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# AI Forecasting of Green Hydrogen Financial Performance: Prophet vs. ARIMA

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**Abstract:** Green hydrogen ($H_2V$) is central to the energy transition, yet financial forecasting for the sector remains understudied. This study compares Prophet and ARIMA for forecasting the Global X Hydrogen ETF (HYDR), a capital-market proxy for the sector, using 1,045 daily observations (Oct/2021–Nov/2025). Granger tests found no robust predictive power of crude oil (CL=F) or the global market (URTH) over HYDR, so both were excluded as regressors. ARIMA(2,1,1) outperformed Prophet on all metrics (MAPE 22.39% vs. 34.63%), showing that classical models suit short, volatile emerging-sector series better than Prophet.

**Keywords:** Green Hydrogen, Prophet Model, ARIMA; Granger Causality, ETF HYDR

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