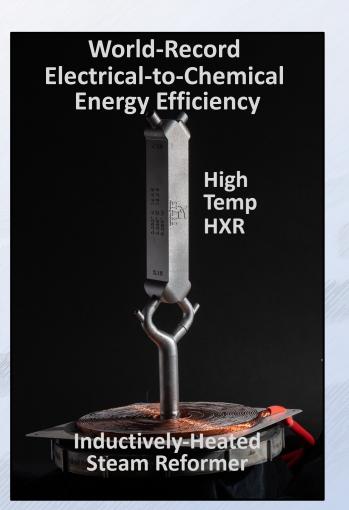
### **Introducing Clean Hydrogen from the Gas Grid** STARS From Biogas, Water and Electricity



Atmospheric CO<sub>2</sub> Capture and Propellant Production



### **Ultra-Small Physical Footprint**

- 100X Process Intensity
- Can be placed at points-of-use

### **Strongly Carbon-Negative**

- No combustion
- Using Renewable Natural Gas

### **Modest Elect Consumption**

• ¼ that of Water-Electrolysis

### Low-Cost through Economies of Hardware Mass Production

- 3-D Printed Components
- Assembly Lines

### Robert S Wegeng, STARS' President & CTO

June 12, 2024

### H<sub>2</sub> SilverStars Pilot Plant Project: STARS Carbon-Negative H<sub>2</sub> at SunLine Transit Agency, 2023-2024



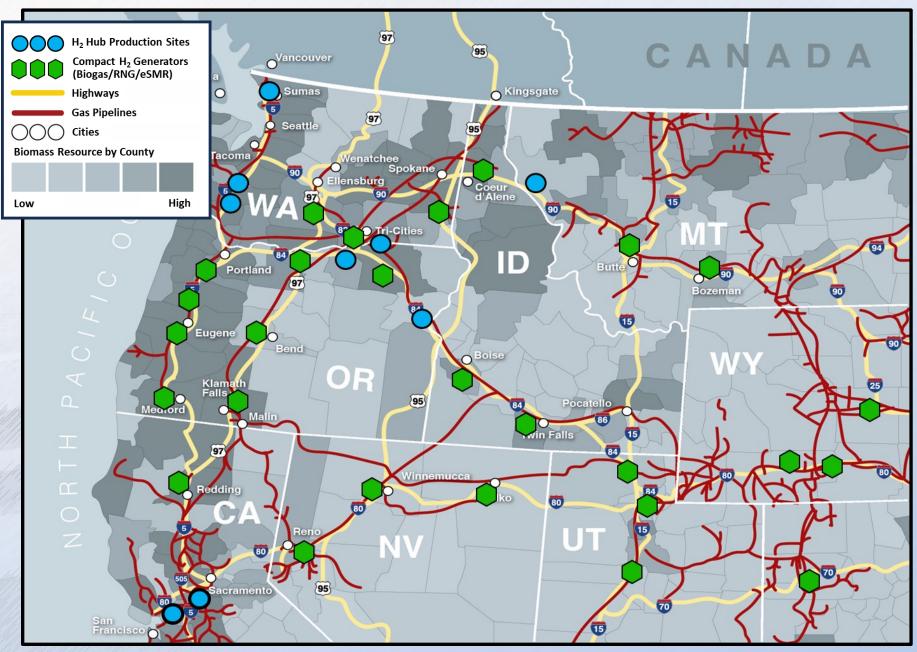
Clean Hydrogen from Renewable Natural Gas / Biogas June 12, 2024



### Distributed Placement of Clean H<sub>2</sub> Transformers

Filling Out and Connecting Regional Hydrogen Hubs

Starting in 2025



Now Working to Identify Initial Commercial Sites

June 12, 2024



# Backup Slides

## Advantages of STARS' H<sub>2</sub>:

STARS Low-Carbon Emissions; Ultra-Small Size; Great Economics

### **Ultra-Small Physical Footprint**

STARS' H<sub>2</sub> Generators can be placed at points-of-use and are disruptive for *distributed applications* 

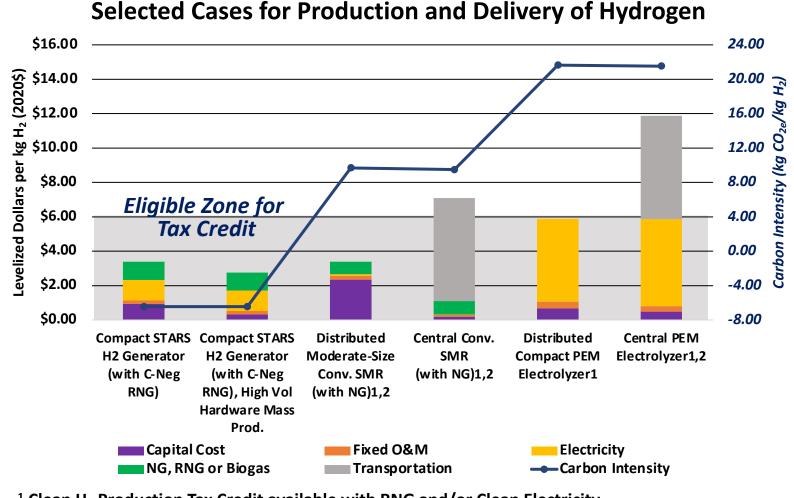
#### **Strongly Carbon-Negative**

Preliminarily estimated at less than -5 kg CO<sub>2e</sub>/kg H<sub>2</sub>

### Low-Cost Hydrogen Production\*

Levelized H<sub>2</sub> Production Cost is estimated at about \$3/kg based on economies of hardware mass production, with zero delivery cost by placing at or adjacent to points-of-use

\* Does not include the USA's Clean H<sub>2</sub> Production Tax Credit



<sup>1</sup> Clean H<sub>2</sub> Production Tax Credit available with RNG and/or Clean Electricity

<sup>2</sup> Not Suitable for many distributed applications (footprint too large)



STARS

### STARS' Team – Persistent Leaders Formerly PNNL, NASA and Energy Industry

### **Principals**



#### Bob Wegeng, Founder & President

- Co-Originator of Microchannel Process Tech
- Former PNNL, NASA & Industry
- >180 patents (US and Foreign)
- 3 R&D 100 Awards



#### **Dennis Walters, Chief of Staff**

- Co-Founder, Electrical Engineer
- Former PNNL, Electric Power Industry



### **Richard Zheng, Chief Test Engineer**

- Chemical Engineer, PhD
- Former Developer of Microchannel Process Technology at PNNL



#### Bruce Harrer, Commercialization & IP Manager

- Co-Founder, Comm Manager, MBA
- Former PNNL

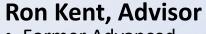


#### Kevin Sullivan, Chief Financial Officer

- Finance/Accounting, MBA
- Former PNNL

### Advisors





 Former Advanced Technologies Development Manager, SoCalGas

#### William Readdy, Advisor

- Veteran pilot astronaut with three Shuttle flights
- Former Associate Administrator of the Office of Space Flight, NASA Headquarters, with oversight for the Marshall, Kennedy, Stennis and Johnson Space Centers

**i3**DMFG\*

Concept

systems

### Value Chain Participants



### Demonstration Participants

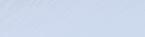


Pacific Northwest





E·G·O



### **STARS Hydrogen Pilot Plant at SunLine Transit** *Hydrogen Generator Process Skid Graphic*

