Kaizen Clean Energy

We Make Hydrogen Affordable

Overview Presentation
June 2022
Your Energy Transition Should Not Be Held Hostage By Aging Solutions

**High Cost, Unreliable Solutions Need Displaced**

- **Electric Grids**
  - Unreliable
  - Years to Build
  - Not Scalable

- **Compressed Or Cryogenic Hydrogen**
  - Expensive Infrastructure
  - Unreliable Fuel Supply
  - High Cost Delivered

- **Permanent Infrastructure**
  - High Costs
  - Limited Flexibility
  - Technology Changes

- **Diesel Generators**
  - High Emissions
  - Expanding Market Share
  - Limited Clean Alternatives
Mobile, Off-Grid, & Scalable
Your solution offers unprecedented flexibility and independence.

Hydrogen Or Electric Vehicles (EV)….. Or Both
You pick…Hydrogen or EV solutions from the same container.

Low Cost Delivered Hydrogen
On-site H2 production eliminates $MMs in midstream costs.

Zero Capital Cost
A simple monthly lease accelerates your ZEVs, back-up power, & clean energy transition.

One Fuel, Multiple Solutions™

Multi-Use Microgrid

Hydrogen & Electricity

H2 For FCEV

Power For EVs

3
Produce Hydrogen On-Demand

Create Your Own Microgrid

https://www.youtube.com/watch?v=1h0zil-wTKw
Proven H2 Production Technology
20+ year of operations; >250 Hydrogen Generators deployed with over 70k hours of operation.

High Efficiency
Lower operating temperature with 80%+ efficiency

Compact Size & Scalable
3’ (W) x 4’ (H) x 6’ (L) each unit

Remote Monitoring & Low Maintenance
Systems are remotely monitored with low maintenance cycles.

230 Kg/Day Production (~150kW of Power)
Most Of Hydrogen’s Cost Occurs After Hydrogen Is Produced

~$1/kg H2 Production vs. ~$16+/kg Sold

~40% Of total delivered cost of H2

On-Site Methanol To H2 Generator
35% Increase In H2 Produced
Water is mixed with methanol on site for a negligible incremental cost

Methanol
Significant feedstock cost advantage

Water Consumption Comps
1/10th vs. natural gas reformers
1/2 vs. electrolysis

Densest Carrier of H2
Methanol delivers more H2 per truckload at a fraction storage costs of liquid or gaseous H2

~35% Of KCE’s H2 comes from local water

Advantaged Feedstock Cost

Water Consumption Comps
1/10th vs. natural gas reformers
1/2 vs. electrolysis

Densest Carrier of H2
Methanol delivers more H2 per truckload at a fraction storage costs of liquid or gaseous H2

~35% Of KCE’s H2 comes from local water

Advantaged Feedstock Cost
Carbon Intensity

Local Emissions Eliminated

- NOx
- SOx
- Particulate matter
- Methane slip

CO2 Reduction Based On Feedstock

Global Emission Reduction

- NG Hydrogen
- Diesel
- NG Methanol
- RNG
- Forest / Organic Waste
- MSW70
- e-Methanol (Solar, Wind, etc.)

Carbon Intensity (gCO2e/MJ)

Scalable To Meet Your Objectives
Where Do I Get Methanol?

Nearest Methanol Hub ~ 2 Hours From Ukiah

MMSA Global Methanol Supply and Demand Balance
2017 - 2022E

- Methanol-to-Olefins
- Fuel Cells
- DME
- Biodiesel
- Gasoline Blending & Combustion
- Methyl Chloride (Chloromethane)
- Methylamines
- Methylmercaptan (Methyl Mercaptan)
- Dimethyl terephthalate (DMT)
- Methyl Methacrylate
- Methyl tert-Butyl Ether (MTBE)
- Acetic Acid
- Formaldehyde
- Total Capacity
- Production

(1) Methanol Distributor Hubs
**Current Project: Deployment of EV & H2 Buses**

Working with Top 5 U.S. Municipality to provide H2 Fueling & EV Charging Infrastructure.

**Kaizen Clean Energy's Solution**

- **Upfront Capital Cost:** $0
- **Permanent Infrastructure:** $0
- **Demand Charges:** $0
- **H2 Midstream Cost:** $0

**Delivered H2 Price = ~50% Lower vs. Comp**

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**Top 5 U.S. Municipality**

- **H2 Buses:** 10
- **EV Buses (600kWh each):** 4
- **Grid Connection:** None
- **On-Site H2 Storage:** ~2 weeks
- **H2 Production:** 360 kg/d
- **Electrical Production:** ~300kW

**Solution – (2) 40' Containers**

- (2) Hydrogen Reformers
- (2) Fuel Cells
- (1) Compressor / Dispenser

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Delivered H2 Price = ~50% Lower vs. Comp
Example New Project: Deployment of EV Buses & H2 Distribution

Working with California U.S. municipality to develop EV charging & H2 distribution business plan.

<table>
<thead>
<tr>
<th>Kaizen Clean Energy’s Solution</th>
<th>Purchase</th>
<th>$0</th>
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<tr>
<td>Commercial Model</td>
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Delivered H2 Price = ~60% Lower vs. Current Supply

California Municipality

<table>
<thead>
<tr>
<th>H2 Buses</th>
<th>EV Buses (156 kWh each)</th>
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<tr>
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<tr>
<th>Grid Connection</th>
<th>On-Site H2 Storage</th>
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<td>TBD</td>
<td>~2 weeks</td>
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<th>H2 Distribution</th>
<th>Electrical Production</th>
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<td>190 kg/d</td>
<td>~150kW</td>
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Solution – (2) 20’ Containers

(1) Hydrogen Reformers
(1) Fuel Cells
(1) Compressor / Dispenser

Delivered H2 Price = ~60% Lower vs. Current Supply
Example New Project: Replace Diesel Generators

Working with International Hollywood studio to replace up to 400 diesel generators.

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No Local Emissions (NOx, Sox, and Particulates)

At Similar Price
Let’s Cut The Cost of Your ZEV Transition With a Mobile Container.

CALL US NOW

Contact Kaizen Clean Energy
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