

# Direct Ammonia Fuel Cell for Mobility & Microgrids

From 5 cm<sup>2</sup> Lab Validation to 5–6 kW Field Prototype

*Ammonia in. Clean electricity out. No cracking. No platinum. No compromise.*

**Seed Round: ₹3.5 Crore (~\$420,000 USD)**

20W Validation → 5–6 kW Prototype → Commercial Deployment

 **Provisional Patent No. 202641059092 | Filed: 09.05.2026**

**Sanjay Dakshinamoorthy** | Founder & CEO



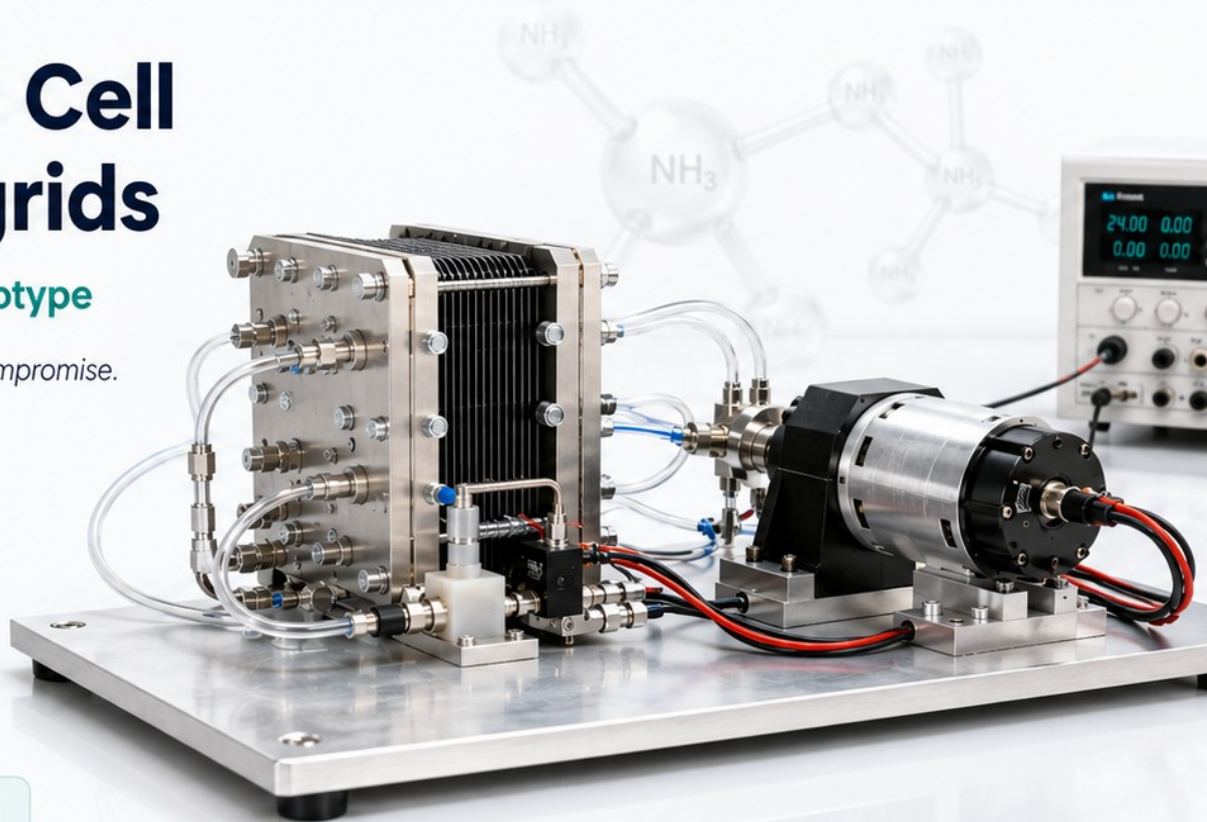
**Ammonia**



**Power**



**Clean**



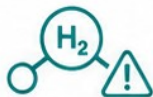
Three large markets. Three broken energy solutions. 600 million people waiting.



## Battery EVs Fail at Last Mile



- Battery EVs take 4–8 hours for a full charge
- Payload capacity reduced significantly due to battery weight
- Rural charging infrastructure absent across 60%+ of India and Southeast Asia
- Range anxiety makes long-distance and coastal routes unviable
- Not suitable for fishing boats or heavy-duty last-mile use



## Hydrogen is Impossible to Deploy at Scale



- Compressed H<sub>2</sub> requires 350–700 bar tanks
- Cryogenic storage at –253°C makes rural deployment economically impossible
- Specialised logistics, safety infrastructure required
- Last-mile deployment at village or port scale — not viable
- High cost eliminates competitiveness vs diesel in price-sensitive markets



## Diesel Still Powers India's Most Critical Sectors



- 3.5 lakh registered fishing boats in Tamil Nadu — 100% diesel
- 7M+ registered 3-wheelers in India — majority fossil fuel
- Rural telecom towers and health centers run on diesel gensets
- High fuel cost burden on fishermen and rural communities
- Zero path to decarbonisation under current options

**₹2.1 Lakh Crore (~\$25.2B USD)**

Annual diesel subsidy burden (India)

**6–8 Hours**

EV charging downtime per cycle

**600 Million**

Indians without reliable clean energy

Source: Ministry of Petroleum & Natural Gas, IEA 2024, IMARC Group 2024

Carbon-free at point of use. Liquid at ambient pressure. Infrastructure-ready today.



**Green electricity + N<sub>2</sub> + H<sub>2</sub>O**

*Haber-Bosch / Green synthesis*



**NH<sub>3</sub> — Liquid Ammonia**

Stored at -33°C or under mild pressure (10 bar)

*Direct feed — no reformer needed*



**DAFC Stack**

Direct electrochemical conversion

*Clean DC output*



**Electricity →  
Motor / Battery / Microgrid**



## Global Infrastructure Already Exists

180+ million tonnes of ammonia are produced annually worldwide. India is expanding ammonia and green hydrogen infrastructure across major port ecosystems including Tuticorin and Kandla.



## Far Easier to Store Than Hydrogen

Liquid at -33°C or about 10 bar, versus hydrogen at -253°C or up to 700 bar. Standard ammonia logistics and tank handling are already widely established.



## Zero Carbon at Point of Use

At the point of use, ammonia-based fuel cell power can deliver electricity without CO<sub>2</sub> emissions. It aligns with India's National Green Hydrogen Mission target of 5 MMT by 2030 and the Net Zero 2070 pathway.



## India is a Major Ammonia Producer

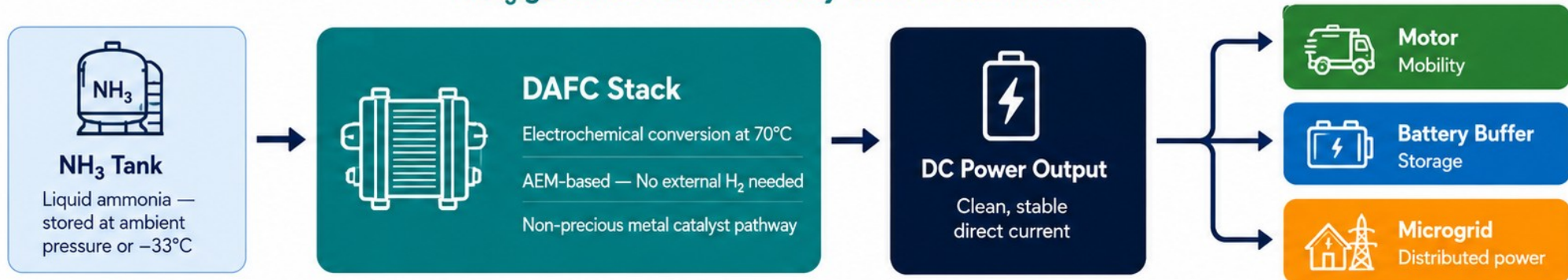
India already has a large fertiliser and ammonia manufacturing network, creating a practical foundation for a green ammonia transition without building a new supply chain from scratch.

**Global green ammonia market: \$9.8B USD (2024) → \$110B USD (2035) | CAGR: ~27%**

*Source: Allied Market Research 2024*

**Green Ammonia Roadmap: Coal → Grey NH<sub>3</sub> → Blue NH<sub>3</sub> → Green NH<sub>3</sub> (India target: 2030)**

NH<sub>3</sub> goes in. Clean electricity comes out. That's it.



| Parameter              | Conventional H <sub>2</sub> PEM     | Diesel Genset                         | Blue NH <sub>3</sub> SOFC | H2one DAFC                    |
|------------------------|-------------------------------------|---------------------------------------|---------------------------|-------------------------------|
| Fuel                   | Compressed H <sub>2</sub> (700 bar) | Diesel                                | Ammonia + reformer        | Liquid NH <sub>3</sub> direct |
| Reformer needed?       | Yes                                 | No                                    | Yes                       | No ✓                          |
| Operating temperature  | 60–80°C                             | Ambient                               | 600–900°C                 | 70°C ✓                        |
| Emissions              | Zero (fuel only)                    | High CO <sub>2</sub> /NO <sub>x</sub> | Low                       | Zero at point of use ✓        |
| Precious metals        | Yes (Pt)                            | No                                    | Yes (Ni/perovskite)       | Pathway to zero ✓             |
| India market readiness | Low                                 | High                                  | Very Low                  | Medium — building now         |

 Core architecture protected —  
Provisional Patent No. 202641059092

## Real data. Real cell. Real load. — 5 cm<sup>2</sup> DAFC | 70°C | AEM membrane

### ✓ COMPLETED — Self Funded

✓ **Stable Electrochemical Output**  
DAFC stack produced repeatable current across multiple test cycles at 70°C. Peak power density ~0.125 W/cm<sup>2</sup> achieved at 0.3 A/cm<sup>2</sup> — validated against published global DAFC benchmarks.

✓ **Anion Exchange Membrane Architecture**  
20-micron Piperion commercial AEM membrane. Confirmed compatibility with ammonia feed at 25 ml/min flow rate. Same technology class being scaled globally.

✓ **Liquid Ammonia Feed Confirmed**  
Direct liquid NH<sub>3</sub> feed demonstrated without external cracking or reforming. Eliminates reformer cost from system BOM entirely.

✓ **Live DC Load Demonstration**  
Cell connected directly to DC motor — powered a fan in real time. Working hardware. Not a simulation. Not a projection.

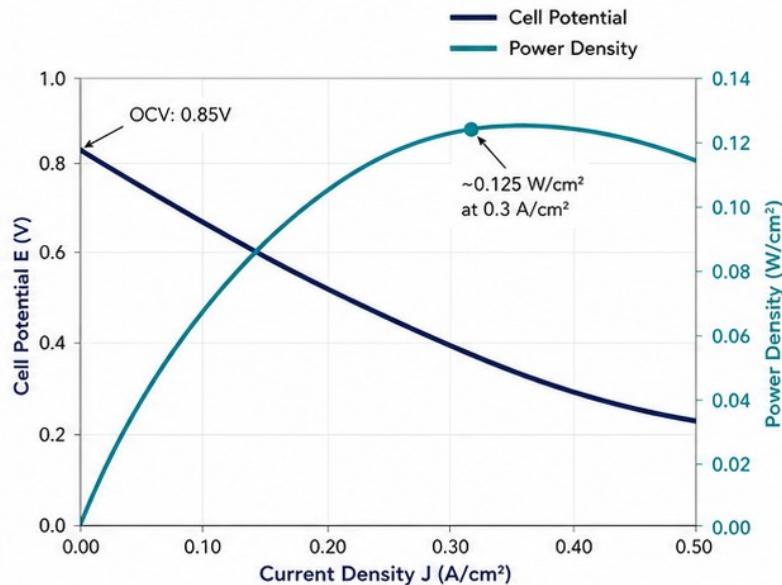
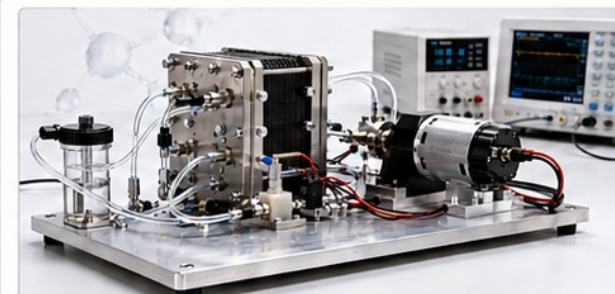


Fig. 1 — Polarisation and Power Density Curve, H2one DAFC, 5 cm<sup>2</sup> active area, 70°C, alkaline ammonia electrolyte



| Parameter             | Value                        |
|-----------------------|------------------------------|
| Peak Power Density    | ~0.125 W/cm <sup>2</sup>     |
| Open Circuit Voltage  | ~0.85 V                      |
| Max Current Density   | ~0.45 A/cm <sup>2</sup>      |
| Active Area           | 5 cm <sup>2</sup>            |
| Operating Temperature | 70°C                         |
| Membrane              | Piperion AEM 20μm            |
| Electrolyte           | 2M NH <sub>3</sub> in 1M KOH |

### 🎯 NEXT MILESTONE — Funded by this raise















 **20W Multi-cell Stack Build**

 **Bleeding & Gas Management Study**

 **BOP Integration & Durability Testing**

 Provisional Patent No. 202641059092 | Filed: 09.05.2026

Comparable performance. A fraction of the cost pathway.

| Parameter   | Stage 1                   | Stage 2 ★ Breakthrough  |
|---|---------------------------|---|
|  Anode catalyst       | Precious-metal assisted   | Non-precious metal                   |
|  Cathode catalyst     | Platinum-based (Pt@C)     | Non-precious metal                   |
|  Ammonia feed         | Aqueous alkaline solution | Direct liquid ammonia                |
|  Peak power density   | ~0.125 W/cm <sup>2</sup>  | Comparable result                    |
|  Catalyst cost impact | Baseline                  | Significantly reduced                |
|  Performance outcome  | Target achieved           | Comparable result                    |
|  IP status            | Internal data             | Provisional Patent No. 202641059092  |

“  
**Stage 1: Peak power density ~0.125 W/cm<sup>2</sup>**  
**Stage 2: Same — without a single atom of platinum.**  
**This is the cost breakthrough that makes DAFC commercially viable.**  
 ”  
 — H2one R&D Team, 2026



### Cost Reduction Pathway

At ~0.125 W/cm<sup>2</sup> peak power density, Stage 1 already matches published academic DAFC benchmarks. Stage 2 maintains this with zero platinum-group metals — the single biggest lever to bring stack cost below diesel parity at scale.

**Estimated platinum catalyst cost removed:**  
 ~₹8,000–12,000 per kW (~\$96–144 USD/kW)



### Proprietary Catalyst Route

Our Stage 2 synthesis pathway delivers comparable activity, durability, and corrosion resistance in alkaline ammonia — without any PGMs. The formulation is proprietary and forms the core of our IP filing strategy.



### Scale-Ready Chemistry

Direct liquid ammonia on alkaline AEM architecture. Simplifies BOM, reduces parts count, improves reliability. Designed for real-world deployment in mobility and microgrid environments.



Architecture and catalyst route protected under Provisional Patent No. 202641059092 | Filed: 09.05.2026 | No equivalent Indian patent exists

India-specific, underserved, policy-supported — all addressable with a single DAFC stack.

## 1. 3-Wheeler / Auto-Rickshaw



2–5 kW continuous



**Market:** 7M+ registered 3-wheelers in India | 8L+ in Tamil Nadu alone



**Use case:** Range extender or primary propulsion — CNG to ammonia conversion



**Power need:** 2–5 kW continuous



**Why DAFC:** Fast refuel (liquid NH<sub>3</sub> like LPG), no range anxiety, lower running cost than battery



**Policy:** PM E-DRIVE EV subsidy eligible — ₹10,900 Cr outlay



**Revenue opportunity:** ₹3.5–4.5L per stack (~\$4,200–5,400 USD) | ~50–55% gross margin

## 2. Vallam / Small Fishing Boat



3–10 kW continuous



**Market:** 3.5L registered fishing vessels (Tamil Nadu) | 8L+ mechanised boats (India)



**Use case:** Diesel engine replacement for primary propulsion



**Power need:** 3–10 kW depending on vessel size



**Why DAFC:** No diesel exhaust in enclosed water bodies. Ammonia already at fishing harbours as fertiliser feedstock. Silent operation.



**Policy:** PMMSY fisheries scheme + coastal clean energy push



**Revenue opportunity:** ₹4.5–6L per unit (~\$5,400–7,200 USD)

## 3. Rural Microgrid / Telecom / Backup



1–5 kW continuous



**Market:** ₹76,900 Cr India microgrid market by 2030 (~\$9.2B USD) | CAGR ~19%



**Use case:** 24x7 backup power, telecom tower off-grid, rural health center



**Power need:** 1–5 kW continuous



**Why DAFC:** Silent, no moving parts vs diesel genset. Can pair with solar for hybrid microgrid.



**Policy:** National Green Hydrogen Mission + rural electrification push



**Revenue opportunity:** ₹5–6L per module (~\$6,000–7,200 USD) | ~50% gross margin



**Entry market:** Tamil Nadu fishing vallams + coastal auto-rickshaws — lowest regulatory friction, highest diesel replacement ROI.  
**Scale path:** pan-India then Southeast Asia.

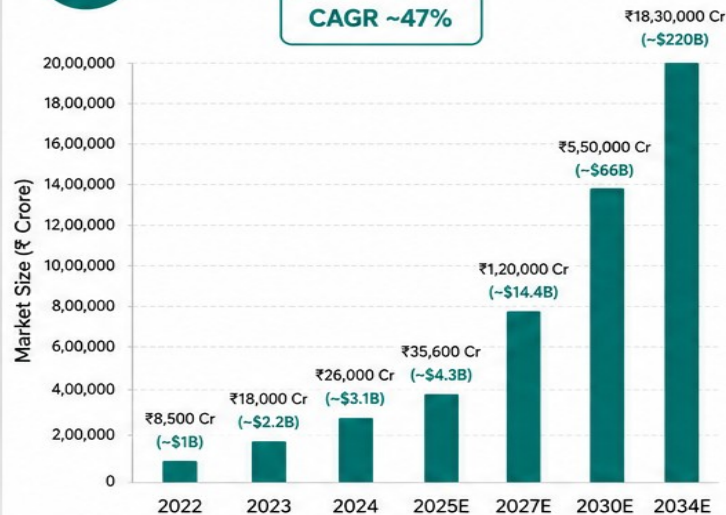
# Large Indian Market. Focused Beachhead.

Two high-growth, policy-backed Indian markets — both addressable with one DAFC platform.



## India EV Market (₹ Crore)

CAGR ~47%



Source: IMARC Group 2024



## India Microgrid Market (₹ Crore)

CAGR ~19%



Source: IMARC Group 2024

### TAM

₹15,000+ Crore  
(~\$1.8B USD)

All clean energy mobility +  
distributed power

### SAM

₹3,200 Crore  
(~\$384M USD)

Ammonia/H<sub>2</sub> fuel cell  
addressable mobility +  
microgrids

### SOM

₹180 Crore  
(~\$21.6M USD)

H2one 5-year target —  
Tamil Nadu +  
pan-India pilots



H2one's addressable segment — coastal mobility + distributed power — sits at the intersection of both high-growth curves. Policy tailwind from **PM E-DRIVE (₹10,900 Cr)** and **National Green Hydrogen Mission (₹8 lakh Cr projected investment)** creates demand pull without requiring market creation.

Sources: IMARC Group 2024, Ministry of New & Renewable Energy 2024, PIB 2024

No other India-based team is building this specific combination.



## 1. Direct Ammonia Input

No external reformer. No cracking unit. No hydrogen compression. Liquid  $\text{NH}_3$  goes in directly — simplest possible system architecture. Eliminates ₹3–5L (~\$3,600–6,000 USD) reformer cost per system.



## 6. Patent-Protected IP

Provisional patent filed May 2026 (No. 202641059092). No equivalent Indian patent exists for this direct ammonia fuel cell architecture and catalyst route.



## 3. Low-Temperature Operation

70°C operating point — no exotic thermal management. Compatible with automotive and portable genset duty cycles. Unlike SOFC (600–900°C), H2one DAFC is mobility-ready.



## 2. Non-Precious Metal Pathway

Stage 2 demonstrates viable DAFC operation without platinum. Dramatically lowers stack cost and removes supply chain dependency on PGMs. Estimated cost saving: ₹8,000–12,000/kW (~\$96–144 USD/kW).



## 5. India-First Commercialisation

Deep local market knowledge. India supply chain. PM E-DRIVE and Green Hydrogen Mission policy alignment. No import dependency. Southeast Asia fishing fleet market = natural export path.



## 4. Dual Market: Mobility + Microgrids









Single stack technology addresses two large, growing, policy-supported Indian markets simultaneously. Revenue diversification from day one.




**Most competitors work on hydrogen PEM, battery EV, or ammonia cracking. H2one targets direct ammonia-to-electricity — the shortest, lowest-cost, zero-carbon path. We are first in India.**


# DAFC Occupies a White Space in India

H2one occupies a unique position no competitor currently holds in India.

| Criteria   | Battery EV            | H <sub>2</sub> PEM FC        | Diesel Genset                         | Blue NH <sub>3</sub> SOFC | H2one DAFC                      |
|--|-----------------------|------------------------------|---------------------------------------|---------------------------|---------------------------------|
|  Fuel logistics         | Charging infra needed | 700-bar H <sub>2</sub> tanks | Diesel supply chain                   | Ammonia + reformer        | Liquid NH <sub>3</sub> direct ✓ |
|  Refuel/recharge time   | 4–8 hours             | 5–10 min                     | 2–5 min                               | 2–5 min                   | 2–5 min ✓                       |
|  Emissions              | Zero (grid dependent) | Zero (fuel only)             | High CO <sub>2</sub> /NO <sub>x</sub> | Low                       | Zero at point of use ✓          |
|  Precious metals        | No                    | Yes (Pt catalyst)            | No                                    | Yes (Ni/perovskite)       | No (pathway to zero) ✓          |
|  Operating temp         | Ambient               | 60–80°C                      | Ambient                               | 600–900°C                 | 70°C ✓                          |
|  Pathway to zero        | No (grid dependent)   | Yes                          | No                                    | Yes                       | Yes ✓                           |
|  India market readiness | High                  | Low                          | High                                  | Very Low                  | Medium — building now           |
|  Mobility suitability   | Moderate              | Low                          | High                                  | Very Low                  | High (target) ✓                 |

“  
No Indian company is currently commercialising a direct ammonia fuel cell for mobility or distributed power.  
We are first. ”

 Amogy (USA) uses ammonia + cracker + H<sub>2</sub> fuel cell — complex, expensive, not India-ready

 AFC Energy (UK) uses compressed H<sub>2</sub> — infrastructure not viable for India last mile

 Most competitors work on hydrogen PEM, battery EV, or ammonia cracking. H2one targets direct ammonia-to-electricity — the shortest, lowest-cost, zero-carbon path. We are first in India.

Capital-efficient. Milestone-driven. Each stage de-risks the next.



| Phase 1 —  COMPLETED   | Phase 2 —  THIS RAISE (PRIORITY)   | Phase 3 —  THIS RAISE (PARALLEL)   | Phase 4 —  NEXT MILESTONE  | Phase 5 —  FUTURE   | Phase 6 —  FUTURE  |
|--|--|--|--|---|--|
| <b>Self-Funded   Done</b>  | <b>Funded by this raise   Q3–Q4 2026</b>   | <b>Funded by this raise   Months 3–9</b>   | <b>Next raise / grant funded   Months 9–18</b>   | <b>Months 18–28</b>   | <b>Months 28–36</b>  |
| <b>5 cm<sup>2</sup> Single Cell Validation</b>   | <b>20W Fuel Cell Module Validation</b>   | <b>Durability &amp; Engineering Studies</b>  | <b>4–5 kW Stack Engineering</b>  | <b>Mobility &amp; Microgrid Integration</b>   | <b>Pilot Commercial Deployment</b>   |
| Timeline: Months 0 (Complete)<br>TRL: 3–4  | Timeline: Months 1–8<br>TRL: 5   | Timeline: Months 1–9<br>TRL: 5–6   | Timeline: Months 9–18<br>TRL: 6–7  | Timeline: Months 18–28<br>TRL: 7–8  | Timeline: Months 28–36<br>TRL: 8   |
| <ul style="list-style-type: none"> <li>Stage 1 &amp; Stage 2 complete</li> <li>OCV: 0.85V   Peak PD: 125 mW/cm<sup>2</sup></li> <li>Non-precious metal catalyst confirmed</li> <li>Live DC motor load demonstration</li> <li>Provisional Patent filed: No. 202641059092</li> </ul> | <ul style="list-style-type: none"> <li>Multi-cell stack design and fabrication</li> <li>Graphite bipolar plate engineering</li> <li>MEA scale-up from 5 cm<sup>2</sup> to 20W output</li> <li>Bleeding &amp; gas management study</li> <li>BOP integration (pumps, valves, sensors)</li> <li>Thermal management at 20W</li> </ul> <p><b>NOT YET COMPLETED — Key funded milestone</b></p> | <ul style="list-style-type: none"> <li>Corrosion resistance testing</li> <li>Ammonia crossover/bleeding control</li> <li>MEA lifetime testing</li> <li>Catalyst optimization at stack level</li> </ul> | <ul style="list-style-type: none"> <li>Scale from 20W to multi-cell 4–5 kW stack</li> <li>Stack manifold design</li> <li>Thermal management system</li> <li>System integration for mobility</li> </ul> | <ul style="list-style-type: none"> <li>Integration into 3-wheeler chassis or vallam boat</li> <li>Real-world field trial Tamil Nadu coast</li> <li>Performance data collection</li> </ul> | <ul style="list-style-type: none"> <li>First 10–20 unit pilot batch</li> <li>OEM/JV discussions</li> <li>Certification</li> <li>First revenue</li> </ul> |

₹3.5 Crore (~\$420,000 USD) seed round covers Phases 1–4 — from validated 5 cm<sup>2</sup> cell to 5 kW engineering foundation

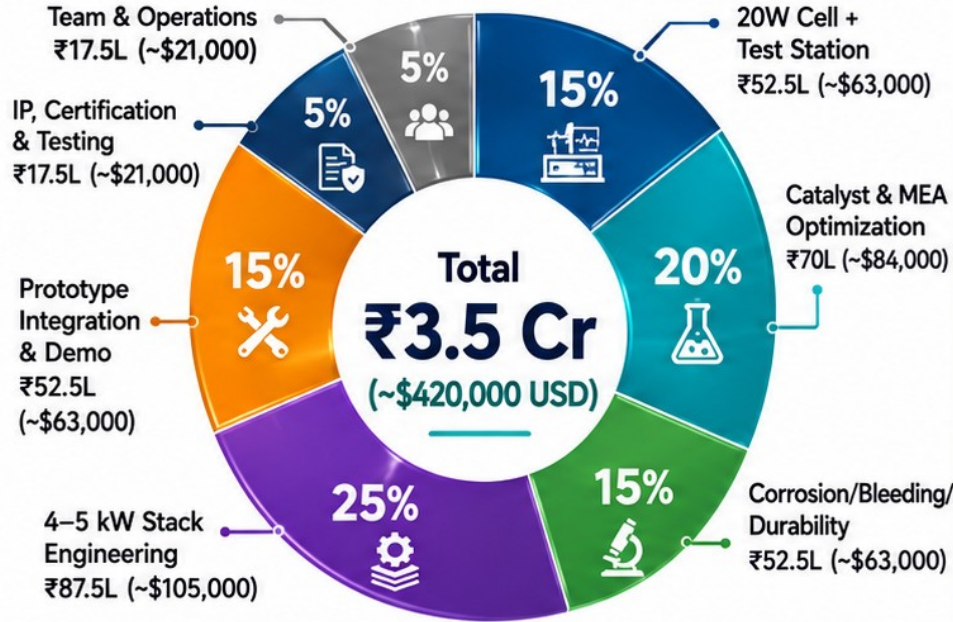


Provisional Patent No. 202641059092 | Filed: 09.05.2026



# ₹3.5 Crore (~\$420,000 USD) Seed Round – 100% Technical Deployment

Fully allocated to technical de-risking and prototype delivery. No marketing spend. No overhead bloat.



|   |  |  |                              |   |
|---|--|--|------------------------------|---|
| 1 |  | <b>20W Cell + Test Station</b>                   | ₹52.5 Lakhs (~\$63,000 USD)  | Multi-cell stack fabrication, MEA procurement, graphite bipolar plates, test station assembly |
| 2 |  | <b>Catalyst &amp; MEA Optimization</b>           | ₹70 Lakhs (~\$84,000 USD)    | Non-precious metal catalyst synthesis, MEA coating, performance optimization for scale        |
| 3 |  | <b>Corrosion / Bleeding / Durability Studies</b> | ₹52.5 Lakhs (~\$63,000 USD)  | Gas management, ammonia crossover control, MEA lifetime testing, corrosion materials          |
| 4 |  | <b>4-5 kW Stack Engineering</b>                  | ₹87.5 Lakhs (~\$105,000 USD) | Multi-cell stack manifold, thermal management, BOP engineering, scale-up design               |
| 5 |  | <b>Prototype Integration &amp; Demo</b>          | ₹52.5 Lakhs (~\$63,000 USD)  | Integration into auto-rickshaw or vallam boat chassis, field demo preparation                 |
| 6 |  | <b>IP, Certification &amp; Testing</b>           | ₹17.5 Lakhs (~\$21,000 USD)  | Full patent filing, regulatory testing, third-party validation                                |
| 7 |  | <b>Team &amp; Operations</b>                     | ₹17.5 Lakhs (~\$21,000 USD)  | Core technical team, lab operations, equipment maintenance                                    |



**Total Raise:**  
₹3.5 Crore (~\$420,000 USD)

**100%**  
Technical Allocation

**Use of funds is 100% technical. Every rupee (~\$0.012 USD) moves the prototype forward.**

**Deliverable:** Validated 20W DAFC module + 5 kW design blueprint — ready for Series A

Platform architecture enables stack sales, recurring services, and OEM licensing.



## DAFC Stack Sales

Direct B2B supply to EV OEMs, boat manufacturers, microgrid integrators

**Entry:** Post Phase 4 (18 months)

**Price:** ₹3.5–4.5L/unit  
(~\$4,200–5,400 USD)



## Mobility Retrofit Kits

Packaged NH<sub>3</sub> fuel cell + BMS + tank kit for CNG auto-rickshaw or small boat retrofit

**Entry:** Post Phase 5 field demo

**Price:** ₹4–5L/kit  
(~\$4,800–6,000 USD)



## Microgrid Power Modules

1–5 kW containerised DAFC modules for telecom towers, rural health centers, off-grid communities

**Entry:** Post Phase 5

**Price:** ₹5–6L/module  
(~\$6,000–7,200 USD)



## AMC + MEA Replacement (Recurring)

Annual maintenance contracts + periodic membrane electrode assembly replacement

Recurring revenue from day one of commercial deployment

**Entry:** From first commercial unit

**Price:** ₹25,000–30,000/year  
(~\$300–360 USD/year per unit)



## Licensing / JV with OEMs

Technology licensing to automotive or marine OEMs. Joint venture for volume manufacturing.

**Entry:** Post IP filing + prototype validation



## UNIT ECONOMICS

Illustrative — Target Post Non-Precious Metal Scale-Up

| Product             | Est. Stack Cost               | Target Sell Price             | Gross Margin |
|---------------------|-------------------------------|-------------------------------|--------------|
| 5 kW mobility stack | ₹1.8–2.2L<br>(~\$2,160–2,640) | ₹3.5–4.5L<br>(~\$4,200–5,400) | ~50–55%      |
| Microgrid module    | ₹2.5L<br>(~\$3,000)           | ₹5–6L<br>(~\$6,000–7,200)     | ~50%         |
| MEA replacement     | ₹15,000<br>(~\$180)           | ₹28,000<br>(~\$336)           | ~47%         |
| Retrofit kit        | ₹2L<br>(~\$2,400)             | ₹4–5L<br>(~\$4,800–6,000)     | ~50–55%      |

*Note: Cost targets achievable post non-precious metal catalyst scale-up. Margins are illustrative.*



## Revenue Projection

|                | FY27     | FY28      | FY29       | FY30       | FY31     |
|----------------|----------|-----------|------------|------------|----------|
| Revenue (₹ Cr) | 0.05     | 0.5       | 2.0        | 5.0        | 12.0     |
| Revenue (USD)  | ~\$6,000 | ~\$60,000 | ~\$240,000 | ~\$600,000 | ~\$1.44M |
| Units Deployed | 1        | 8         | 35         | 90         | 200      |



## Sanjay Dakshinamoorthy

**Founder & CEO, H2one Cleantech Pvt. Ltd.**  
System integration, DAFC strategy, commercialisation  
StartupTN SmartCard No. STN87763

**Founder & CEO**



## Dr. M. Saravanan

**Dept. of Mechanical Engineering, HITS**  
Stack design, corrosion materials, BoP, safe ammonia handling

**Mechanical & Durability**



## Dr. N. Rino Nelson

**Assistant Professor, IIITDM Kancheepuram**  
*(IIT Madras Ph.D. in Machine Design)*  
New Product Development, FEA, Material Characterisation,  
Composites, Pressure Vessel & Seal Design, CAE

**Product Design & Structural Analysis**



## Dr. Ganesan P

**eVIT-RC, VIT Chennai**  
MOU-based testing, validation, technical studies

**MOU Collaboration**



## Strategic Validation Support

Academic advisors and MOU-based validation support strengthen technical credibility, testing discipline, and scale-up readiness.



## Why this team matters

- ✓ Founder-led commercialisation and system integration
- ✓ Mechanical design, durability, corrosion and BoP guidance (HITS)
- ✓ Product design, FEA and structural analysis depth (IIITDM Kancheepuram)
- ✓ VIT Chennai MOU-based testing and validation support

Patent No.  
202641059092 |  
Filed May 2026

StartupTN  
SmartCard |  
STN87763

MOU |  
eVIT-RC,  
VIT Chennai

HITS + IIITDM  
Kancheepuram

Clean Power. Liquid Fuel. Made in India.

## 5 cm<sup>2</sup>

Lab-validated cell area — self-funded, today

## ₹3.5 Crore

~\$420,000 USD

Seed ask — 20W validation to 5 kW prototype

## 36 Months

To field-ready commercial deployment



### What ₹3.5 Crore (~\$420,000 USD) Delivers:

- ✓ 20W DAFC module — India's first validated multi-cell stack
- ✓ Full corrosion, crossover, and durability data package
- ✓ 4–5 kW stack engineering design complete
- ✓ Prototype integration on vallam or auto-rickshaw
- ✓ Series A-ready technical data package
- ✓ IP filing progressed to full patent application

### Why now

Asia's ammonia economy is being built today. JERA, Shell, and Aramco are moving toward ammonia. India has the production infrastructure, the policy momentum, and the market. H2one has the technology, the team, and the IP. The window to be first in Asia is open — but not forever.



Provisional Patent No. 202641059092 | Filed: 09.05.2026

No equivalent Indian or Southeast Asian patent exists for this direct ammonia fuel cell architecture

**FY27**

₹0.05 Cr (~\$6,000)

**FY28**

₹0.5 Cr (~\$60,000)

**FY29**

₹2 Cr (~\$240,000)

**FY30**

₹5 Cr (~\$600,000)

**FY31**

₹12 Cr (~\$1.44M USD)



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