

Scalable Hydrogen Fueling for Transit Applications

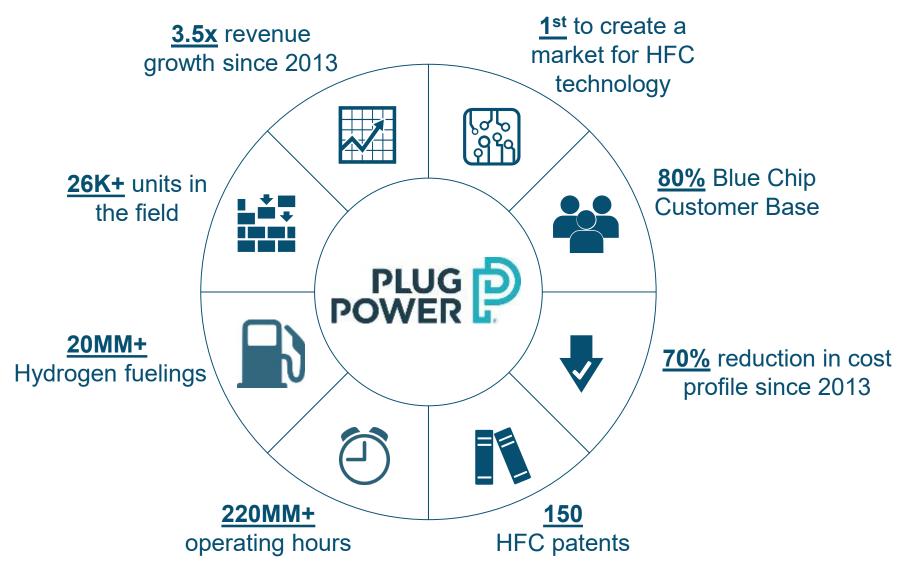
Al Cioffi

August, 2019

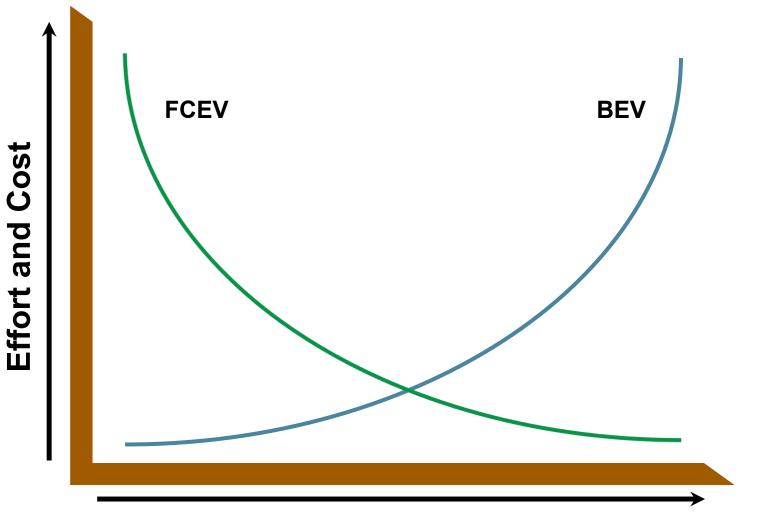
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Plug Power is the Leader in Hydrogen and Fuel Cell Technology





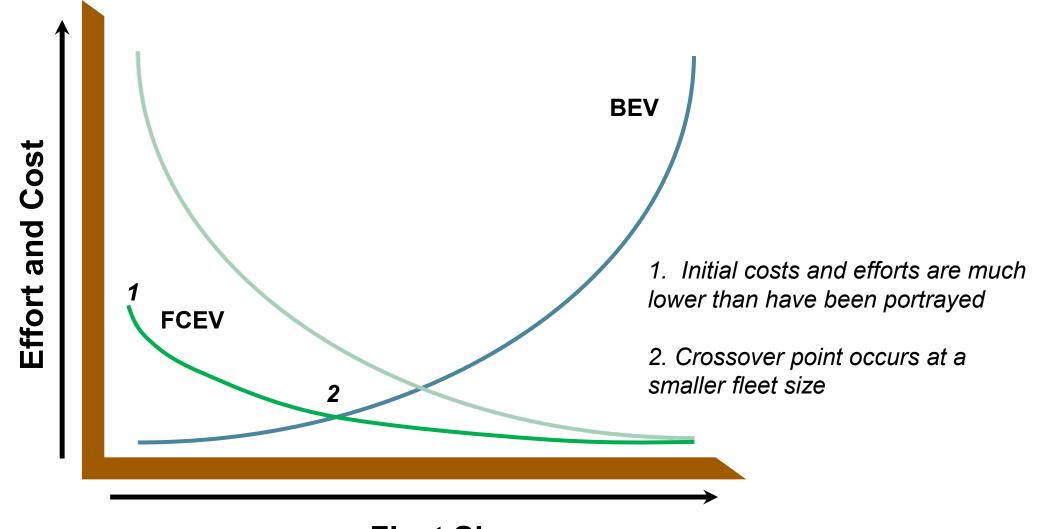
Conventional Wisdom of Electrical Infrastructure



Fleet Size

PLUG POWER

Reality of Hydrogen Infrastructure



Fleet Size

PLUG POW/F

Hydrogen Solutions

- Hydrogen can be delivered
 - Liquid form [LH₂]
 - Gaseous form [GH₂]
- Hydrogen can be generated on-site
 - Steam Methane Reformer
 - Electrolyzer
- Hydrogen can be renewable/de-carbonized







GH2

Delivery

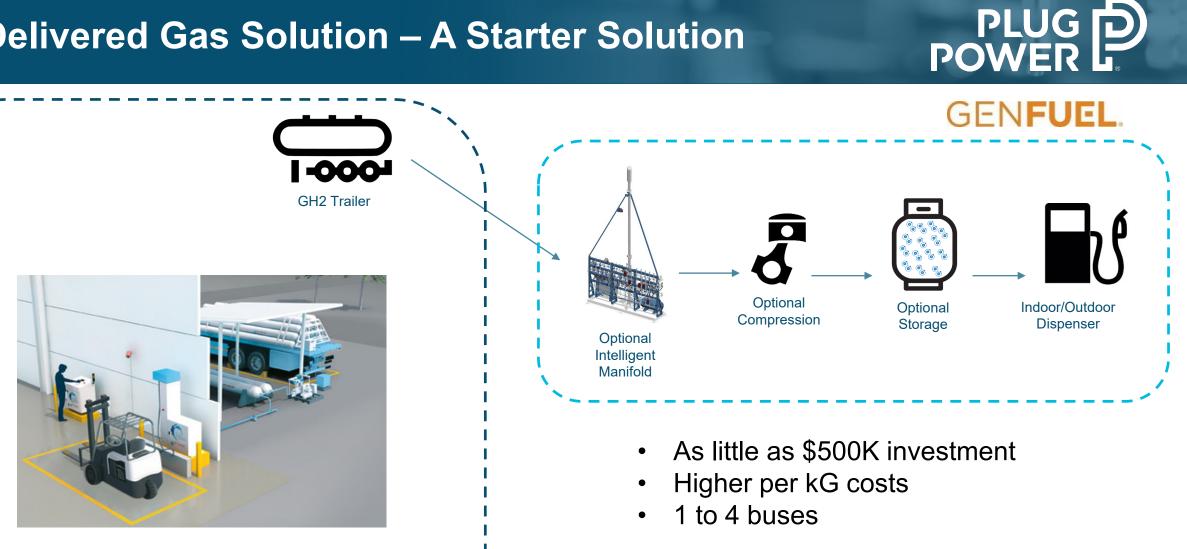
LH2 Delivery





Reformer

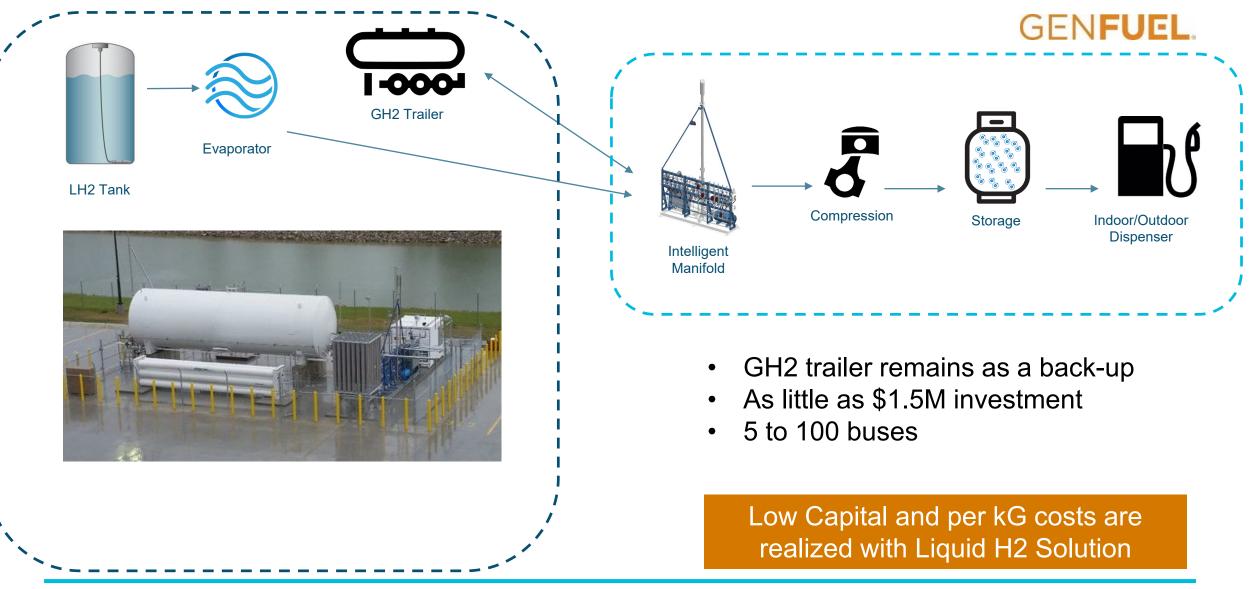
Delivered Gas Solution – A Starter Solution



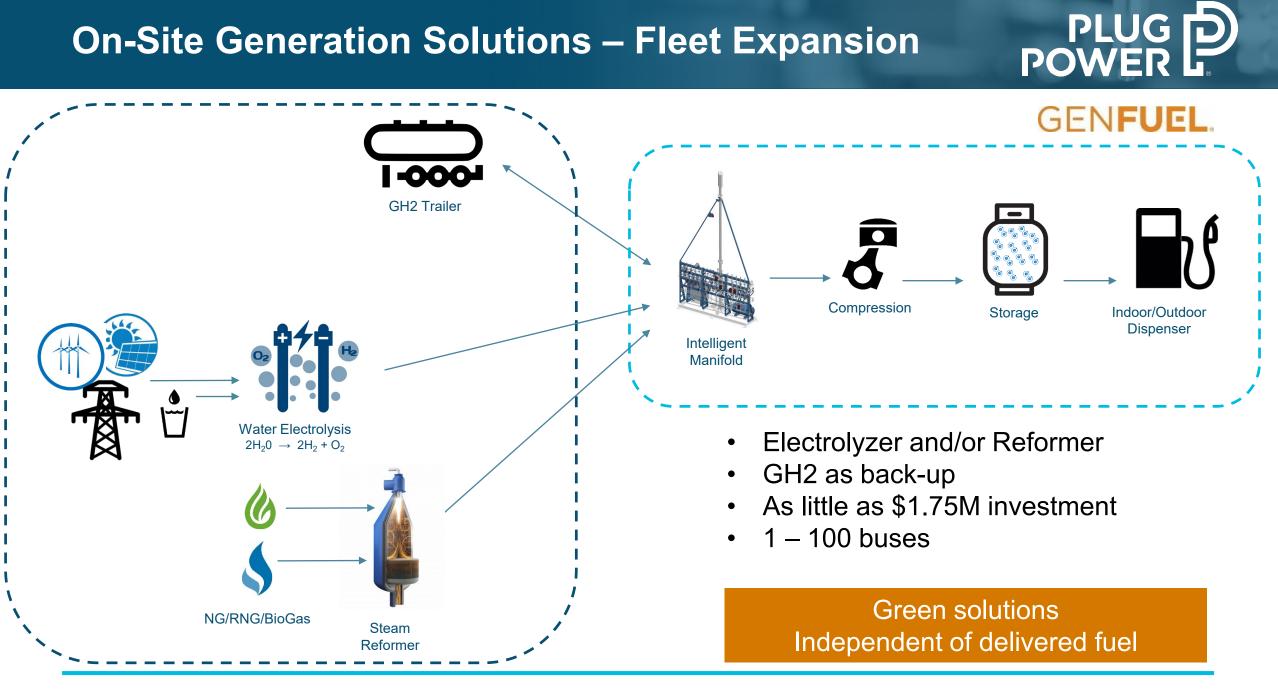
All components can be re-used to expand system capacity

Delivered Liquid Solution – Fleet Expansion

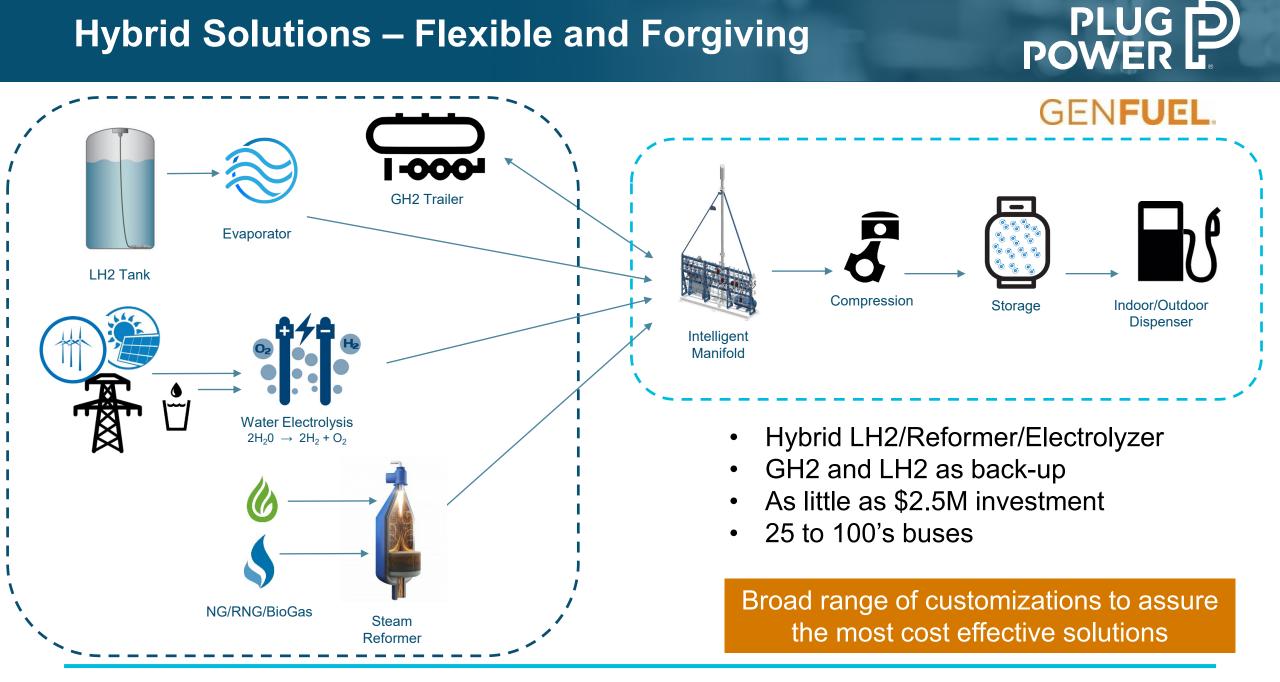




On-Site Generation Solutions – Fleet Expansion



Hybrid Solutions – Flexible and Forgiving



Hydrogen Infrastructure Planning Considerations

- Fleet conversion and expansion plans
 - How many fuel cell vehicles to start at how many locations
 - Current and future locations
 - Ultimate fleet size per location
 - Timing
- Access to water, electricity, and gas
 - Rates
 - Renewability
 - Stability of supply
- LCFS and Renewable energy credits
- Contractor selection
 - H2 experience
 - Turn-key
 - Service Level Agreements
- Hydrogen infrastructure expansion can adapt as your plans change (or recover from errors)

PLU

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