

○ Powering the Future

Prepared for :

April 2021

Devon Hyver, Sales Director Europe

dhyver@plugpower.com +33.6.48.47.27.63

The ABC's of Plug Power to achieve 50% Green H2 and \$1.7B revenue by 2024

Recent Achievements

A
1997 : Strong R&D focus and technology leadership position for next decade in PEM fuel cells

B
2008 : integration of fuel cells for forklifts in the material handling and GSE industry.
Strong early successful deployments of PEM fuel cell solutions in logistic ecosystem.

C
2014 : Turnkey hydrogen solutions that accelerated growth and repeat blue chip customers in Walmart (40), Amazon (50), IKEA, Carrefour, BMW, Fedex, DHL and many others

Executed strategic acquisitions to accelerate vertical integration

Established joint ventures and strategic partnerships, including expansion with Renault (EU), SK Group, and Acciona (EU)

Strengthened balance sheet with over \$5B of capital to accelerate growth

In numbers

50,000 FCs and over 15,000 electrolyzers

180 patents

125 sites

550millions hours of operation

450 dispensers

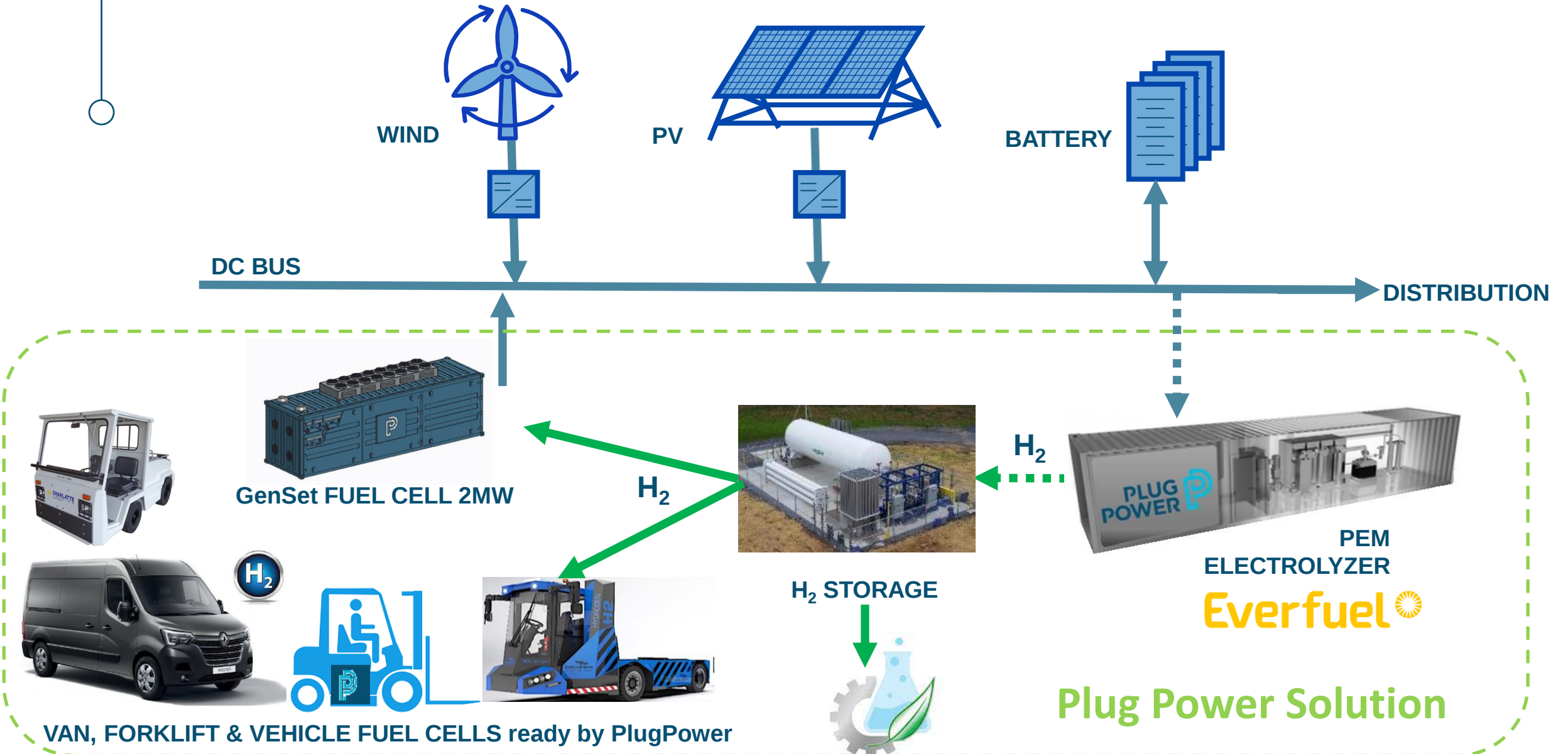
40 tons H2 daily

From <1kW to multi-MW PEM fuel cell and electrolyzer solutions



1. Based on Bloomberg New Energy Finance (March 30, 2020) estimates of over \$11Tn of hydrogen investment in production, storage and transport infrastructure in a "strong policy" scenario

GenKey : Resilient Zero-emission complete Solution



Europe

Europe sites

Strong local presence with our dedicated service technicians

European Service center in Belgium :

- 20 FTE in EU

JV with RENAULT and ACCIONA

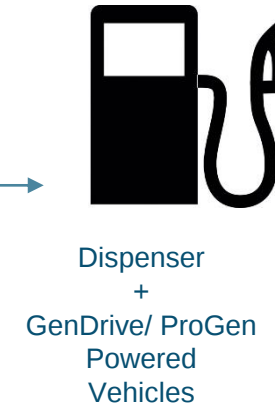
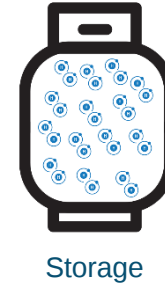
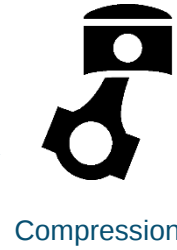
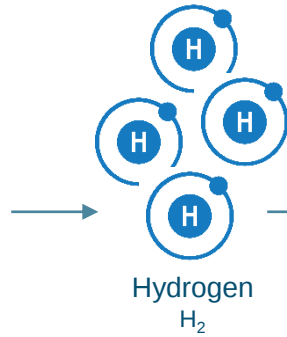


Turnkey H₂ solution for your distribution center

PLUG
POWER 

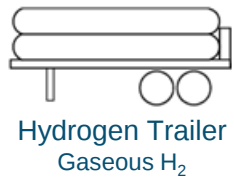
PLUG
POWER 
EUROPE

Equipment Pad



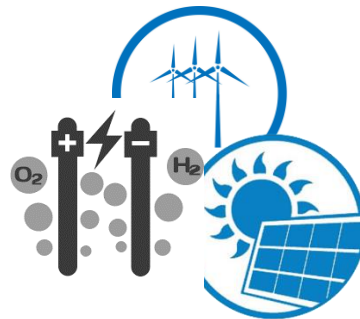
H₂ GREEN
generation onsite

H₂ gas
supplier



Tube Trailer

or



Everfuel  Water Electrolysis
 $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$

GENFUEL 

○ Plug Power Fuel Cell Platforms

GenDrive for Material Handling



Directly replace lift truck batteries

Eliminate battery removal and charging

Increase operator productivity

Eliminate battery room



Material Handling

Operational Advantages

Operate lift trucks at full capacity, free up valuable floor space, and increase operator productivity

90 seconds

to recharge

15 to 25%

increased productivity



Higher Productivity

Higher Efficiency

Environmental Benefits

GENDRIVE

COUNTERBALANCE TRUCKS 48V & 80V



GENDRIVE SERIE 1000

WAREHOUSING TRUCKS 48V



GENDRIVE SERIE 2000

WAREHOUSING TRUCKS 24V



GENDRIVE SERIE 3000

SPECIFICATIONS

H2 refueling time from 1 to 3 min

Constant power at all times as low as -30C

No more need to change batteries

No need for battery room

- Only by-product is water
- No more lead & acid
- 10 years life span

BENEFITS

PRODUCTIVITY

Increase productivity & reduce operational costs

SAFETY

No more risks associated with battery exchange operations

COST OPTIMIZATION

Surface associated with battery rooms can be converted into storage areas

SUSTAINABLE

Reduce carbon footprint & waste

GenDrive Value

Key Benefits of GenDrive® Systems Implementation

Increased Productivity

- Forklifts operate at **consistent full speed** & power at all times
- Refuel in ~ **2 minutes** versus 10 – 20 minutes per battery change
- Increase **floor space** for product storage



Reduced Operational Expenses

- Economic lifetime up to **1.5x – 2.0x** longer than lead acid batteries
- Proven **productivity gains and operational savings**
- Higher throughput or repurpose /reduction of workforce

Environmental Benefits

- **Zero emissions**, recyclable
- **85% reduction** in Greenhouse Gases
- Elimination of personnel contact with toxic materials



Increased Commercial Efficiency

- **Battery rooms eliminated – more room for revenue generating activities**
- Drop in replacement solution

15%

Increase productivity up to 15%

Greenfield IRR Payback < 1 yr
~\$3M in savings

Reduce carbon footprint up to 80%

80%

Fuel Cell Benefits

Lightweight

No Emissions

No loss of performance

- Over a shift
- Over its useful life
- In hot or cold climate

Long useful life

Expandable

Fast Refueling

Safe to Operate

Eligible for subsidies

Compatibility with OEMs

TOYOTA

MATERIAL HANDLING

STILL

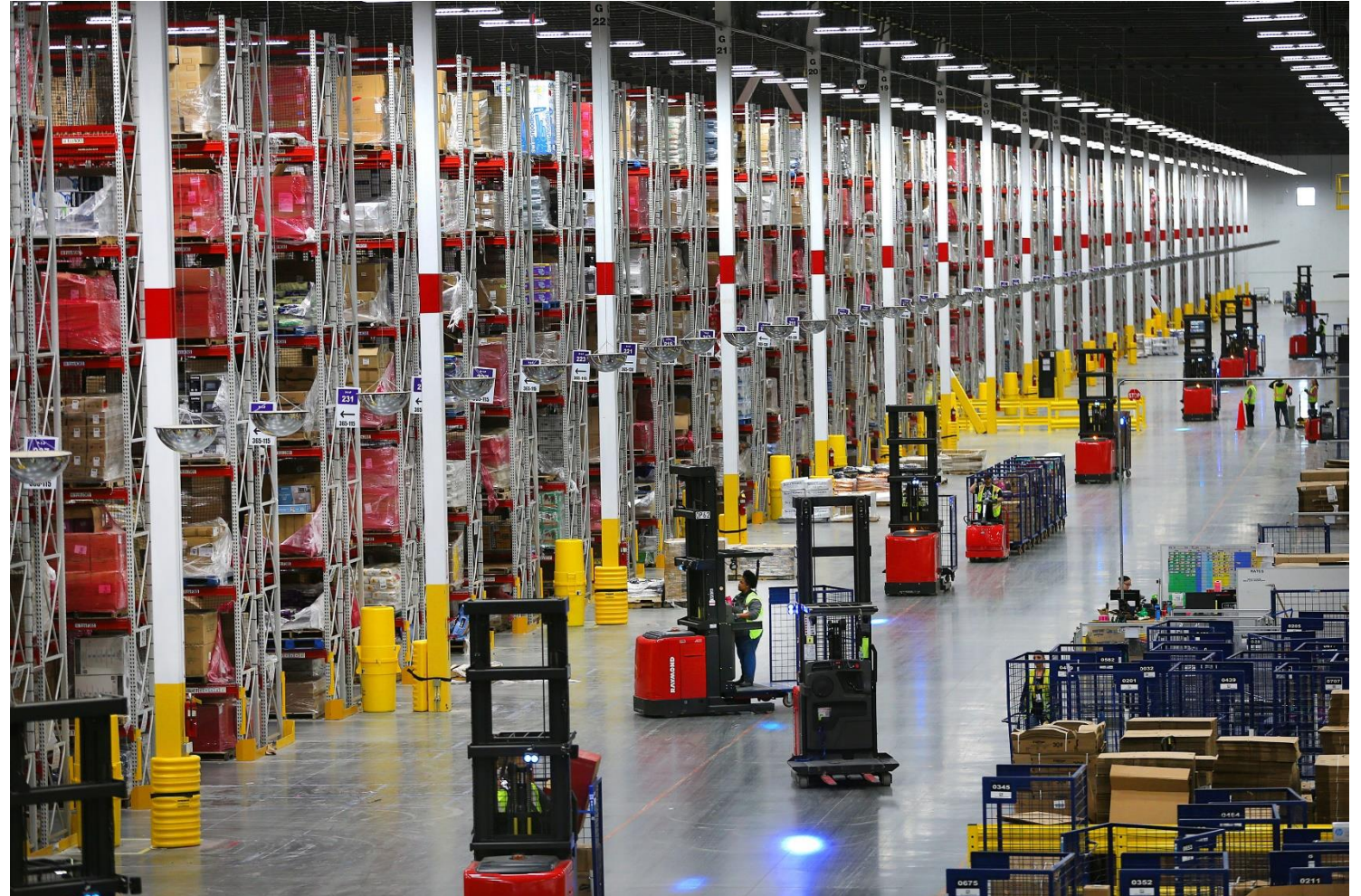
Linde
Material Handling

JUNGHEINRICH

CROWN

Developing a Value Proposition

- Imagine you are a manager at an Amazon distribution center



Fuel Cell Benefits as fuel for the whole logistic ecosystem

Lightweight

No Emissions

No loss of performance

- Over a shift
- Over its useful life
- In hot or cold climate

→ Productivity! → More cases moved per day → \$\$\$\$

Long useful life

Expandable → Cost Savings for Prime Day and Christmas peaks! → \$\$\$\$

Fast Refueling → Productivity → Keep operators on floor longer and require less trucks! → \$\$\$\$

Safe to Operate

Eligible for subsidies → Cost Savings!

Developing a Value Proposition

- Imagine you are a manager at BMW's X car manufacturing plant



Fuel Cell Benefits in AGVs and forklifts

Lightweight

No Emissions

No loss of performance

- Over a shift
- Over its useful life
- In hot or cold climate

→ Predictability! → \$\$\$\$

Long useful life

Expandable → No need to move massive charging areas during retooling → \$\$\$\$

Fast Refueling → Require less trucks! → \$\$\$\$

Safe to Operate

Eligible for subsidies → Cost Savings!

Developing a Value Proposition

- Imagine you are a manager at a parcel delivery company



Fuel Cell Benefits in vans and forklifts

Lightweight → less vehicle weight → More packages → \$\$\$\$

No Emissions → No city travel restrictions → More flexibility in operation → \$\$\$\$

No loss of performance

- Over a shift
- Over its useful life
- In hot or cold climate

→ Reliability → \$\$\$\$

Long useful life

Expandable → Add incremental vehicles – simplified infrastructure → \$\$\$\$

Fast Refueling → Require less trucks! → \$\$\$\$

Safe to Operate

Eligible for subsidies

Typical logistics platforms 1 → 2x8

- 50 x class3 + 10 x class2 + 5 x class1 fleet
- Batteries + recharging stations 100m2
- H2 price 6€/kg

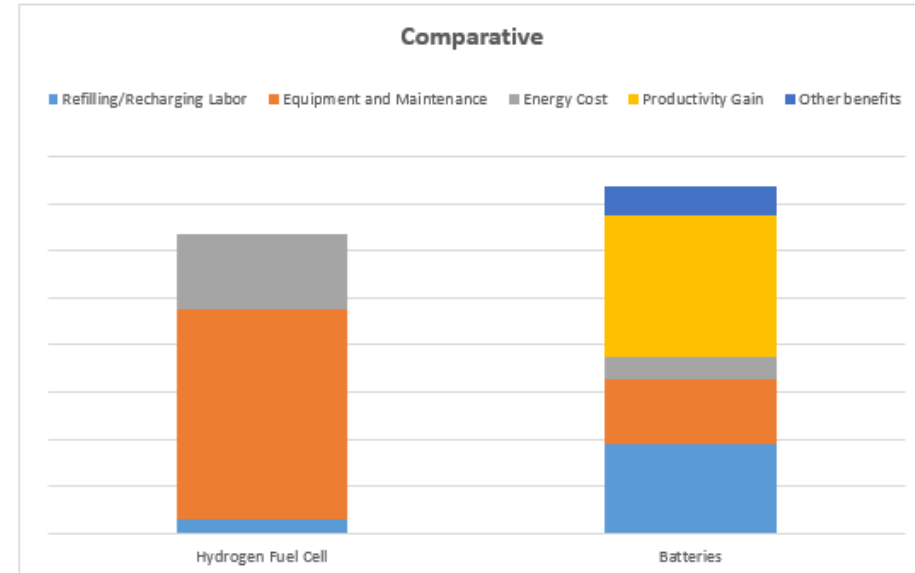
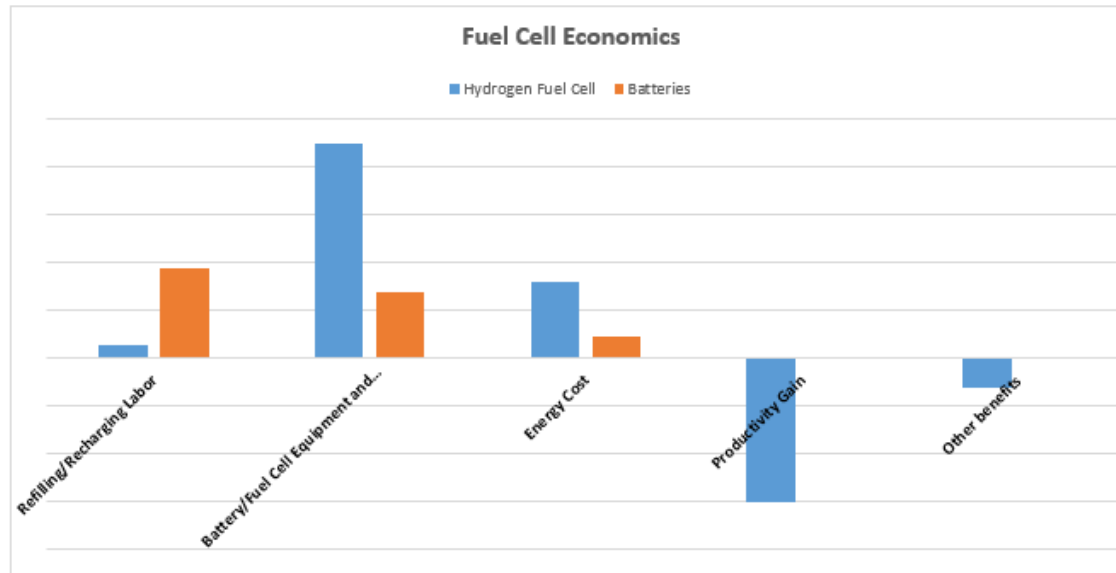


Fleet Size	50	10	5
Annual Runtime [hours/year]	1250	2750	1250
Battery Price [€/battery]	2000	4500	4000
Battery Life [hours]	4000	7000	7000
Battery Changes per day	2	2	2
Change Duration [minutes]	7	15	15
Labor Rate [€/h]	38	38	38

- **2** shifts x 8hours x 5 days/week
 - → 260 working days
- Average full burden cost/hour :
 - Transport and manutention : 38€ / hour

Typical logistics platforms 1→ 2x8

- Benefits
 - Productivity gain / Efficiency → swapping batteries / asset availability / maintain current
 - Reduction in truck maintenance (current peak, stirring...)
 - Man productivity
 - Decarbonization
 - **ROI > 3.5 years**



Typical logistics platforms 2 → 7/24

- 50 x class3 + 10 x class2 + 5 x class1 fleet
- Batteries + recharging stations 100m2
- H2 price 6€/kg

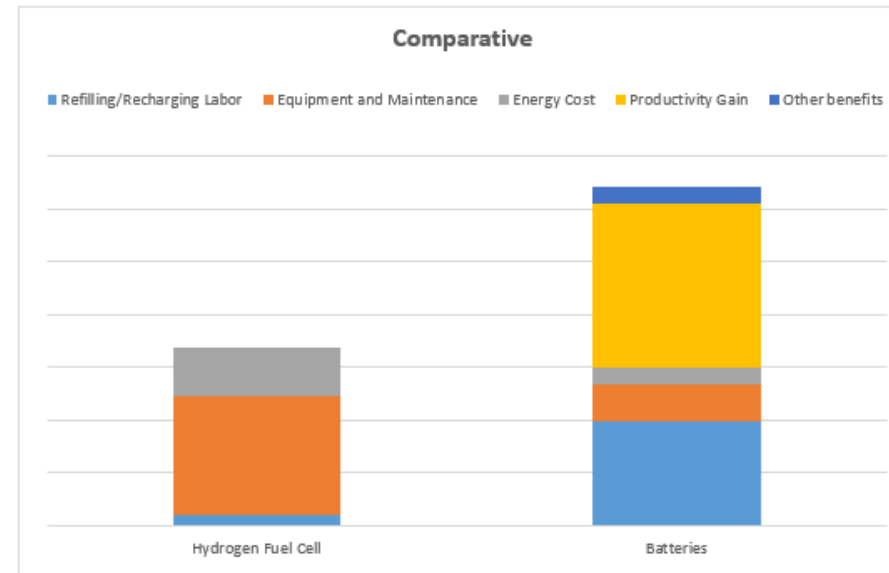
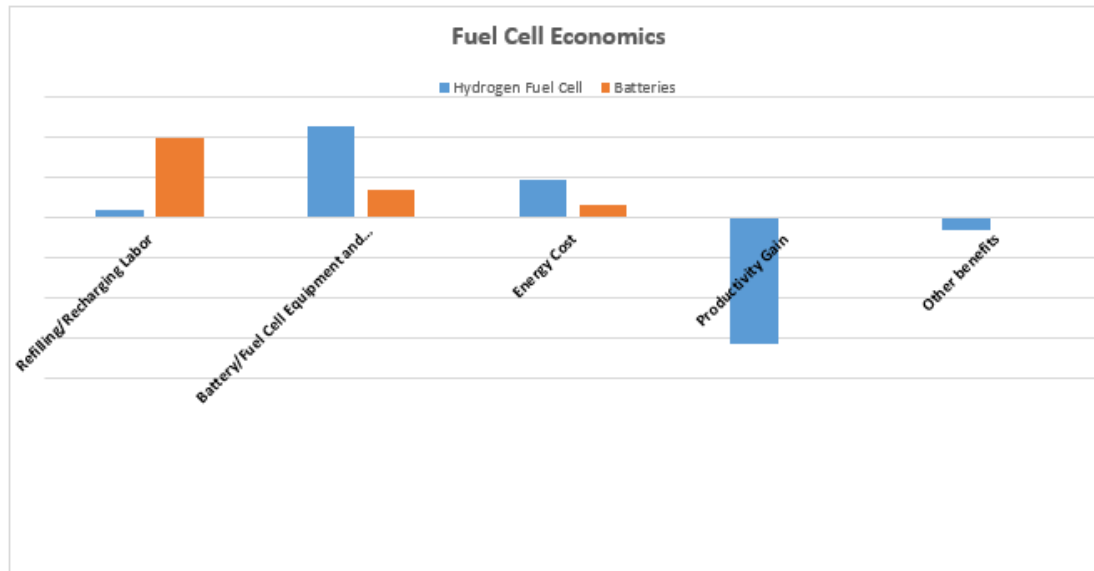


- **3** shifts x 8hours x 7 days / week
 - → 360 working days

Fleet Size	50	10	5
Annual Runtime [hours/year]	1250	2750	1250
Battery Price [€/battery]	2000	4500	4000
Battery Life [hours]	4000	7000	7000
Battery Changes per day	3	3	3
Change Duration [minutes]	7	15	15
Labor Rate [€/h]	38	38	38

- Average full burden cost/hour :
 - Transport and manutention : 38€ / hour

- Benefits
 - Productivity gain / Efficiency → swapping batteries / asset availability
 - Reduction in truck maintenance (current peak, stirring...)
 - Man productivity
 - Decarbonization
 - **ROI > 2 years**



Plug Power



Thank you

Corporate HQ

968 Albany Shaker Rd
Latham, NY 12110

Devon Hyver, Sales Director Europe

dhyver@plugpower.com +33.6.48.47.27.63