

# Kaizen Clean Energy

We Make  
Hydrogen Affordable

Overview Presentation  
June 2022



High Cost, Unreliable Solutions Need Displaced

# Your Energy Transition Should Not Be Held Hostage By Aging Solutions



## 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



**Hydrogen Or Electric Vehicles (EV)..... Or Both**

You pick...Hydrogen or EV solutions from the same container.



**Mobile, Off-Grid, & Scalable**

Your solution offers unprecedented flexibility and independence.



**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.

Hydrogen & Electricity

**Multi-Use Microgrid**



**H2 For FCEV**



**Power For EVs**



**One Fuel, Multiple Solutions™**



# 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.

Technology Driving Your Energy As A Service

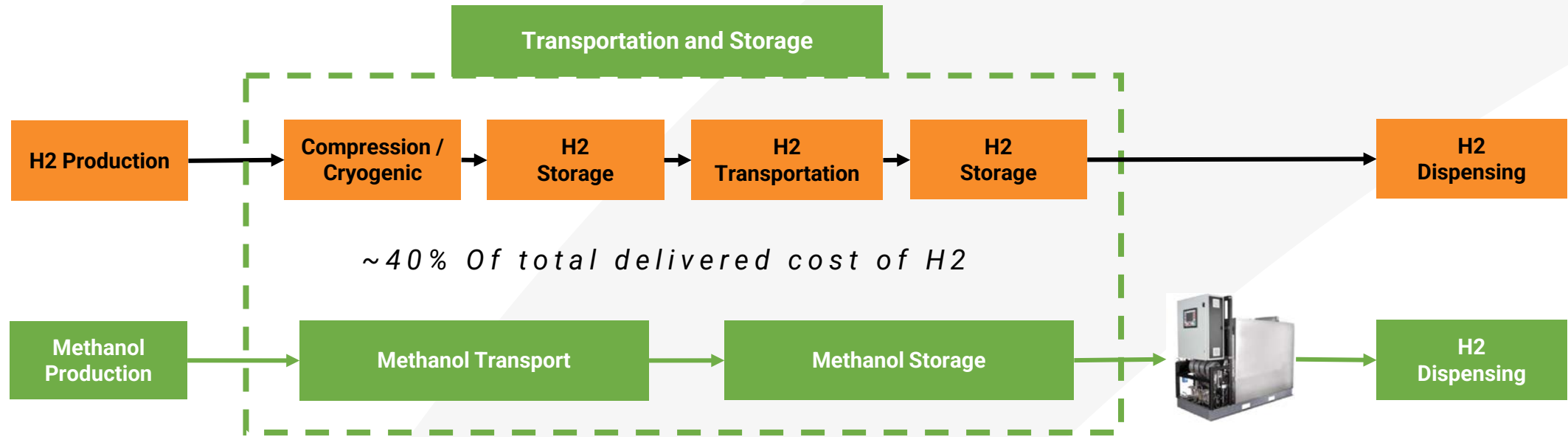
## Compact Size, High Production



**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



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**

1/10<sup>th</sup> vs. natural gas reformers

1/2 vs. electrolysis

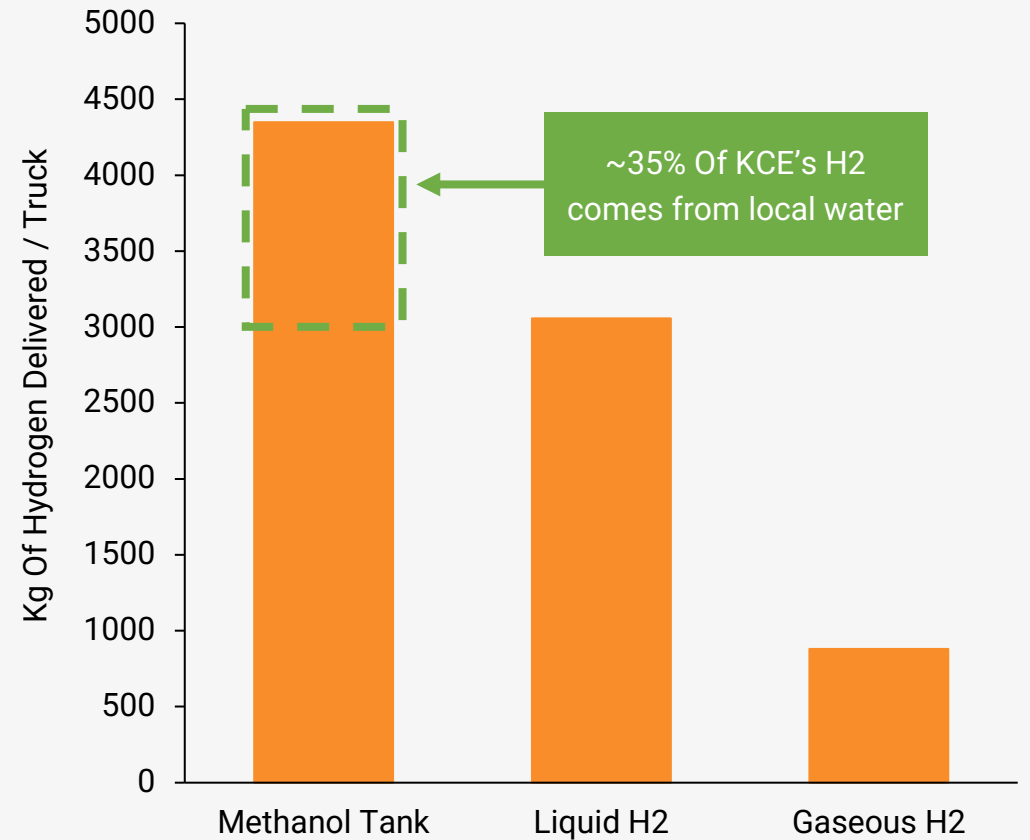


**Densest Carrier of H2**

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


Water


**Advantaged Feedstock Cost**




### Local Emissions Eliminated

NOx 

SOx 

Particulate matter 

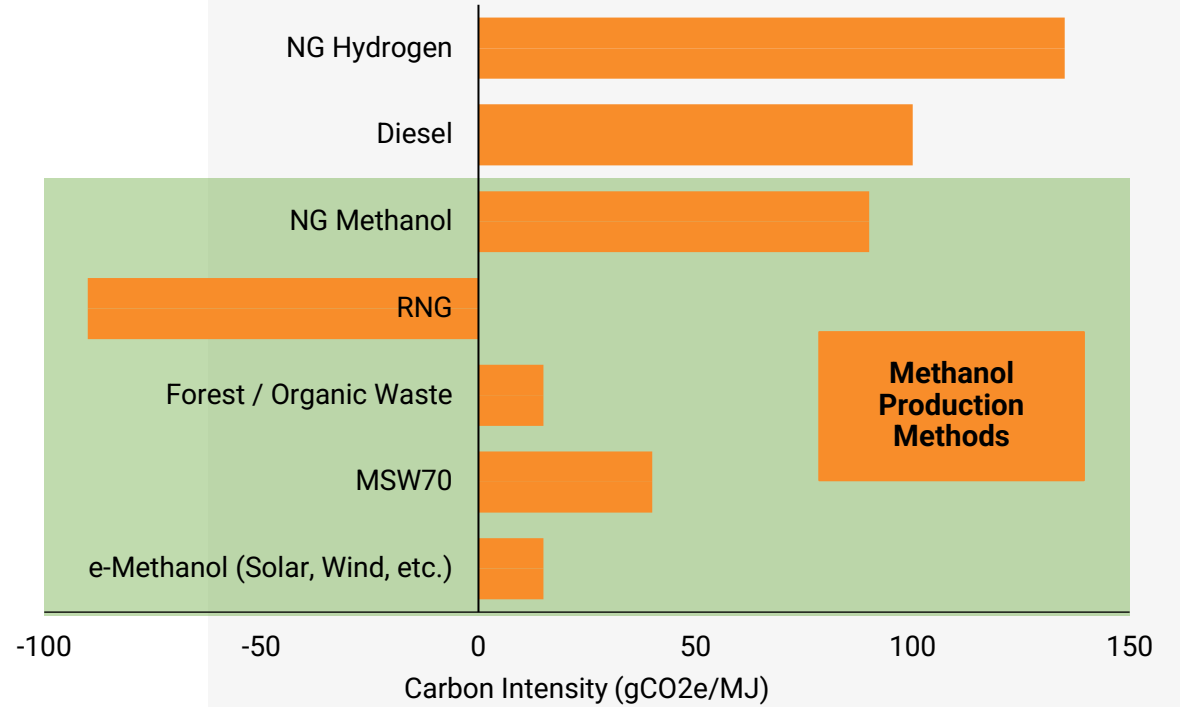
Methane slip 

CO2 Reduction Based On Feedstock 

Scalable To Meet Your Objectives

## Carbon Intensity

### Global Emission Reduction

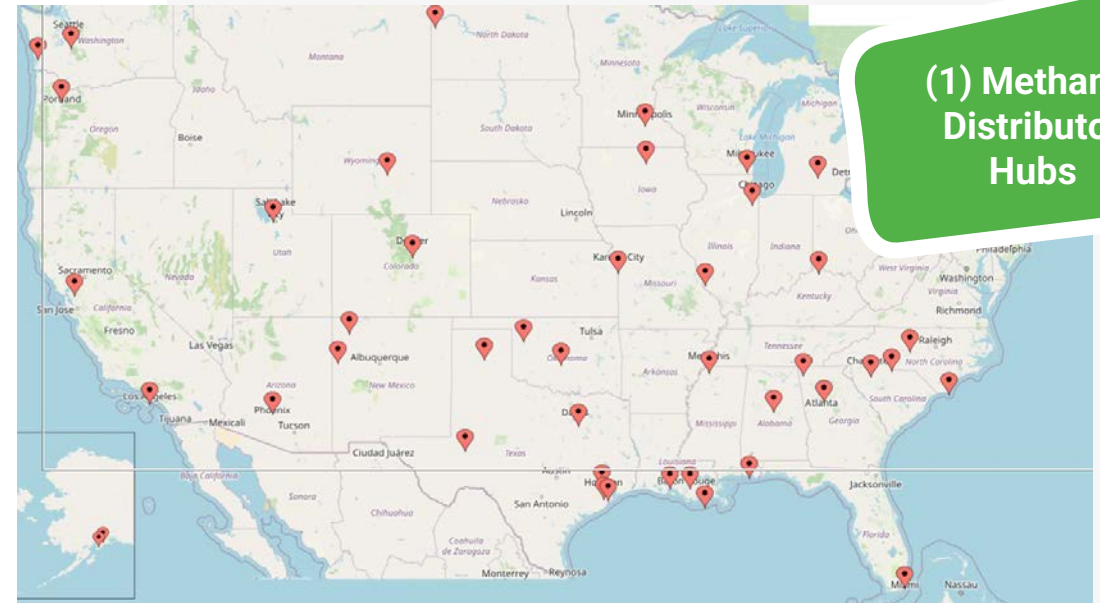
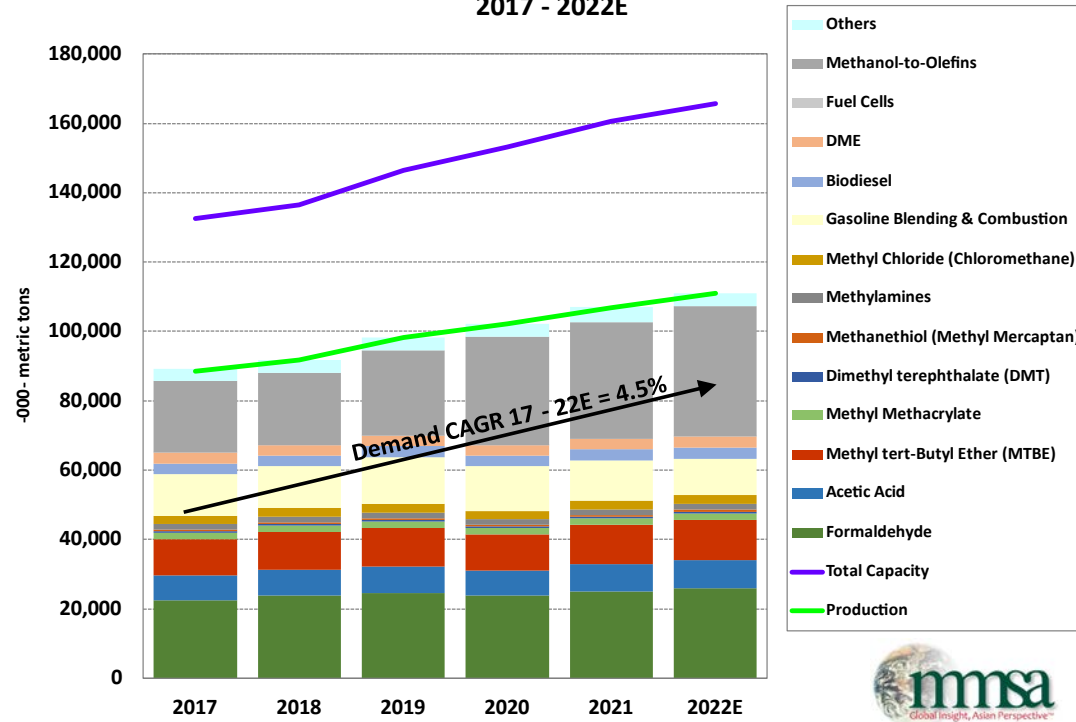




Nearest Methanol Hub ~2-Hours From Ukiah

# Where Do I Get Methanol?

MMSA Global Methanol Supply and Demand Balance  
2017 - 2022E





### 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			
<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Upfront Capital Cost	Permanent Infrastructure	Demand Charges	H2 Midstream Cost

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

#### Top 5 U.S. Municipality

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

Solution – (2) 40' Containers  
**(2) Hydrogen Reformers**  
**(2) Fuel Cells**  
**(1) Compressor / Dispenser**



### Example New Project: Deployment of EV Buses & H2 Distribution

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

Kaizen Clean Energy's Solution			
<b>Purchase</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Commercial Model	Permanent Infrastructure	Demand Charges	H2 Midstream Cost

California Municipality	
H2 Buses	EV Buses (156 kWh each)
<b>0</b>	<b>6</b>
Grid Connection	On-Site H2 Storage
<b>TBD</b>	<b>~2 weeks</b>
H2 Distribution	Electrical Production
<b>190 kg/d</b>	<b>~150kW</b>
Solution – (2) 20' Containers	
<b>(1) Hydrogen Reformers</b>	
<b>(1) Fuel Cells</b>	
<b>(1) Compressor / Dispenser</b>	

*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.

Kaizen Clean Energy's Solution			
<b>TBD</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Commercial Model	Permanent Infrastructure	Demand Charges	H2 Midstream Cost

*No Local Emissions (NOx, Sox ,and Particulates)  
At Similar Price*

**International Hollywood Studio**

H2 Buses	EV Buses
<b>0</b>	<b>TBD</b>
Grid Connection	On-Site H2 Storage
<b>TBD</b>	<b>~2 weeks</b>
H2 Distribution	Electrical Production
<b>0 kg/d</b>	<b>~150kW</b>

Solution – (2)20' Containers

- (1) Hydrogen Reformers**
- (1) Fuel Cells**
- (1) Fuel Tank**



CONTACT US

## Where to Find Us

**Let's Cut The Cost of Your ZEV Transition  
With a Mobile Container.**

**CALL US NOW**

**Contact Kaizen Clean Energy**

Phone & Email

+1 (346) 337-7788

[Info@kaizencleanenergy.com](mailto:Info@kaizencleanenergy.com)