



HYDROGENICS
SHIFT POWER | ENERGIZE YOUR WORLD

Hydrogenics Overview

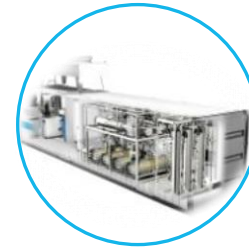
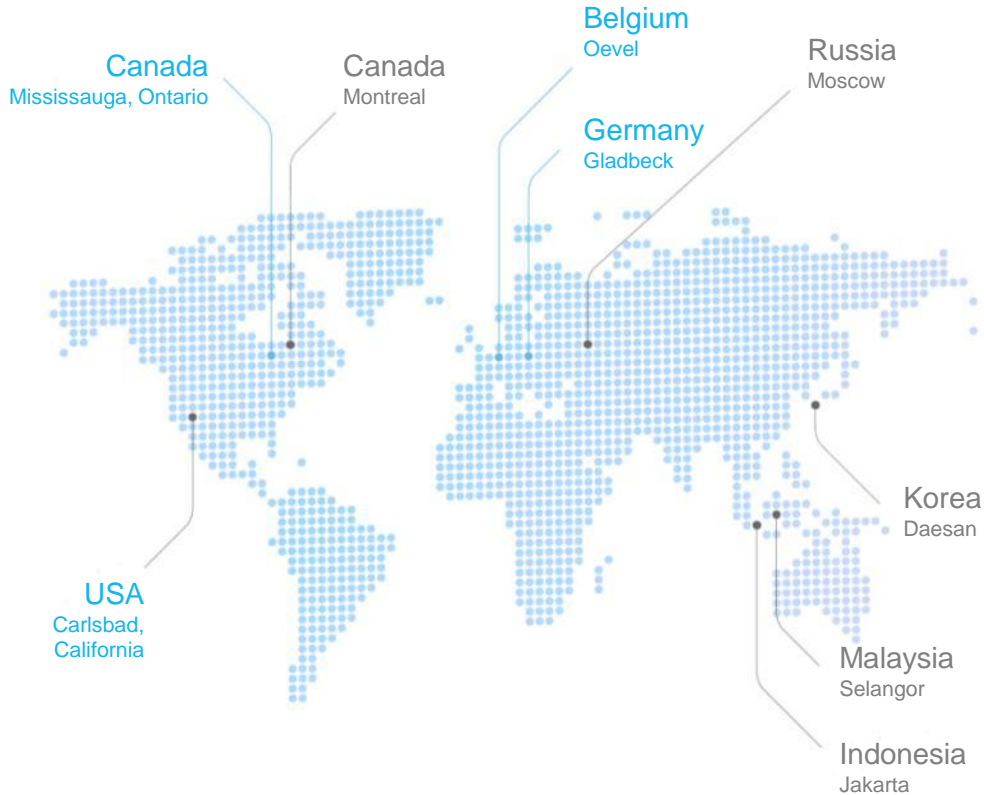
South Central Alternative Fuels
Corridor Convening

April 2019

Rob Del Core

Managing Director
Hydrogenics USA

Shifting Power Across Industries Around the World



HYDROGEN GENERATION

Electrolyzers

Industrial Hydrogen Supply



POWER SYSTEMS

Fuel cells

Stand-by Power

Mobile Power Modules

MW Power Plants



RENEWABLE HYDROGEN

Energy Storage

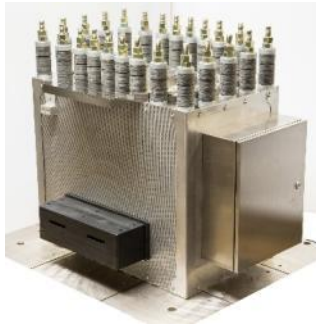
Hydrogen Refueling Station

Power-to-X

Grid Balancing Services

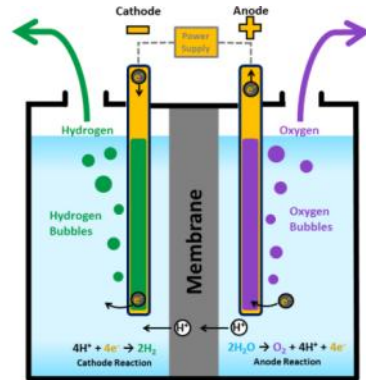
Electrolysers and Fuel Cells are electrochemical energy conversion devices

Electrolysers



HyLYZER PEMWE Stack

Power Input: 1.25 MW
Hydrogen Output: 22.5 kg/h
Output Pressure: 35 bar

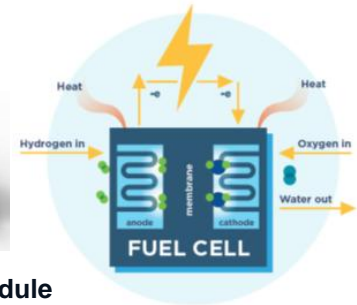


Fuel Cells



HyPM HD30 Fuel Cell Power Module

Power Output: 30kW
Integrated Balance of Plant
Low Pressure Design
Cold Temperature Operation



WATER (H₂O) + POWER

Electrolyser

HYDROGEN (H₂) + OXYGEN (O₂)

Fuel Cell

Zero Emission Goods Movement & Transportation in California

Fuel Cell Transit Bus and Port Truck, California

- Funded by CEC, to develop New Flyer fuel cell bus and Freightliner fuel cell trucks, Hydrogenics' Celerity bundled with Siemens ELFA



Fuel Cell Range Extend Drayage Truck, California

- Powered by Hydrogenics fuel cell



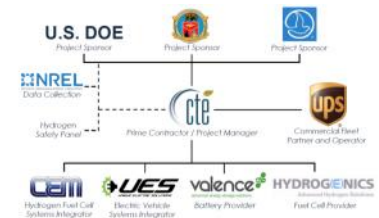
Fuel Cell Port Truck, California

- Funded by DOE ZECT, SCAQMD to develop hydrogen fuel cell Daimler class 8 freight truck using Hydrogenics' Celerity fuel cell power system for zero emission cargo transportation



Fuel Cell Range Extend UPS Medium Duty Delivery Van, California

- 17 UPS fuel cell delivery van powered by Hydrogenics fuel cell



Onsite Hydrogen Refueling Infrastructure with Electrolyzers

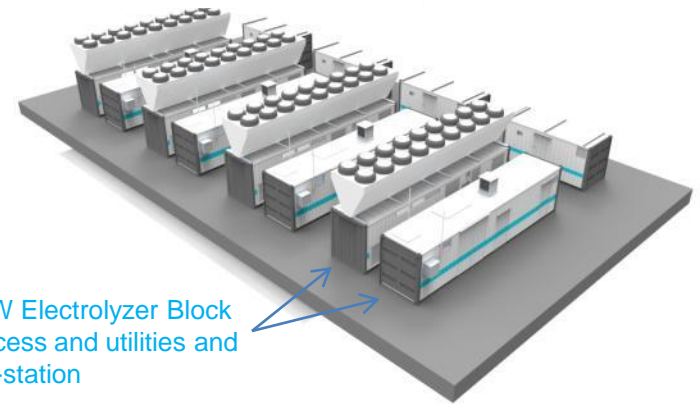
Clean renewable
hydrogen
generation onsite
and on-demand



Ontario Hydrogen Station

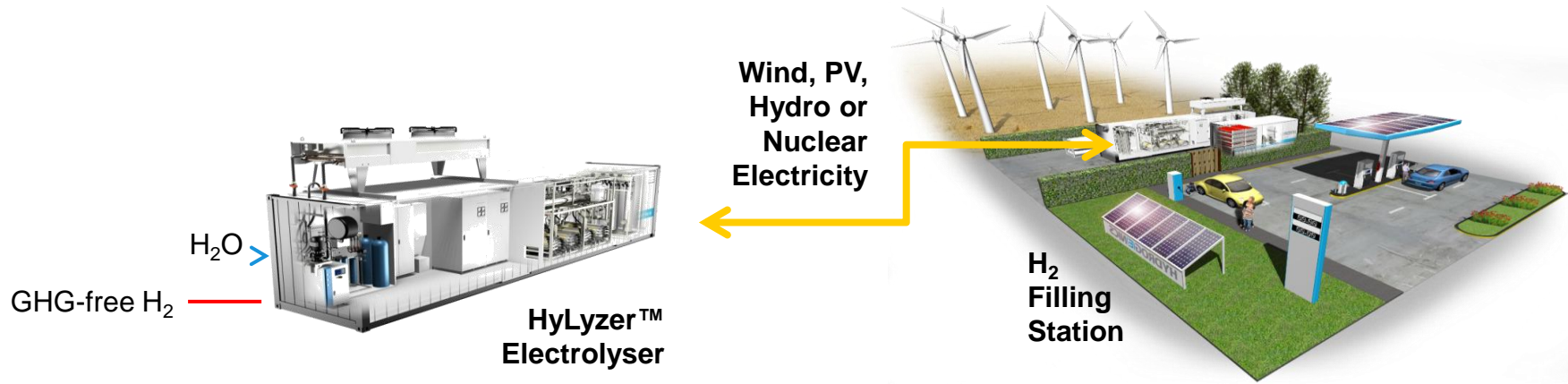


CalState LA Hydrogen Station



5MW Electrolyzer Block
Process and utilities and
sub-station

Offsite/Remote Renewable Hydrogen Fuel Production Plants Co-located with Wind and Solar Farms



- ✓ Multiple MW Electrolyzers integrated with remote renewable energy farms along regional freeways
- ✓ Perfect for refueling long haul freight trucks crossing states
- ✓ Perfect for delivering renewable hydrogen fuel to refueling stations in nearby cities

Thank you for your attention



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