The Future of Hydrogen

Andy Marsh, CEO
Plug Power is the Leader in Hydrogen and Fuel Cell Technology

- **25,000+** GenDrive units shipped
- **15 Tons+** of Hydrogen used daily
  - More than NASA
- **18.5 M+** hydrogen fills from GenFuel stations
  - Most in the world

1st to create a commercial market for HFC technology with support of US Government programs
Success in Our First Market: Loyal and Repeat “Blue Chip” Customers

- Walmart
- Amazon
- Mercedes-Benz
- FedEx Express
- GM
- Carrefour
- BMW
- Golden State Foods
- Honda
- Ace Hardware
- Wegmans
- IKEA
- Uline
- Colruyt
- Stihl
- Kroger
- FM Logistic

multi-site & repeat customers
Fuel Cells: A Key Enabler for Electric Vehicles

Value Proposition Electric Vehicles: Lower Cost, Improved Performance, More Reliable, New Apps, Additional Features

- **Adaptability**
  - Wide span of addressable power ranges (50W to >100 kW)
  - Performance and cost optimization through hybrid design
  - **Enables** a variety of use cases including delivery trucks/vans, busses, cars, industrial vehicles, robots, drones, etc.

- **High Energy Density**
  - Energy scales with hydrogen storage
  - **Enables** longer range, heavier payloads, increased hotel loads (sensors, communications, active devices)

- **Fast Refueling**
  - Quick turn-around of high-value assets
  - **Enables** 24/7 operations to address ever-increasing consumer demand

- **Scalable Infrastructure**
  - Scales with increased fleet size and energy needs
  - **Enables** rapid deployment and scaling of EV platforms

- **Renewable Fuel Options**
  - Available today; scaling rapidly with expansion of renewable power and advancements in hydrogen conversion technologies
  - **Enables** truly flexible and renewable fuel options for transportation
Success in On-Road e-Mobility: 2018 ProGen-Powered FedEx Delivery Van

- **ProGen engine**-powered Workhorse Class 5 zero emission EGEN delivery van
- **14,000+ miles** on-road by FedEx delivering packages
- **Refuels** at Plug Power’s HQ, Latham, NY
- **Operates** in standard commercial environment
  - 160 miles per delivery cycle
  - 166% increase over standard battery power
  - Safe and sustainable transportation solution
- **Funding** provided by The Department Of Energy’s Fuel Cell Technologies Office within the Office of Energy Efficiency and Renewable Energy
Hydrogen Vision for 2050

Investment:
- $40B each year until 2030
- $475B overall

Returns:
- Half of the Annual Revenue is Hydrogen

2050 hydrogen vision (annual figures for 2050)

19% of final energy demand
7Gt annual CO₂ abatement
$4tn annual sales (hydrogen and applications)
45 million jobs created
