CASE STUDY · GREEN HYDROGEN DEVELOPER

Vantage Hydrogen Ventures

Electrolyzer Technology Selection and Feasibility for a 150 MW Hydrogen Hub

SUMMARY

Independent technical and commercial feasibility study supported Vantage's final investment decision on a 150 MW green hydrogen production hub, including electrolyzer technology selection and offtake structuring guidance.

150 MW	3	17 weeks	FID Reached
FACILITY CAPACITY	VENDORS EVALUATED	DILIGENCE TIMELINE	OUTCOME

The Problem

Vantage Hydrogen Ventures was evaluating a 150 MW green hydrogen production hub co-located with a dedicated wind and solar supply, but faced a critical electrolyzer technology decision between alkaline and PEM systems from three shortlisted vendors, each with different capital cost, efficiency, and operating flexibility characteristics.

The project's lenders required independent technical diligence on the technology selection and underlying cost and performance assumptions before proceeding to financial close.

Our Solution

HydroLabs conducted an independent techno-economic evaluation of all three shortlisted electrolyzer vendors, modeling levelized hydrogen cost under the project's actual site-specific power supply profile rather than each vendor's standardized marketing assumptions.

We performed on-site technical diligence at reference installations for two of the three vendors and conducted structured technical interviews with the third vendor's engineering team where a reference site was not yet available.

Our team also advised on offtake contract structuring, recommending a take-or-pay structure with a defined ramp period that better matched the facility's realistic utilization ramp-up curve than the vendor-proposed structure.

Timeline

Technology Diligence	8 weeks — vendor evaluation, reference site visits, technical interviews
Techno-Economic Modeling	5 weeks — site-specific cost modeling across vendor options
Offtake Structuring Support	4 weeks — contract structure recommendations, lender Q&A; support

Results

- The independent techno-economic analysis identified a materially lower levelized hydrogen cost for the selected PEM vendor under the project's actual power profile than the alkaline alternative, reversing the developer's initial technology preference.
- The revised offtake ramp structure reduced projected early-year cash flow shortfall risk, directly supporting the project's successful progression to financial close.
- Vantage's lenders cited HydroLabs' independent diligence report as a key input to their credit committee approval.