



## Efficient and sustainable energy solutions in logistics



**Integra Cleantech**

[integracleantech.com](http://integracleantech.com)

### Hydrogen fuel cells for forklifts: operational optimization alternative

Walmart (United States, Canada and recently Chile), Coca Cola and BMW are some of the companies that since 2010 have been successfully replacing electric batteries with hydrogen fuel cells for the propulsion of their fleet of light vehicles for materials handling.

Specifically, Walmart Canada, through the introduction of 71 forklifts with hydrogen cells, achieved an estimated savings in operating costs of \$1.3 million dollars over 5 years (\$260,000 USD/year) and the mitigation of greenhouse gas emissions of 530 tons of CO<sub>2</sub> per year.



The operational efficiencies achieved can also promote the use of hydrogen in other applications



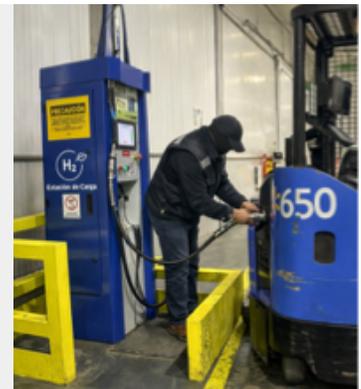


## Why green hydrogen?

- **Improved productivity, up to 60% increase in operational efficiency and cost reduction:**
  - Forklift operation at maximum power (speed) throughout the day, regardless of the charge level of the hydrogen tank.
  - Longer (8-10) hour operating shifts, less need for refills.
  - Shorter recharge times (only 3 min vs. 3-12 hours for electric batteries).
  - Lower maintenance costs: Fuel cell systems contain fewer moving parts susceptible to wear.
- **Ideal for 24/7 operations.**
- **Optimisation of floor space** by eliminating bulky battery charging stations (which take up to 30% of the warehouse).
- **Emission-free operation and simplified hazardous waste management.**



**Hydrogen plant and forklift charging station at Walmart's distribution center in Santiago, Chile (2025).**

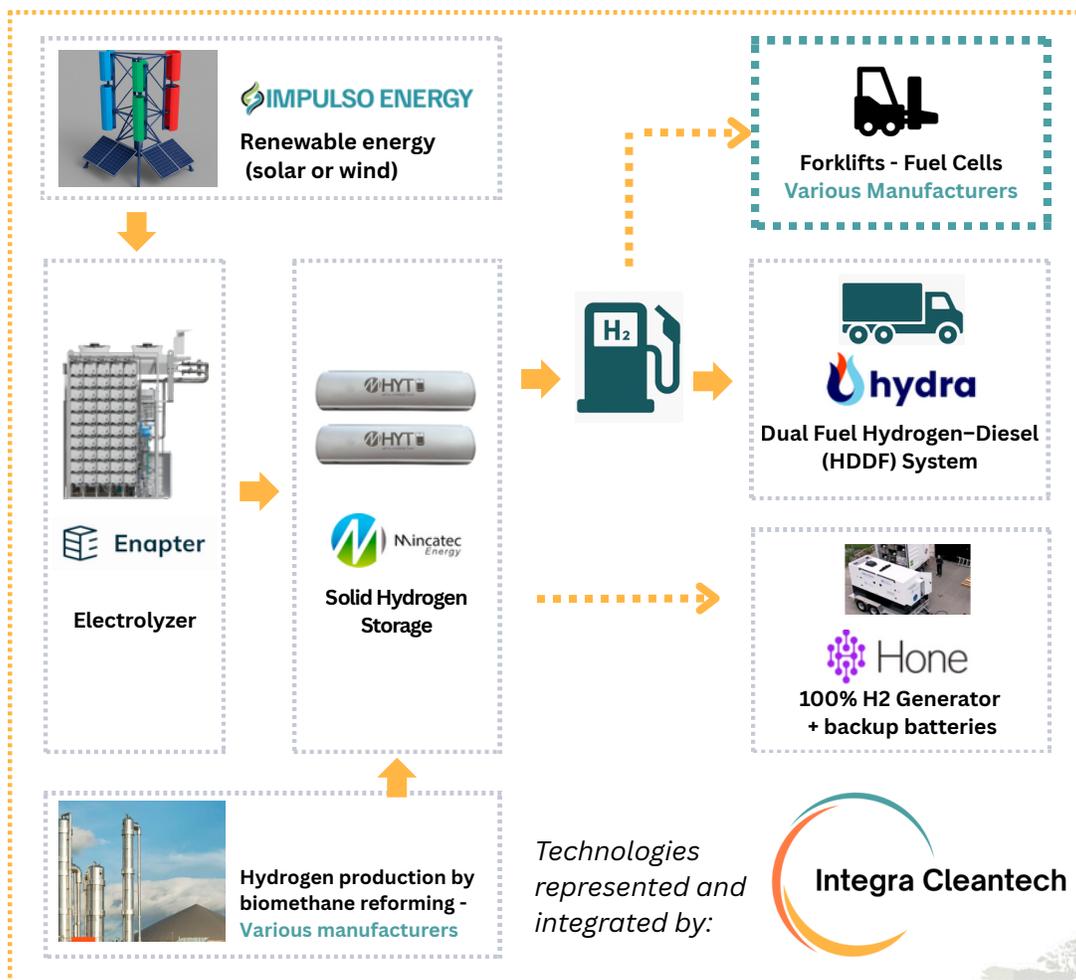


# Integra Cleantech

Integra Cleantech is a **commercial integrator** of cleantech. We integrate complementary solutions into **complete and cost-effective systems**, solving the hydrogen "chicken-and-egg" dilemma. Integrated solutions also have the **flexibility** to gradually expand capacity and scope to other applications.

Our model allows **manufacturers to invoice directly to the end user**, reducing CAPEX and friction compared to traditional EPC schemes.

Producing hydrogen for use in forklifts can be the basis for subsequently supplying fuel to heavy-duty vehicles and backup electrical systems, maximizing the use of the infrastructure.



Base in Vancouver with extended equipment in LATAM.

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