Why hydrogen projects fail.

The technology is rarely the reason. Eight failure modes — and what the survivors do differently.

STRATEGIC

EXECUTIONAL

<10%	~2×	0
of announced H_2 capacity has reached final investment decision	the cost most projects assume before real manufacturing	failures caused by the science not working (from cases reviewed)

THE THESIS

Good technology is *not* the bottleneck.

Every failed project I have reviewed had a defensible technical story. **What they lacked was a decision structure** — who chooses the market, who says no to scale-up, who owns the cost curve.

> **Technology risk is the risk everyone is comfortable discussing.**
>
> *It is almost never the one that kills you.*

These failure modes come from R&D leadership, grant consortia and technical due-diligence work — not from press releases.

THE MAP

Eight ways a good technology dies

Four are strategic — decided long before anyone notices. Four are executional — visible, and still ignored.

STRATEGIC · invisible when made

01 **Wrong market**
Solving where cheaper answers already win

02 **Scaling too early**
Industrialising a design still being invented

03 **Wrong team, wrong stage**
Researchers asked to run production

04 **Certification ignored**
Standards found after the design freeze

EXECUTIONAL · rationalised anyway

05 **Unmanufacturable design**
A lab record no factory can reproduce

06 **Funding before fit**
Capital burned proving the wrong thing

07 **Offtake assumed**
A customer who never signed anything

08 **Subsidy as business model**
Economics that only close with a grant

Decided long before anyone notices

INVISIBLE WHEN MADE

The most expensive decisions happen early and quietly: choosing a market hydrogen loses, industrialising a design that isn't frozen, keeping the invention team into the scale-up phase, treating certification as paperwork for later.

HYZON MOTORS · wound down Feb 2025 Trucks that worked — but batteries' cost curve and charging network outpaced H_2. Promised 40,000 trucks; delivered ~16.

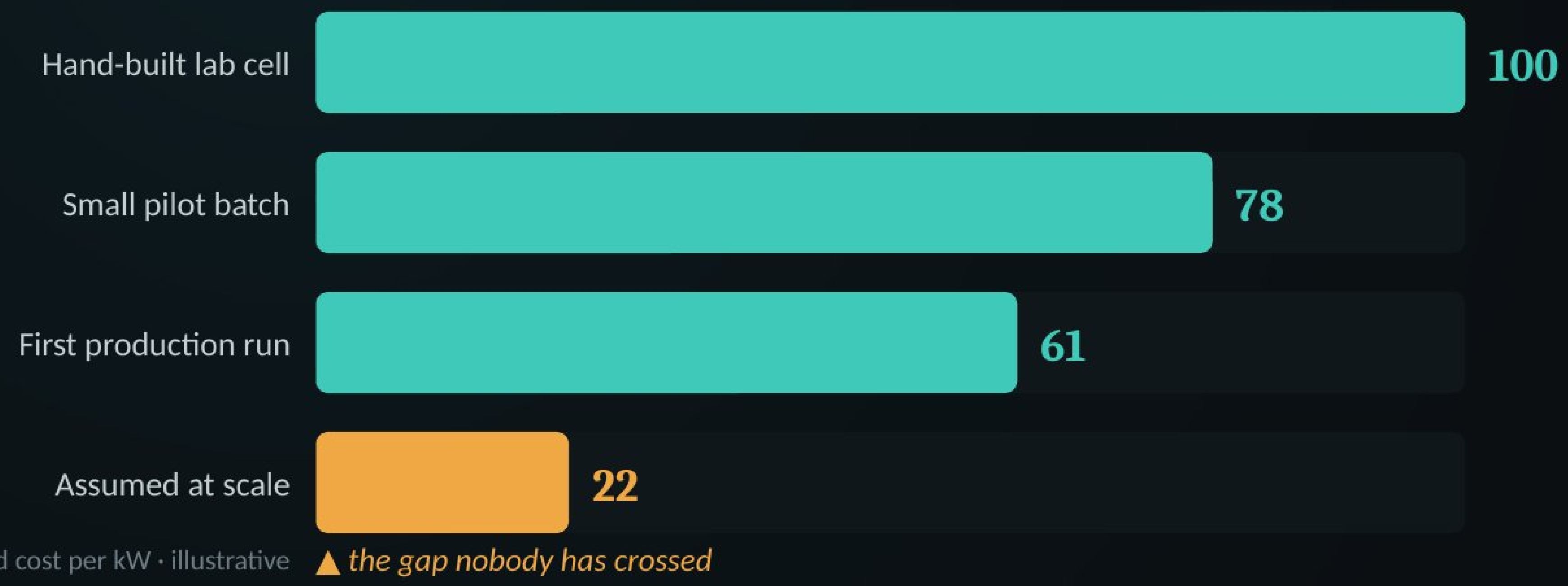
FORTESCUE · cancelled post-FID Jul 2025 Abandoned Gladstone and an 80 MW Arizona plant after the board had already said yes — ~$150M written off.

ITM POWER · chairman, H1 FY23 "Underestimated the competencies… to become a volume manufacturer." £54.1M EBITDA loss on £2M revenue.

FAILURE 05 · EXECUTIONAL

The lab record no factory can reproduce

THE COST CURVE — WHERE PROJECTS ARE LOST



THE FIX a manufacturing engineer in the room at TRL 4 — while their objections are still free.

IEA GLOBAL HYDROGEN REVIEW 2026 58 GW/yr of electrolyser capacity produced under 5 GW in 2025 — ~9% utilisation, flat year on year. The factories got built; the products did not.

The three money failures

Each one looks like commercial progress. None of them is.

06

Funding before fit

LOOKS LIKE

A raise closed. Runway extended.

ACTUALLY IS

Capital spent proving the fundable thing, not the risky one — while who-pays stays open.

TOPSOE · paused a $400M Virginia factory, Oct 2025; 5 GW SOEC reservation terminated Mar 2026.

07

Offtake assumed

LOOKS LIKE

An MoU. A letter of intent. A logo.

ACTUALLY IS

A statement that someone is interested if all goes well. No contract, no penalty.

S&P / FT · ~60 projects cancelled in 2025; only 3.6 Mt/yr of binding offtake exists worldwide.

08

Subsidy as business model

LOOKS LIKE

The model closes. The IRR works.

ACTUALLY IS

A case that exists only while support does — political timelines beat industrial ones.

EU H_2 BANK · 15 winners invited, 7 withdrew rather than post an 8% guarantee. €993M → €271M signed.

THE PATTERN

What the survivors do

Across every project that made it, the same four habits — and none of them are technical.

1. **Name the killer risk out loud**
   One risk that ends the company — written down, owned by a person, reviewed every quarter.

2. **Stage the org ahead of the tech**
   The next phase's people arrive slightly before they are needed — not after the strain shows.

3. **Let evidence set the gate**
   Freezes and scale decisions triggered by data. A board that can say "not yet" beats one that says yes.

4. **Keep someone paid to be sceptical**
   Someone senior whose job is to argue the other side of the market case — and isn't punished for it.

WHAT SURVIVED · the EU Hydrogen Bank's six Of 15 winners, the 6 that signed (Spain, Finland, Norway) share one template: captive or mandated offtake, sizing matched to confirmed demand, power under long-term PPA. **381 MW real, against 1.88 GW that walked.**

LISTEN NOW

Projects don’t fail. Decisions do.

The science is almost never the problem. Every failure in Episode 4 was a choice made by capable people with good reasons — which is what makes them preventable.

The full breakdown is in Episode 4

Link in the comments.

Which of the eight have you seen up close? Tell me where you’d put the blame before you listen.

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