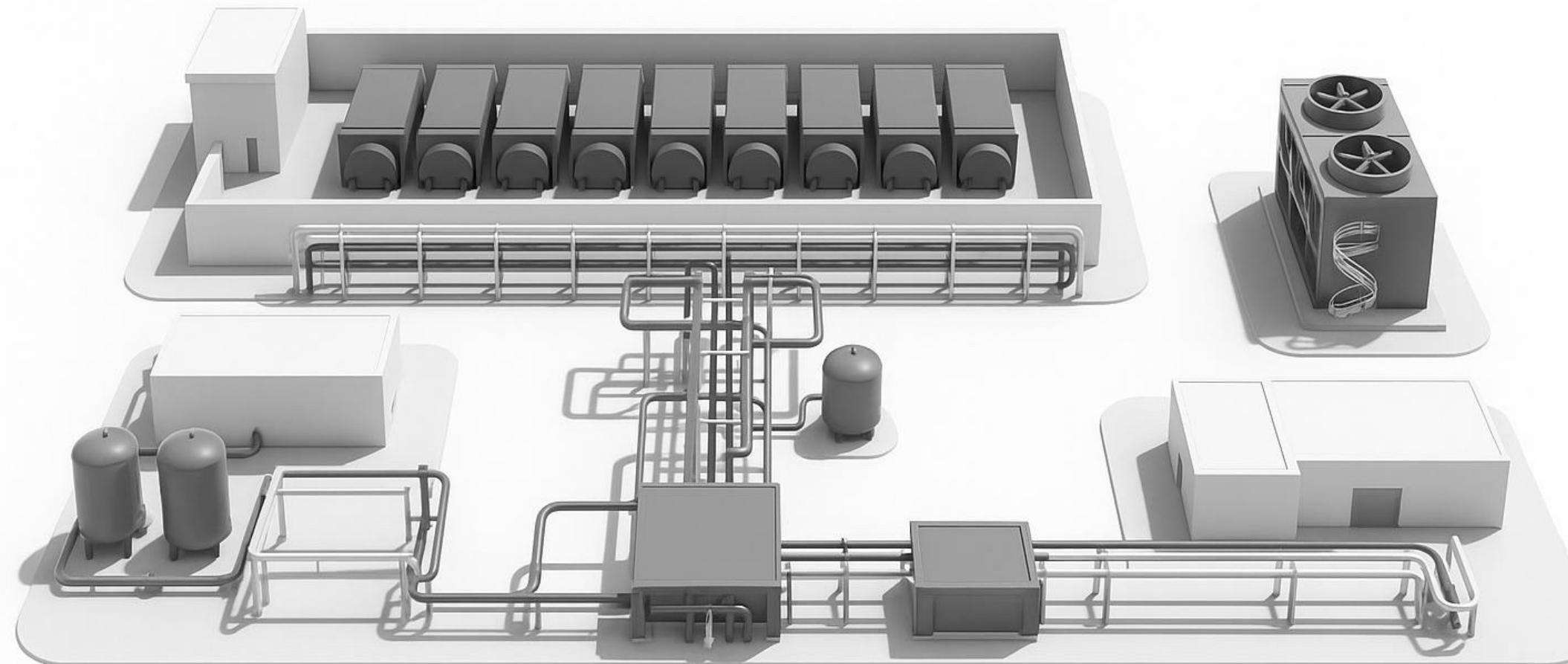
HydroPort Is an Electrolyzer Rental Program...



...that Drives Demand for Green H₂ and ATI's New Alloy



Traditional Green H₂ Plant Operates at Fixed Capacity



Traditional Green H₂ Plant [10 x 20 MW]

Challenge #1

High Upfront Cost

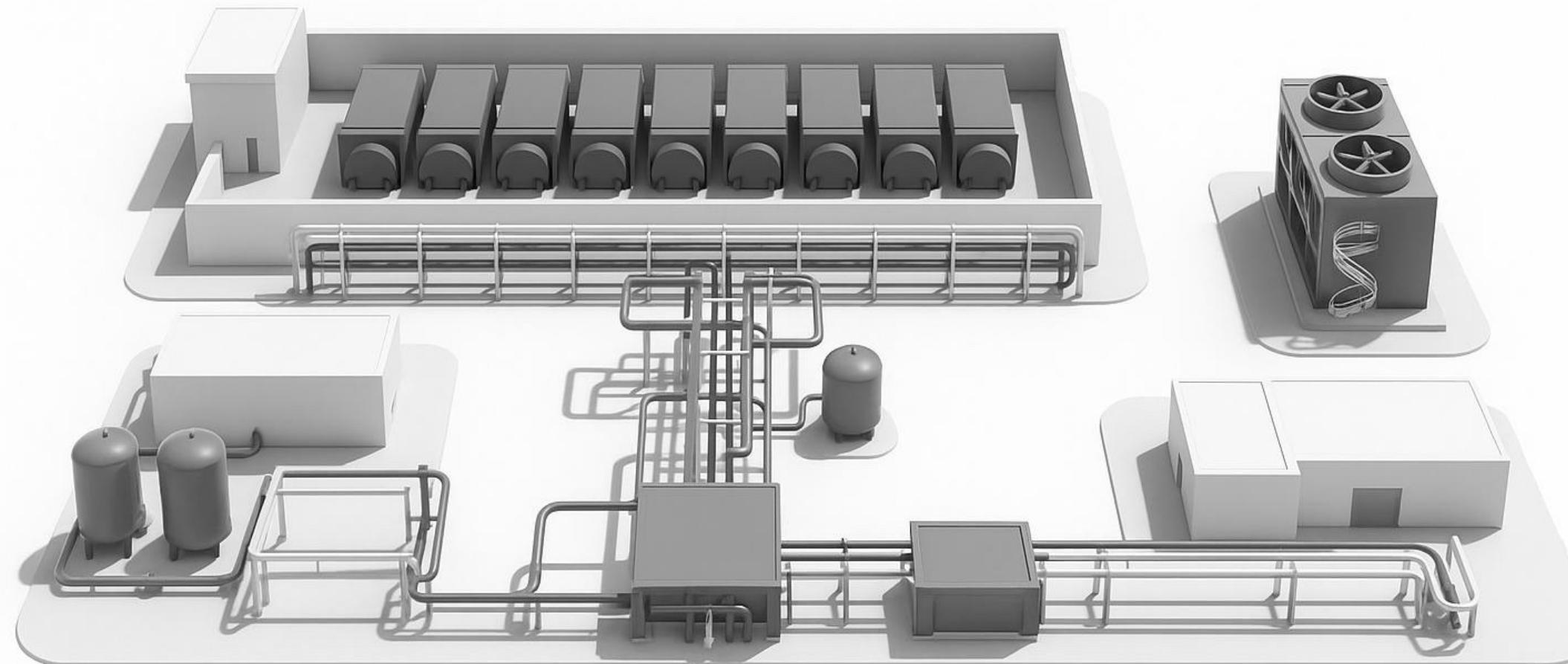
Challenge #2

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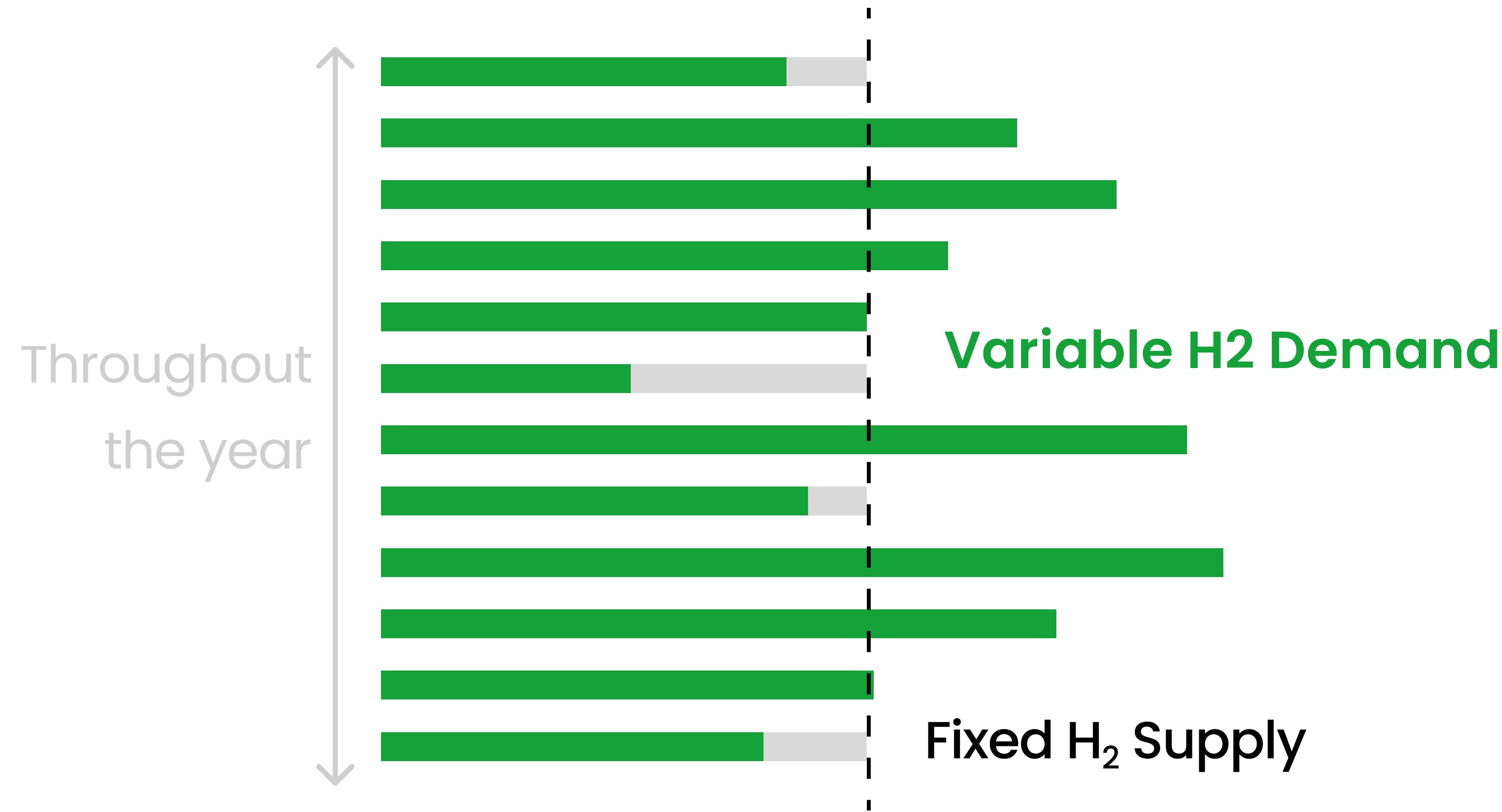
Traditional Green H₂ Plant Operates at Fixed Capacity



Traditional Green H₂ Plant [10 x 20 MW]

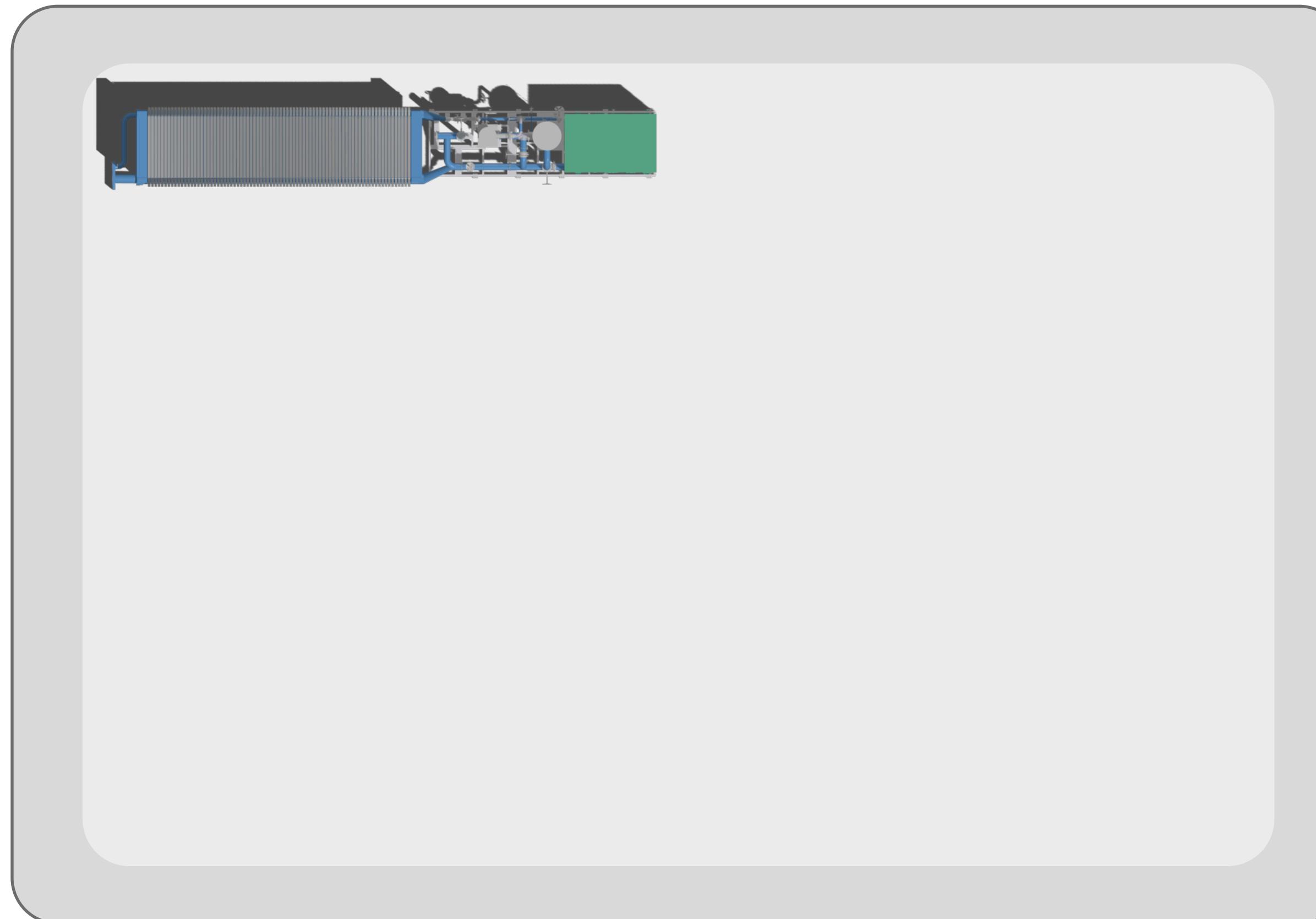
Fixed H₂ Production Capacity =
82,320 kg / day

H₂ Demand Varies Seasonally



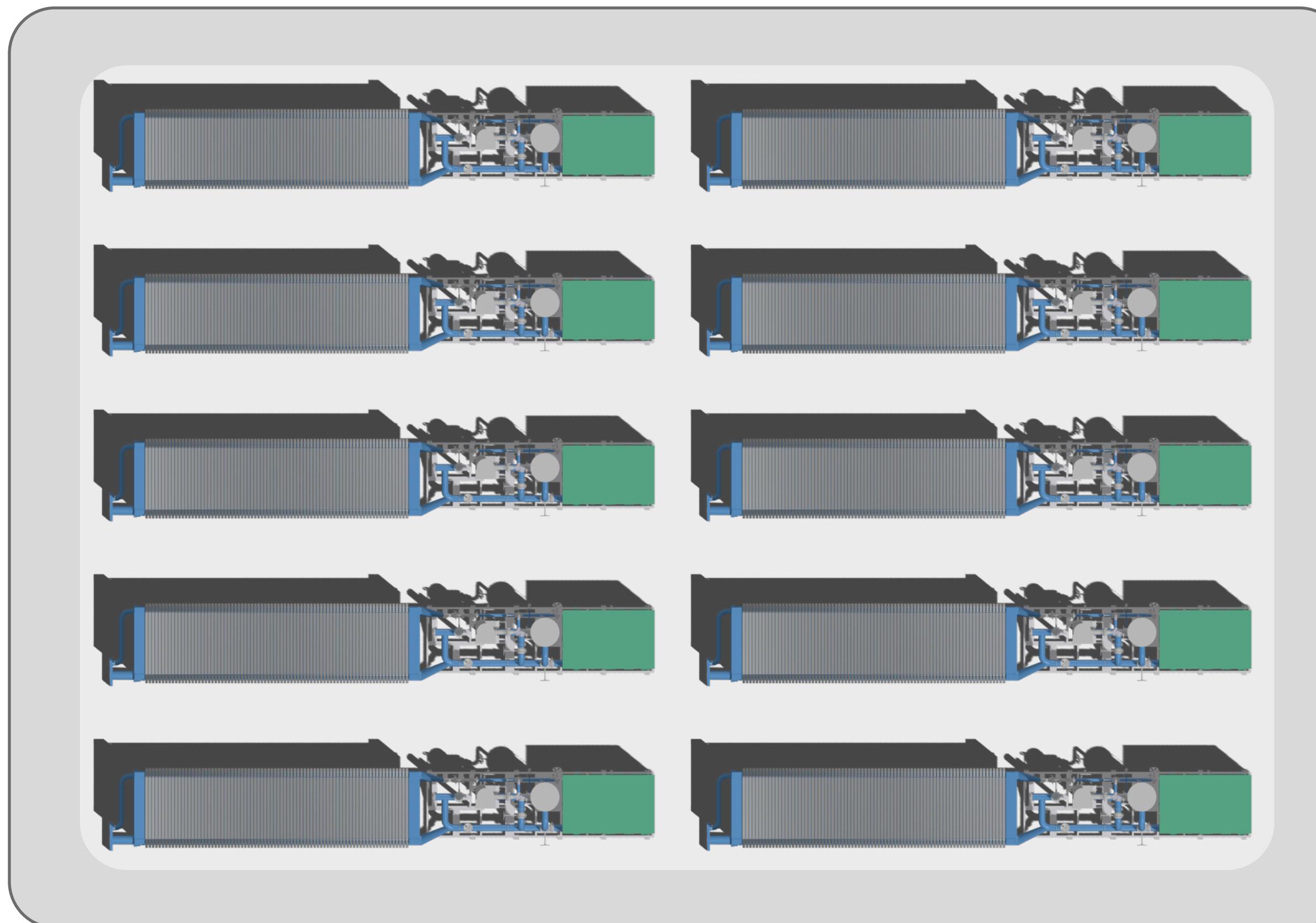
What if you could **rent scalable**
electrolyzer units?

HydroPort Enables Customization of Production Capacity



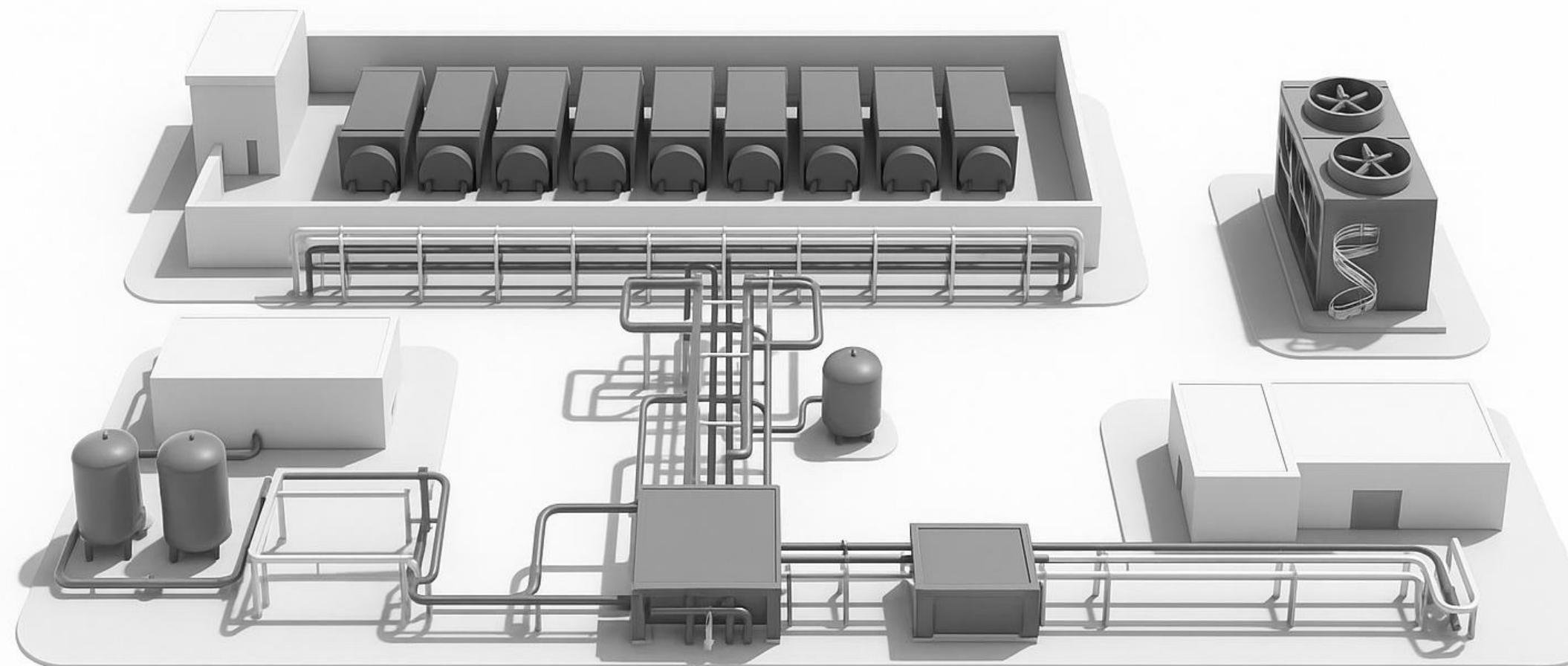
H₂ Production Capacity
500 kg / day

HydroPort Enables Customization of Production Capacity



H₂ Production Capacity
5,000 kg / day

Traditional Green H₂ Plant Is Hard to Build



Traditional Green H₂ Plant [10 x 20 MW]

Challenge #1

High Upfront Cost

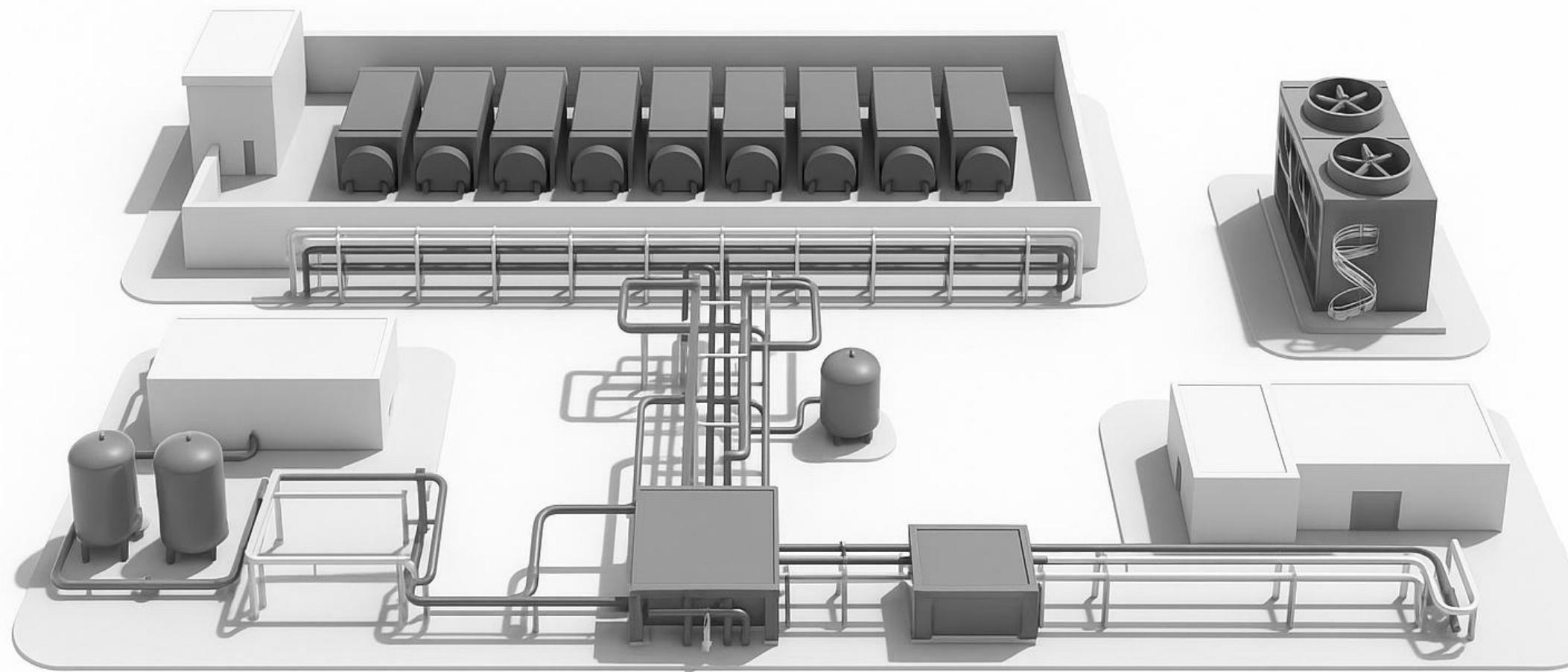
Challenge #2

Fixed Capacity

Challenge #3

Hard to Build

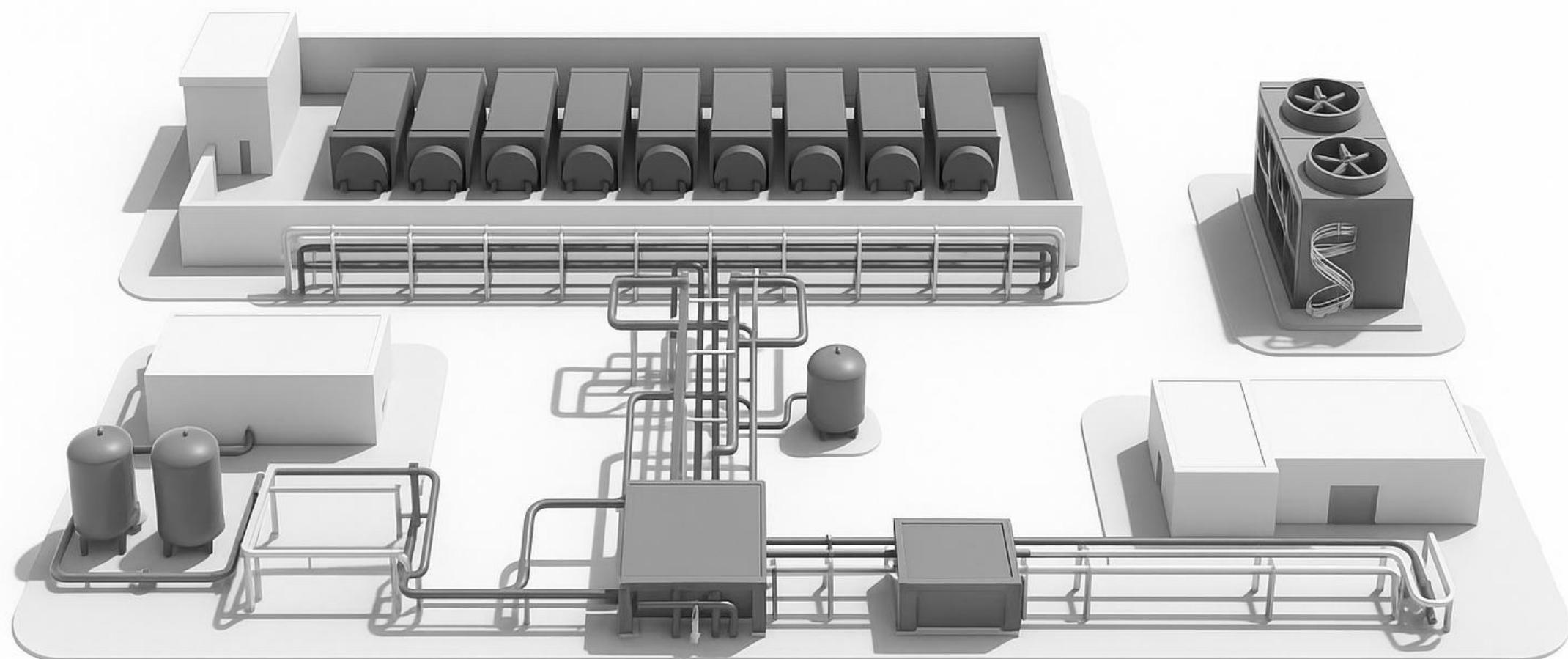
Traditional Green H₂ Plant Is Hard to Build



Traditional Green H₂ Plant [10 x 20 MW]

Footprint Area = **~ 26468.46 sq ft**
(~2,459 sq m)

Traditional Green H₂ Plant Is Hard to Build



Traditional Green H₂ Plant [10 x 20 MW]

Footprint Area = **~ 26468.46 sq ft**
(~2,459 sq m)



- ✖ Large Resource Requirement
- ✖ Complex Infrastructure
- ✖ Long-term Planning Needed

What if you could
rent scalable & portable
electrolyzer units?

HydroPort

-  Cost-efficient
-  Scalable
-  Portable

way to produce H₂



HydroPort

Mounted on a 53 ft Chassis



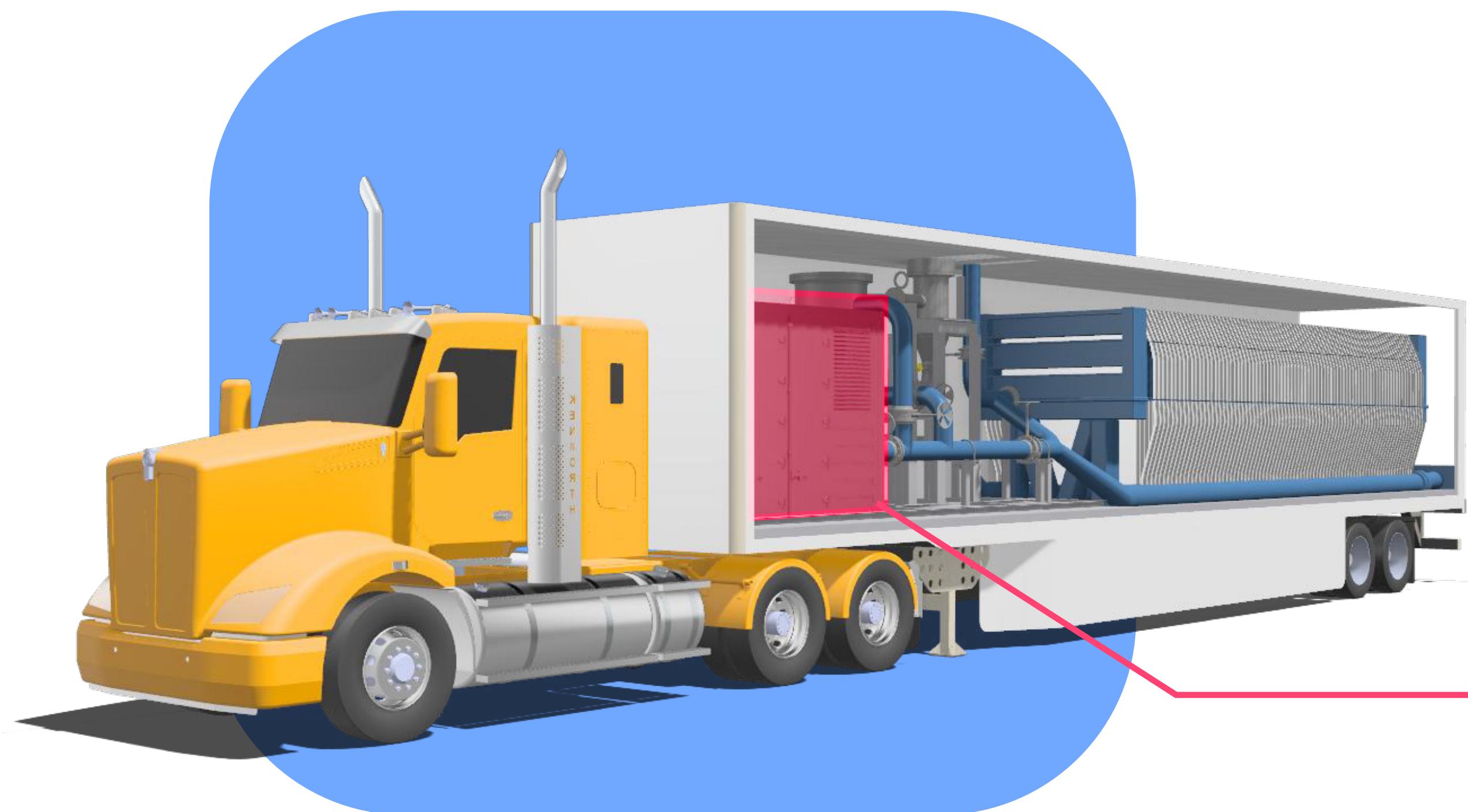
① Trailer size

53 ft

Compact, mobile, easy to transport and deploy anywhere

HydroPort

Powered by 1 MW of Electricity



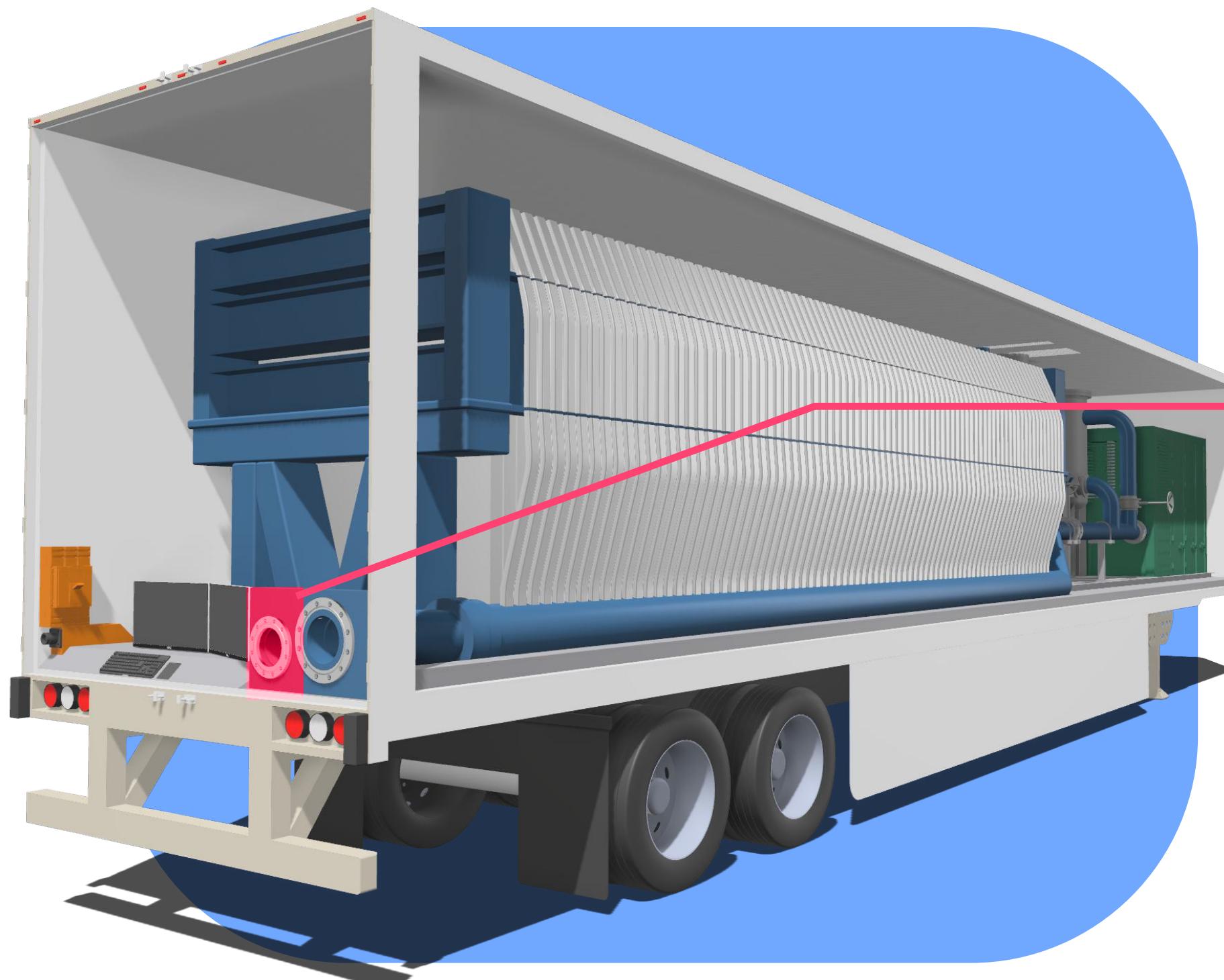
 Power

1 MW

Well within the capacity of sites with existing industrial grid access.

HydroPort

Turns Water into H₂



① Water Input ~4900 kg/day

That's equivalent to per day consumption of 5 Average American families combined.

HydroPort

Produces Up to 500 kg of H₂ Per Day



① H₂ Output

~500 kg/day

~83 H₂

Fuel Cell Vehicles

33,000 miles

Effective Range

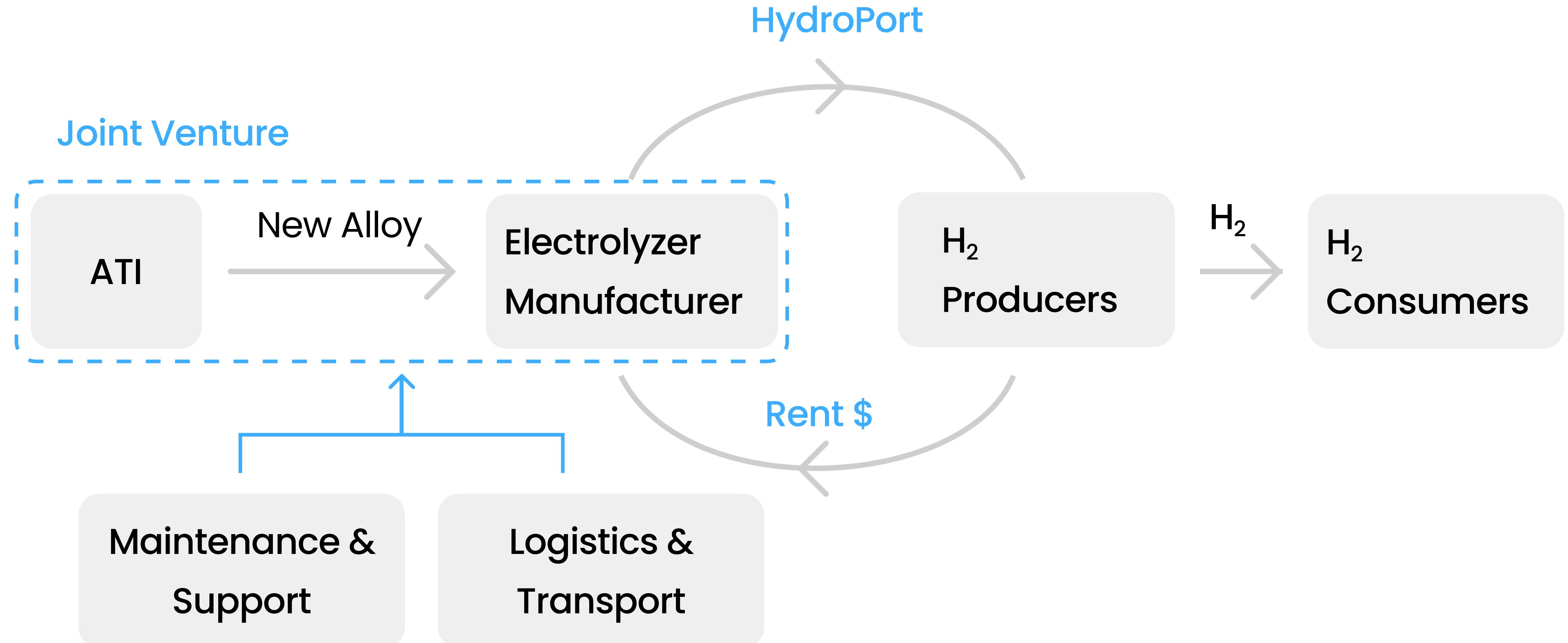


HydroPort Service Demo

HydroPort

Call. Connect. Create H₂.

Key Partners involved in the Rental Service



ATI's New Alloy Is Critical to HydroPort's Success



ATI's
New Alloy

20% Reduced Material Cost
Enables HydroPort's rental model

50% Shorter Lead Time
Accelerates HydroPort production and scaling

Abundant New Alloy Supply
Eliminates nickel-driven deployment delays

HydroPort

How much investment does it take?

Investment to Build HydroPort Ecosystem



Total Manufacturing Cost / unit	\$ 240,000.00
With Trailer Fabrication	
Total Operating Cost / unit / year	\$ 77,200.00
Service, Logistics, R&D, Plate & Chassis	
Total Investment Cost / unit	\$ 317,200.00

HydroPort

**How do we make it affordable for customers
& viable for ATI and partners?**

HydroPort: Balancing Profitability and Adoption

H₂ Producers

Monthly Rental Fee \$ 8600.00

Affordable enough to allow H₂ producers to test HydroPort without committing to high upfront CapEx.

ATI & Partners

Profit Margin 25%

Profitable for ATI and Electrolyzer Manufacturing partners from Year 3 onward.

HydroPort: Balancing Profitability and Adoption

H₂ Producers

Monthly Rental Fee \$ 8600.00

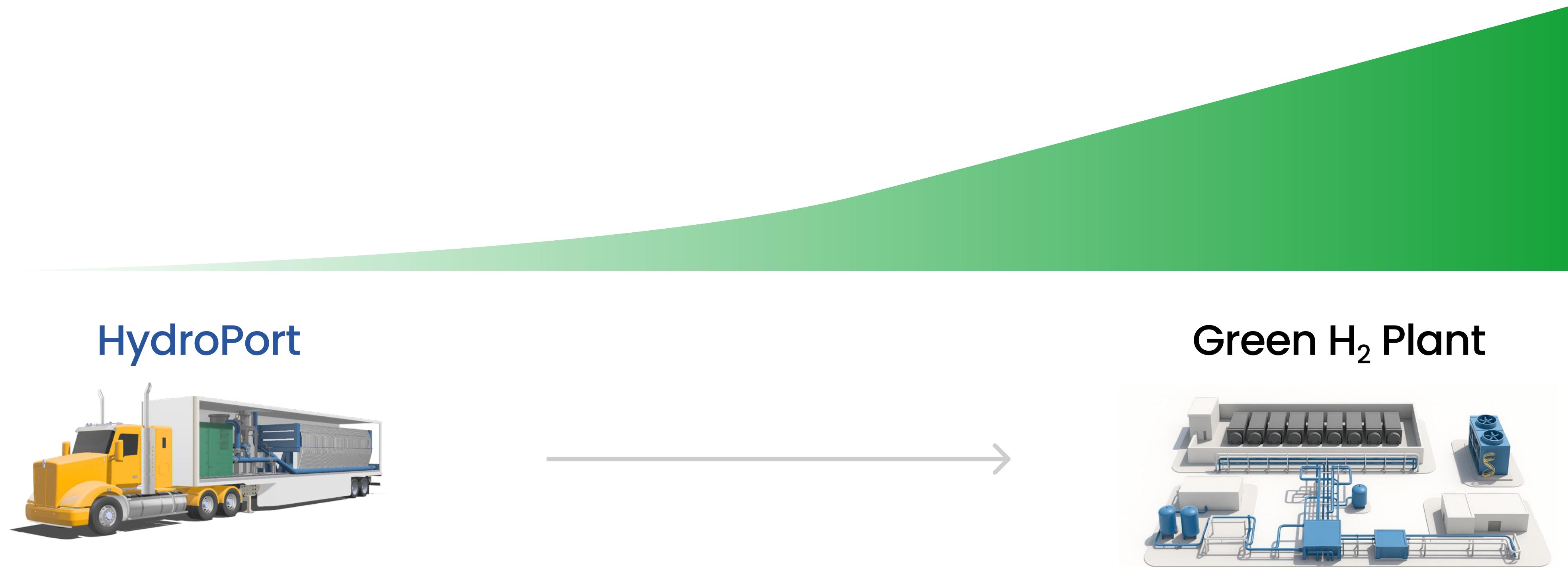
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ATI & Partners

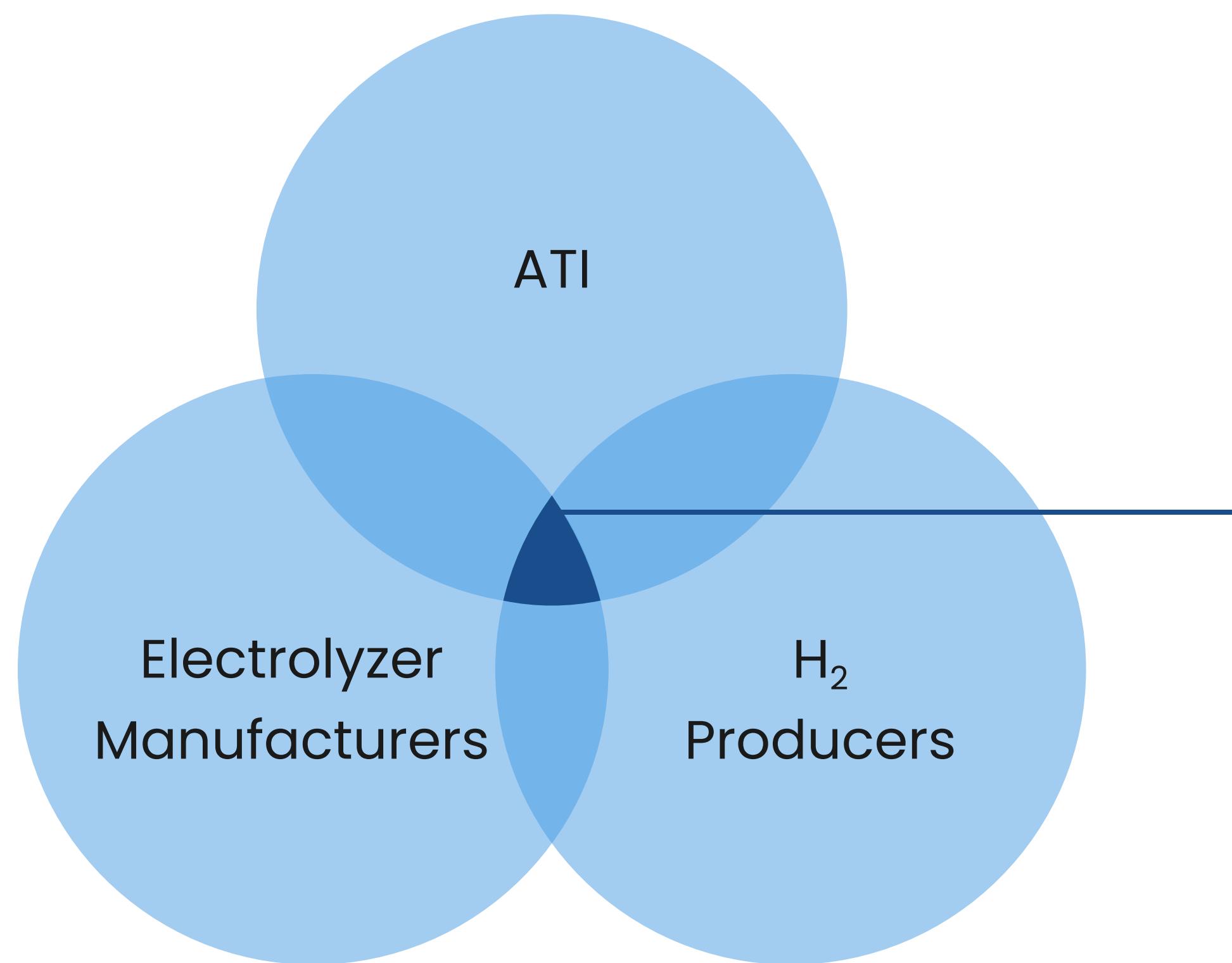
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Profitable for ATI and Electrolyzer Manufacturing partners from Year 3 onward.

A More Agile Pathway to Green H₂ Production



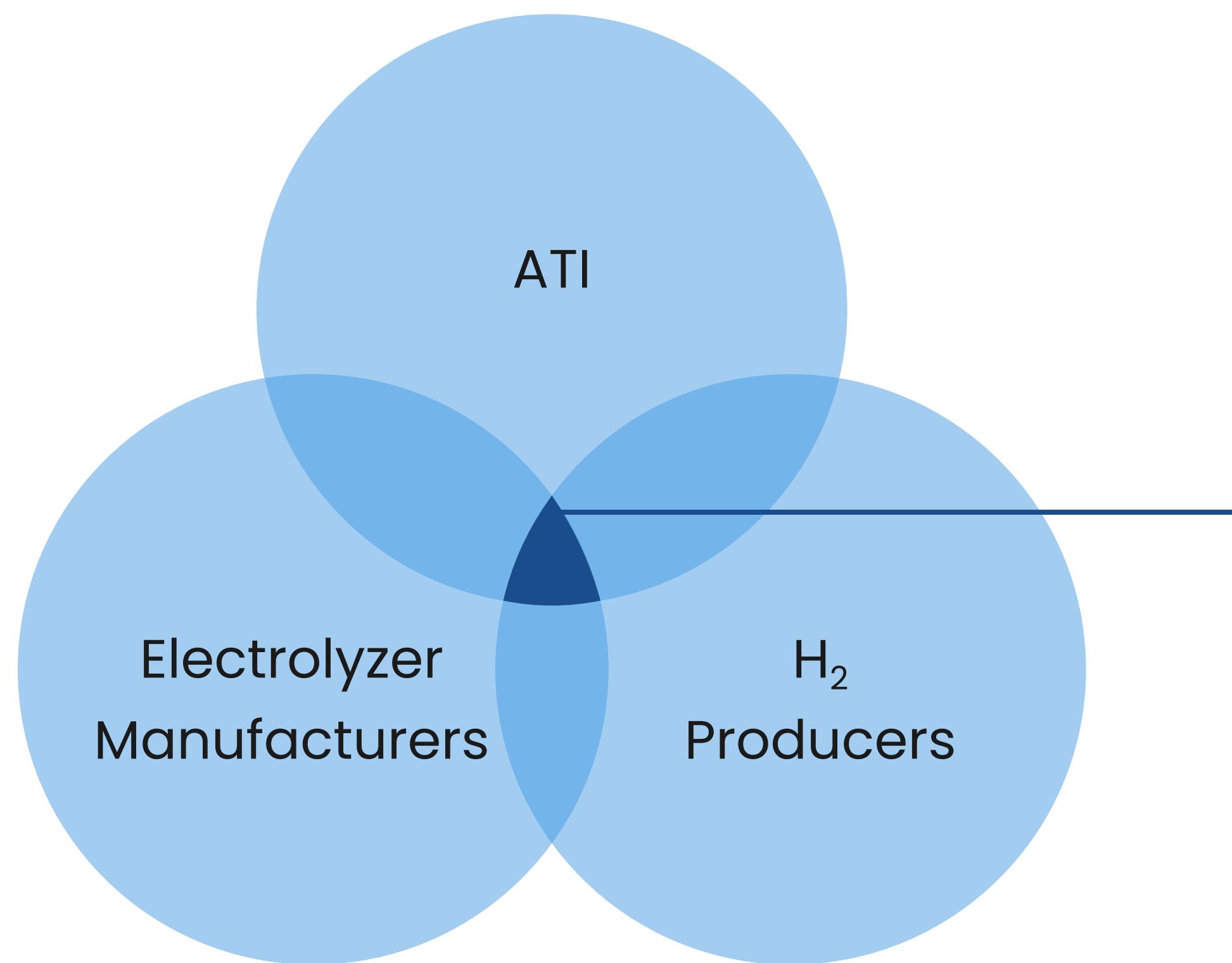
HydroPort Delivers Value Across the Green H₂ Ecosystem



Reliable Performance in Industrial Settings

- ✓ H₂ Producers tests the production with low risk
- ✓ Electrolyzer Manufacturers affirms reliability of New Alloy's performance
- ✓ ATI Validates the New Alloy

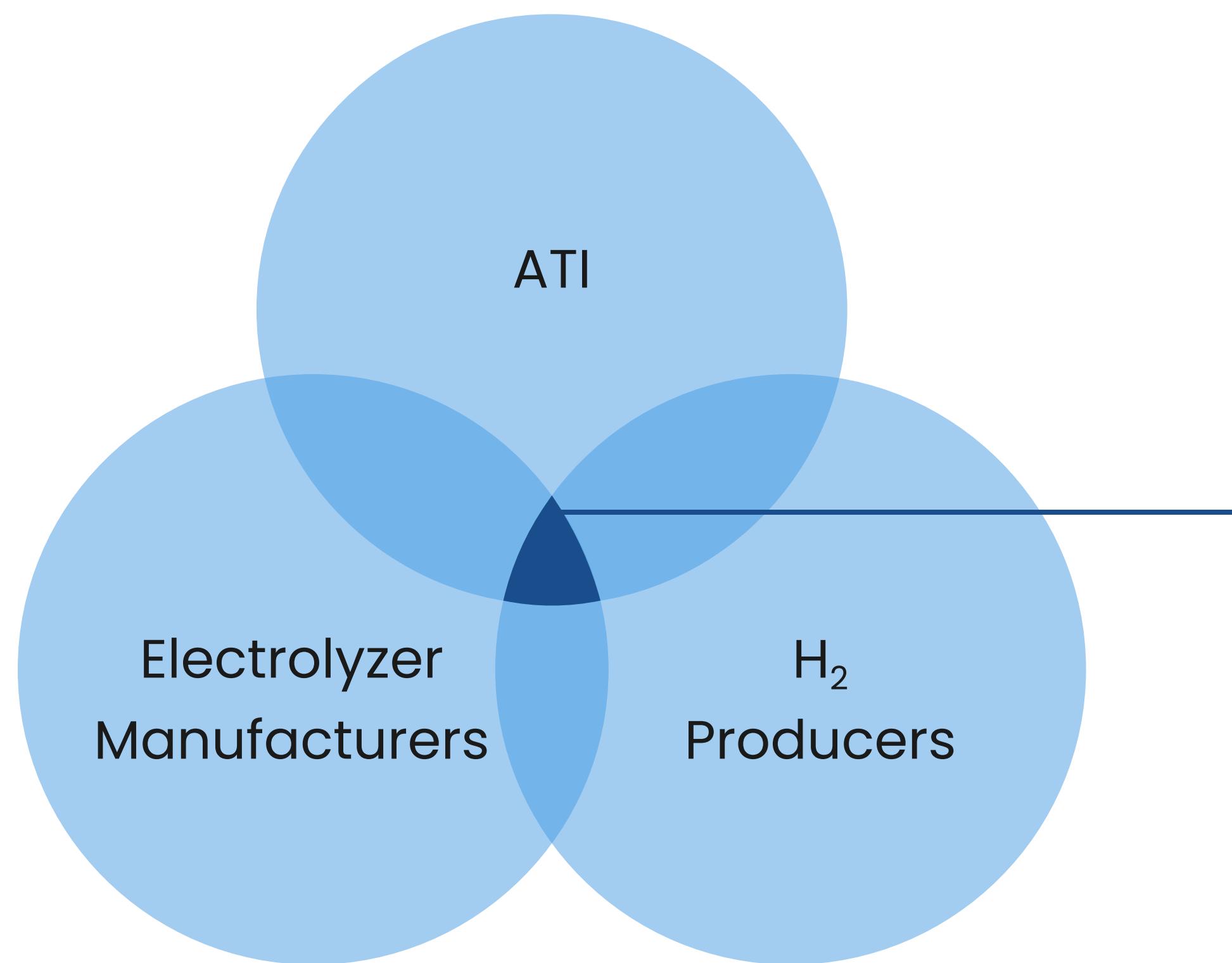
HydroPort Delivers Value Across the Green H₂ Ecosystem



Scalability and Flexibility

- ✓ H₂ Producers gets faster deployment of units
- ✓ Electrolyzer Manufacturers sell more modular units
- ✓ ATI sells more new alloy sheets

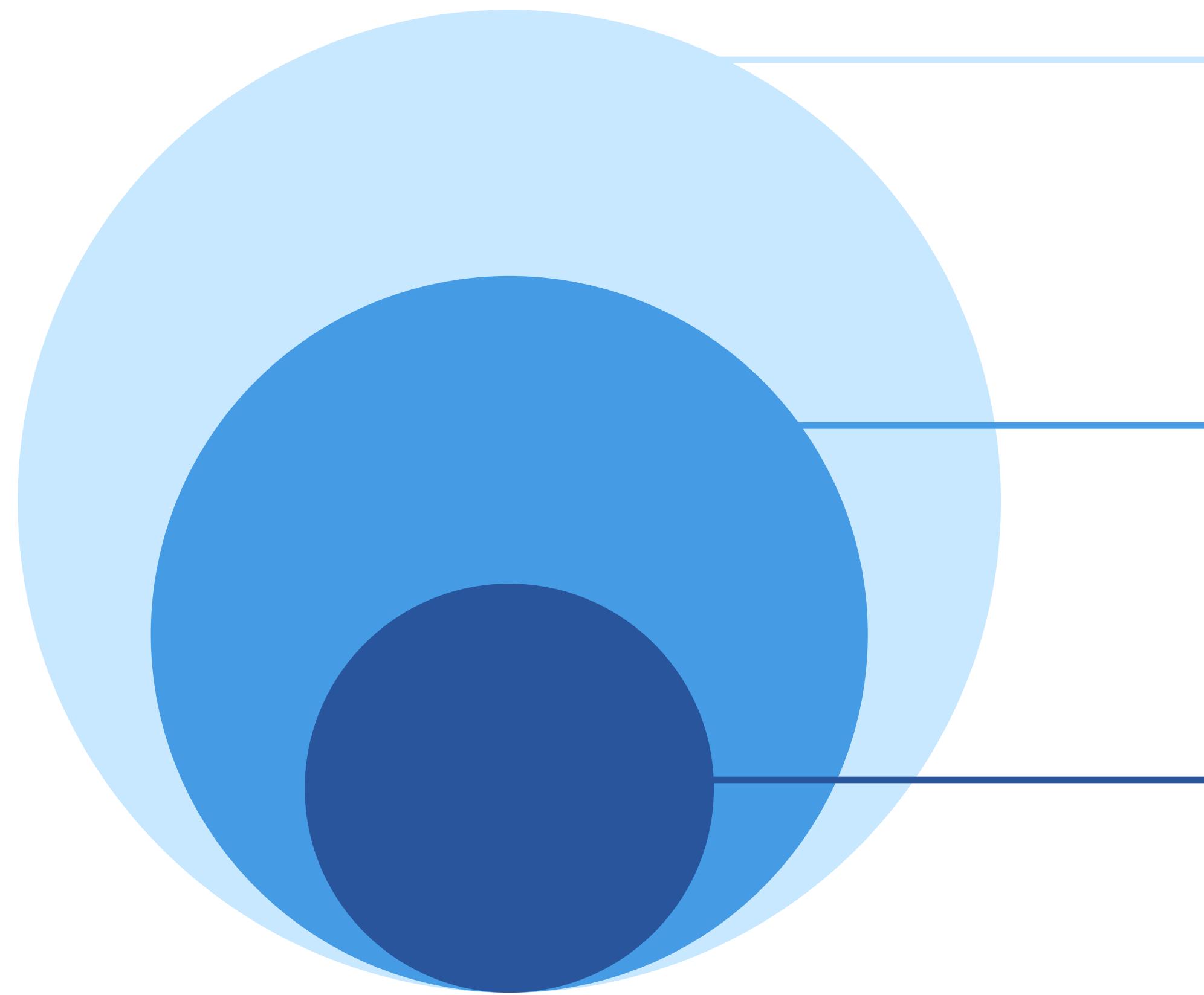
HydroPort Delivers Value Across the Green H₂ Ecosystem



HydroPort

How do we bring it to market?

Market Sizing: Multi-billion Growth Opportunity



Total Addressable Market

US & Europe H₂ Producers
\$14.9 billion/year

Serviceable Addressable Market

US-based H₂ Producers
\$5.5 billion/year

Serviceable Obtainable Market

US-based Green H₂ Producers
\$903 million/year

Source: Precedence Research

Customer Segments: From Green to Gray

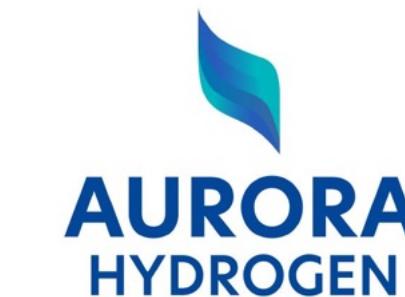
Stage 1

Green H₂ Producers

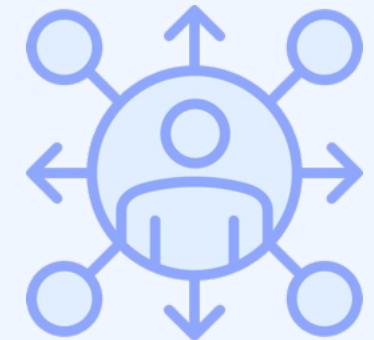


Stage 2

H₂ Producers



Pathways to Market: Reaching Our Early Customers



Target Cleantech Networks

Find **early adopters** already seeking modular, affordable H₂ solutions



Industry Events and Conferences

Build **brand presence** & position HydroPort as the modular, mobile solution



Partner with Manufacturers

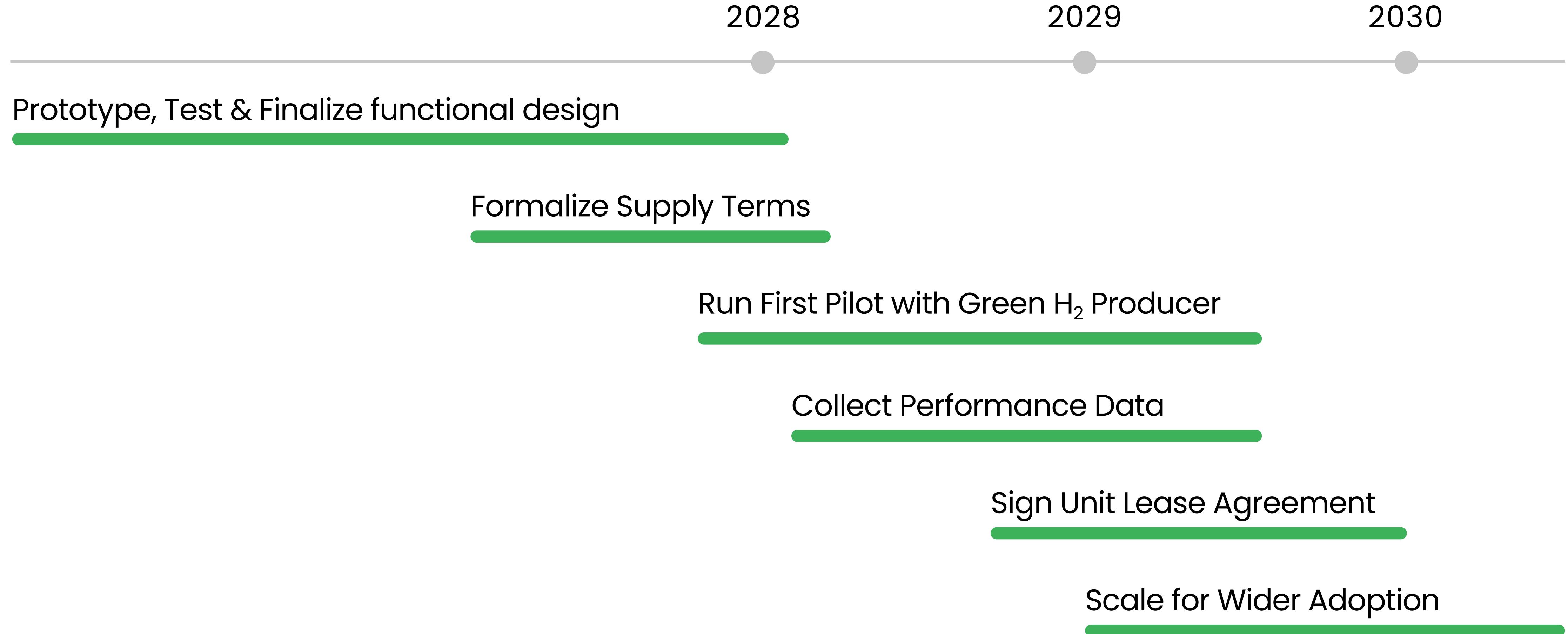
Leverage **existing relationships** with green H₂ producers



Pilot Projects with Early Adopters

Builds **trust, create visible proof of performance**, and lower perceived risk for new customers

Next Steps: Prototype, Pilot & Launch by 2030





A group of four people, two adults and two children, are sitting on the grass in the foreground, looking towards the truck. The truck is a large yellow semi-truck with a white trailer featuring blue diagonal stripes and the "HYDROPORT" logo. The trailer has a blue starburst logo above the word "HYDROPORT". The truck is parked on a paved area next to a grassy lawn. In the background, a modern city skyline is visible across a body of water. The sky is clear and blue.

Appendix

HydroPort Pricing BreakDown

GREEN are the things you change	Baseline – Verdagy	Trailer	Unit	Factor (addl. ref)
L	21.34	16.15	m	
W	7.32	2.54	m	
H	6.10	2.79	m	
Dimensional	951.45	114.45	cubic-m	0.12
Production Cost	200.00	200.00	USD/kW	
Addl. Cost		40000.00	USD	
Consumption Target	17.50	1.00	MW = 1,000kW	0.06
Total Cost	3500000.00	240000.00	USD	
Total Factor	1.00	0.07		
Time Span	3.00	3.00		

Operating Cost



Total Cost of a Unit

\$ 240,000

	Plate (Plate Cost/Lifespan)	\$ 120,000 / 3 yr	\$ 40,000.00
0.5 (total)	Chassis (Chassis Cost/Lifespan)	\$ 120,000 / 7 yr	\$ 17,142.86
	Service		\$ 15,000.00
	Logistics	\$ 4000 / 3 yr	\$ 1,333.33
	R&D	\$ 26,000 / 7 yr	\$ 3,714.29
<hr/>			
Total Operating Costs per year			\$ 77,190.48

Cost Breakdown

1. Chassis Depreciation

$$\text{Chassis Depreciation} = \frac{\text{Chassis Cost}}{\text{Chassis Lifespan}} = \frac{\$120,000}{7 \text{ years}} = \$17,142.86/\text{year}$$

2. Plate Replacement

$$\text{Plate Replacement} = \frac{\text{Plate Cost}}{\text{Plate Lifespan}} = \frac{\$120,000}{3 \text{ years}} = \$40,000/\text{year}$$

3. R&D Amortization

$$\frac{\text{Total R&D Budget}}{\text{Number of Units}} = \frac{\$2,600,000}{100 \text{ units}} = \$26,000 / \text{Unit} \rightarrow \frac{\$26,000}{7 \text{ years}} = \$3,714.29 / \text{Unit}$$

4. Logistics per Year

$$\frac{\text{Cost per swap}}{3 \text{ years}} = \frac{\$4000}{3 \text{ years}} = \$1,333.33 / \text{year}$$

Cost Breakdown

5. Total Annual Operating Cost Per Unit

Chassis Depreciation + Plate Replacement + R&D Amortization + Logistics costs

$$\$17,142.86 + \$13,333.33 + \$3,714.29 + \$15,000 + \$1,333.33 = \$77,190.48/\text{year}$$

6. Total Cost to Implement Hydroport

Total cost to implement one hydroport = Total Annual Operating Cost + Production Cost

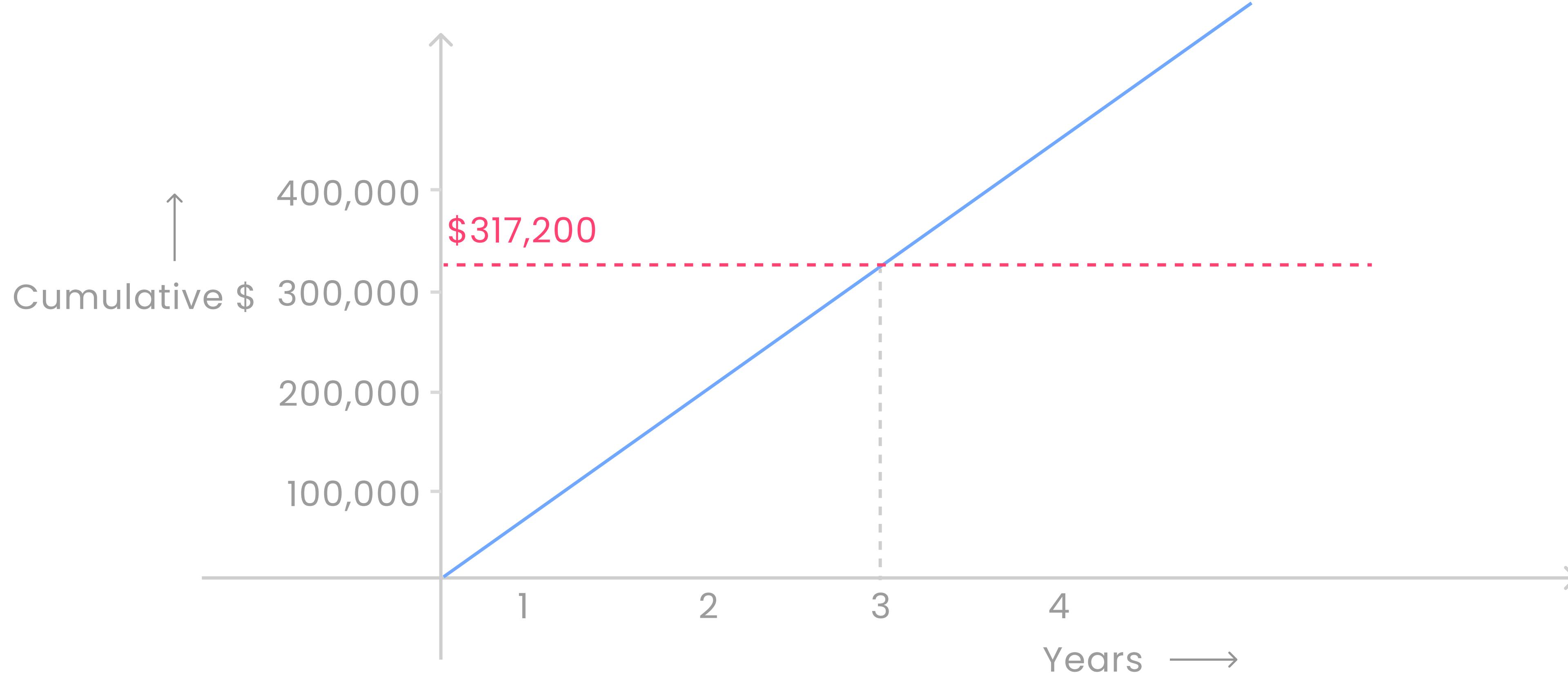
Assuming the production cost for one unit is \$240,000 (Standard Unit)

$$\text{Total Hydroport Implementation Cost} = \$240,000 + \$77,190.48 = \$317,190.48$$

Breakeven Calculation

$$\text{Breakeven} = \frac{\text{Total Hydroport Implementation Cost}}{\text{Monthly Rent} \times 12 \text{ months}} = \frac{\$317,190.48}{\$8600 \times 12 \text{ months}} = 3.074 \text{ years}$$

Breakeven Timing



Traditional System Setup Cost

Site Building Setup Cost*: \$5 M

Facility Type	Cost Range	Source
Standard Warehouse (basic)	\$600 - \$1200	RSMeans Turner Construction
Light Industrial	\$1000 - \$1800	Turner Construction Statista 2024
Heavy Process Plant	\$1500 - \$3000	DOE H2A Flour McKinsey
Cleanroom or Hazardous Facility	\$2000 - \$4000	NREL DOE Jacobs Eng

Assuming a mid-range specialized industrial plant rate is $\$2050/m^2$.

$$2459m^2 \times \$2050/m^2 = \sim \$5,040,950 = \$5M$$