

Pajarito Powder, LLC: The Team, Customer Engagement & Why We Exist

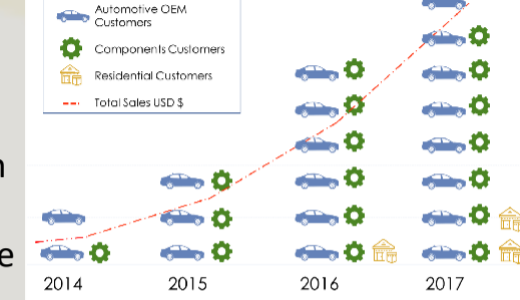
Team, Board, and Advisory Team



Pajarito Powder Differentiation

- Customer responsive
- “Right” scale development and manufacturing
- Modular, flexible, manufacturing platform
- Concentration on the low-cost under-engineered component, not the expensive commodity
- Patents, trade-secrets, and know-how

Strong Customer Engagement

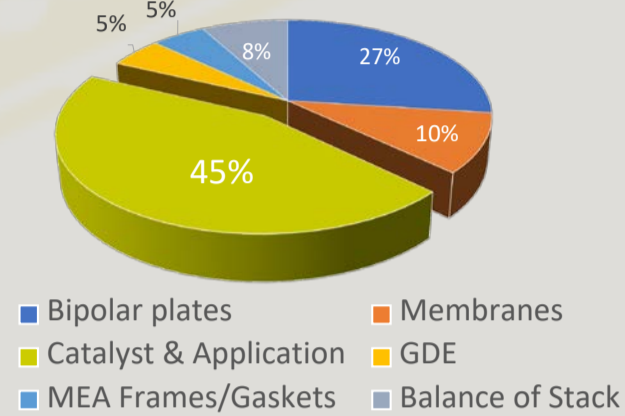


- Working with automotive OEMs
- Product sales accelerating

Products

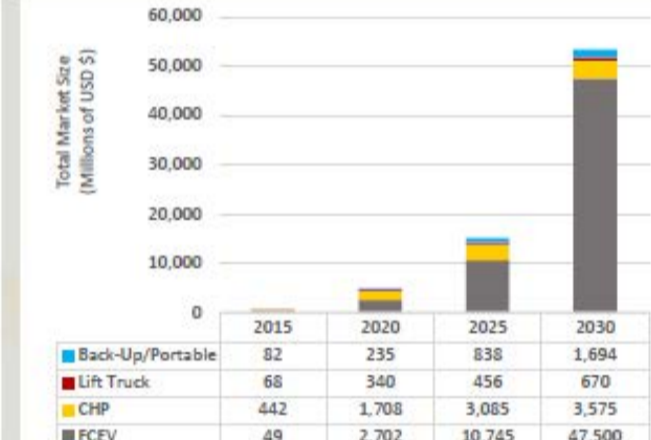
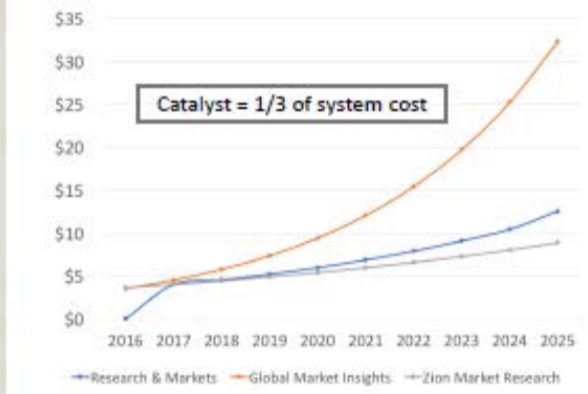
- Fuel Cell and Electrolyzer catalysts
 - Catalyst is the single most expensive component in a fuel cell stack (30%+ of total stack cost)
 - Pajarito Powder products achieve 60% of needed cost reduction (~10\$/kW savings)
- Current Products
 - Engineered Catalyst Support (ECS)
 - Pt/ECS Catalysts
 - Precious-Metal-Free (PMF) Catalysts
 - Electrolyzer Catalysts (In Development)

Stack Component Costs



Market: Forecast Growth & Products

Fuel Cell Industry Forecast (billions \$USD)



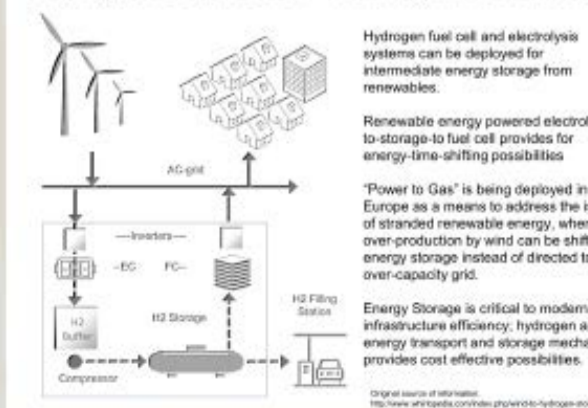
FC Vehicle & Truck Offering Accelerating



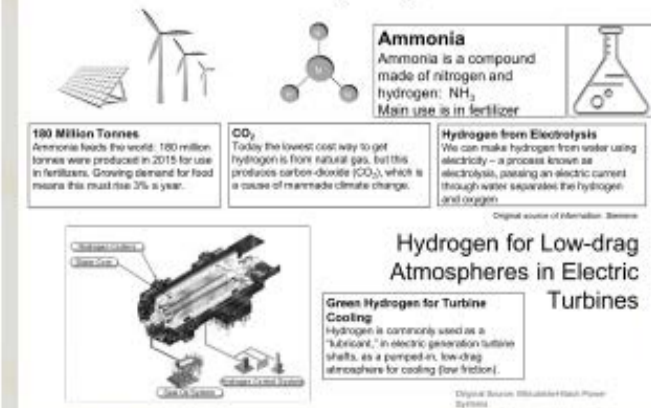
Fuel Cell Forklifts, CHP and Stationary



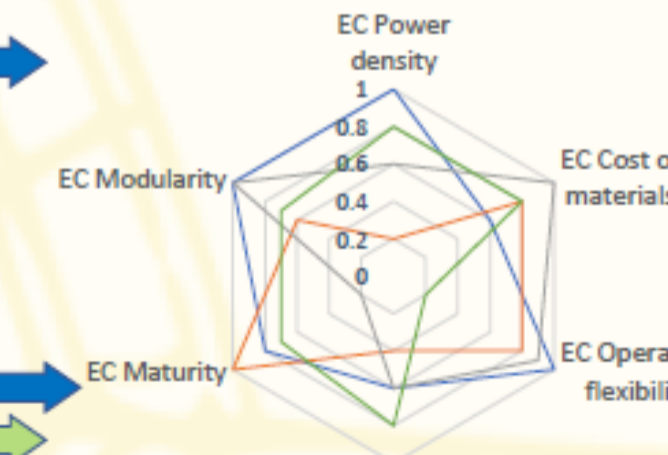
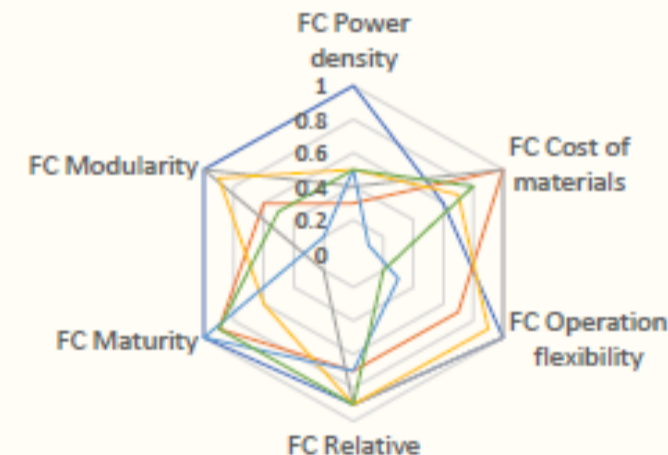
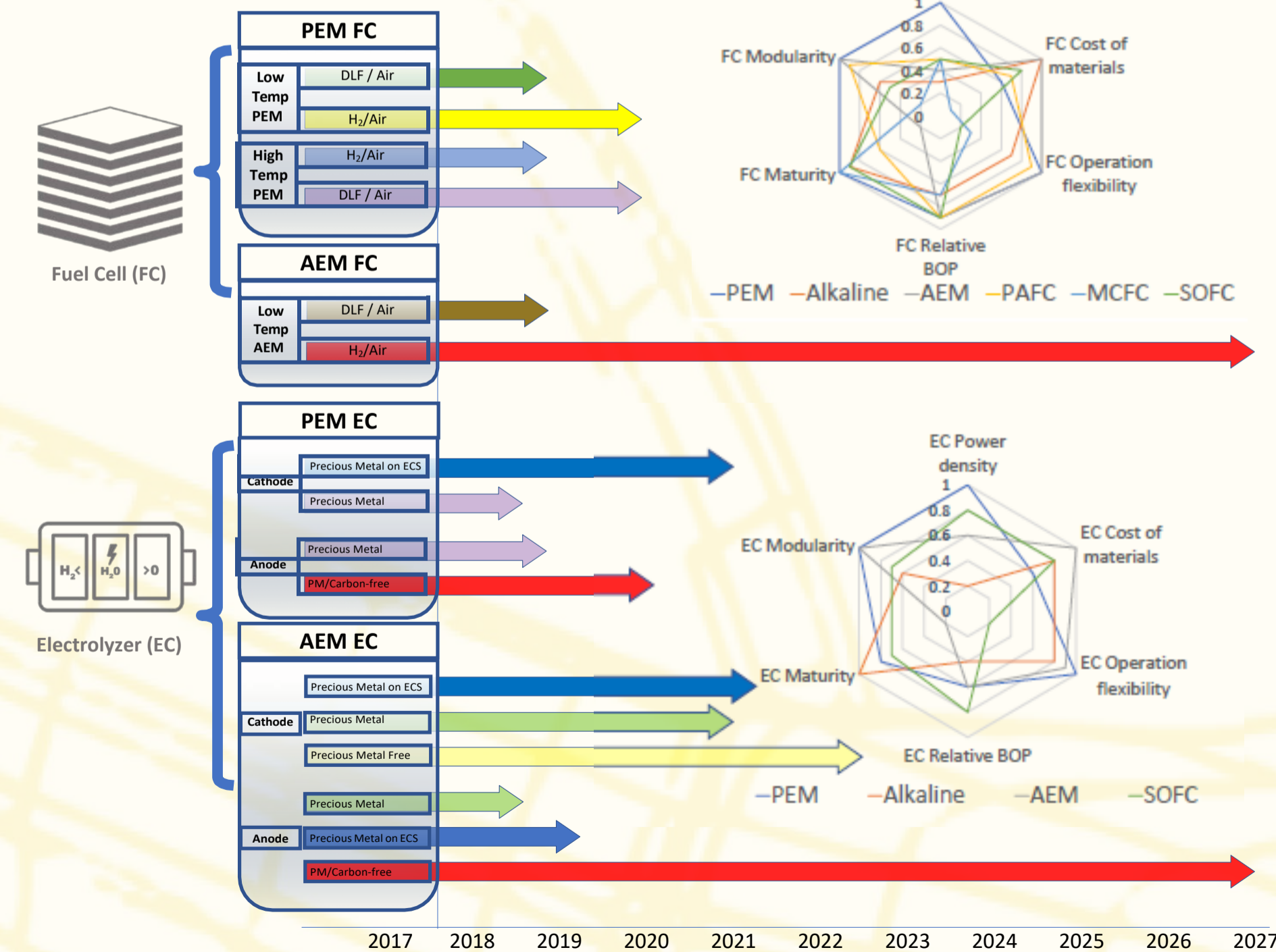
Grid Applications for FC Using Renewables



Green Ammonia and Hydrogen for Turbines



Pajarito Product Development Roadmap



Precious Metal Free Regenerative Hydrogen Electrode (ARPA-E DE-AR0000688)

Barr Zulevi, Pajarito Powder
 Kathy Ayers, Proton Onsite
 Sanjeev Mukerjee, Northeastern University
 Madeleine Odgaard, EWII (Formerly IRD)
 Plamen Atanassov, University of New Mexico

Vision

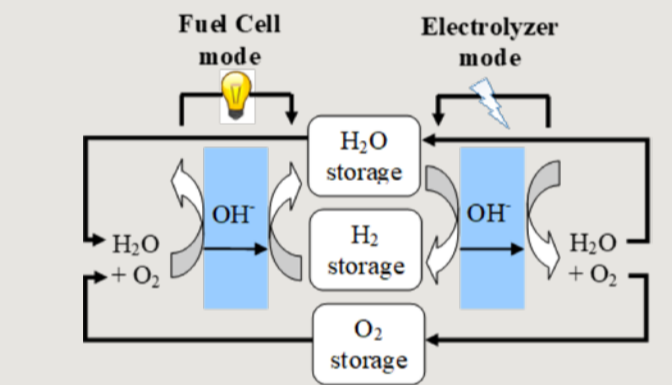
- Develop precious metal free fuel cell and electrolyzer catalysts for low cost energy storage

Impact

- Enable low cost precious metal free fuel cells and electrolyzers for transportation, backup-power, and renewables grid-level energy storage

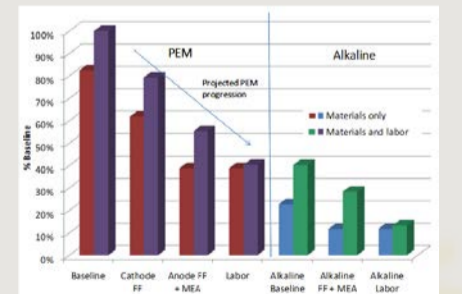


Regenerative Fuel Cell/Electrolyzer



Innovation

- Elimination of platinum group metals through use of anion exchange membrane technology for fuel cells and electrolyzer
- Focus on the bifunctional hydrogen electrode as the critical remaining enabler to low cost materials



Targets

Metric	S.o.t.A	Proposed
Voltage, 0.35A/cm ² (fuel cell)	0.4 V	0.65 V
Voltage, 0.5A/cm ² (electrolyzer)	2.4 V	2.1 V
\$/kW at stack level (AEM vs PEM)	\$400 (PEM)	\$50 (AEM)

Task outline

Task and lead	Yr 1	Yr 2	Yr 3
FC catalyst: PP, UNM	█	█	█
EC catalyst: NU, Proton, PP	█	█	█
Electrode: Proton, EWII, PP	█	█	█
T2M: PP, Proton, EWII	█	█	█

Tech-to-Market strategy

Short-term: high-value, fault tolerant electrolyzers, electrodes and catalysts for specialty markets.
 Long-term: reversible fuel cell and components for renewable storage.