

Green Hydrogen:

A Key Resource for a Clean and Just Energy Transition

August 30, 2023

*Prepared for the Climate Center **Webinar:**
Hydrogen's Role in the Clean Energy Economy*



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About the Green Hydrogen Coalition (GHC)

Mission

Facilitate policies and practices to advance the production and use of green hydrogen in all sectors where it will accelerate a carbon-free energy future

Purpose

Decarbonize hard to electrify sectors and reimagine our energy ecosystem to accelerate a clean and just energy transition.

Our Approach

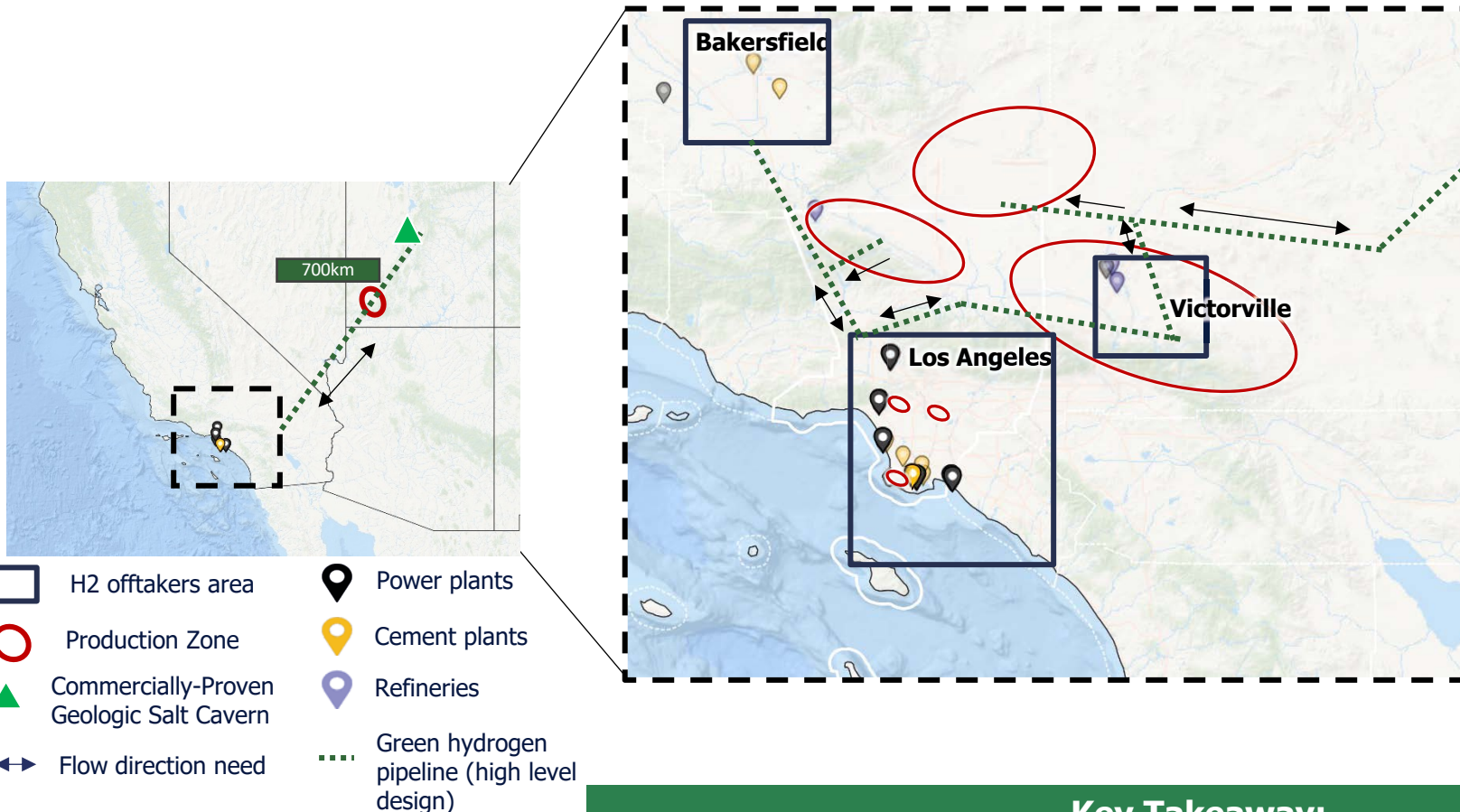
GH2 is key to solving for mass-scale, cost-competitive alternative to fossil fuels. Faster progress can be achieved by simultaneously scaling supply and demand.

***The GHC is a tax exempt 501(C)(3) nonprofit organization.**

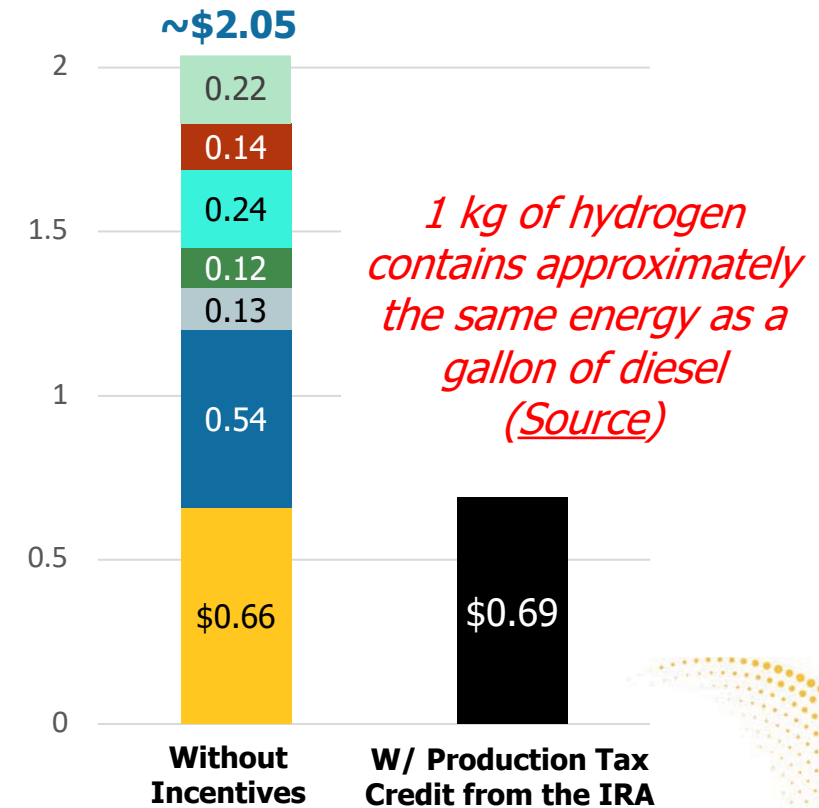


GHC's HyBuild LA Initiative Uncovered A Pathway To Achieve < \$1/Kg Delivered by 2030. It Requires 100% GH2 Pipelines Connected to Out of State Salt Domes

High Level System Plan



Levelized Cost of Delivered Green Hydrogen in 2030

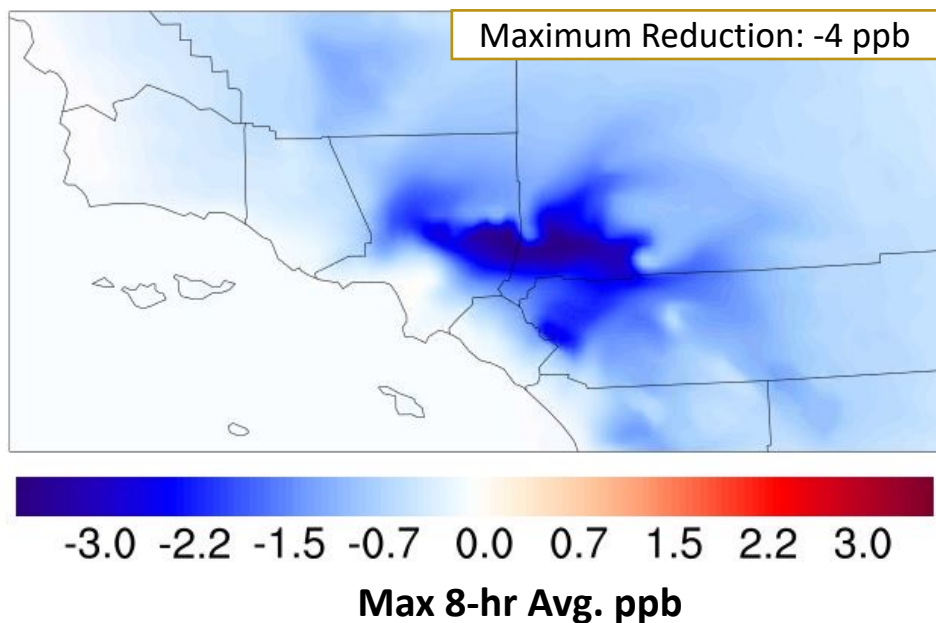


Key Takeaway:

Reaching this goal requires aggregated demand of at least 300,000 MT/year. Getting started requires a bankable scalable offtaker!

Green Hydrogen Adoption in Mobility Sectors Provides Significant Improves Air Quality and Public Health Benefits

2045 Reduction in Ozone (Smog) Under the HyBuild LA GH2 Adoption Scenario



Source: University of California, Irvine Advanced Power and Energy Program, Analysis for HyBuild Los Angeles, 2022

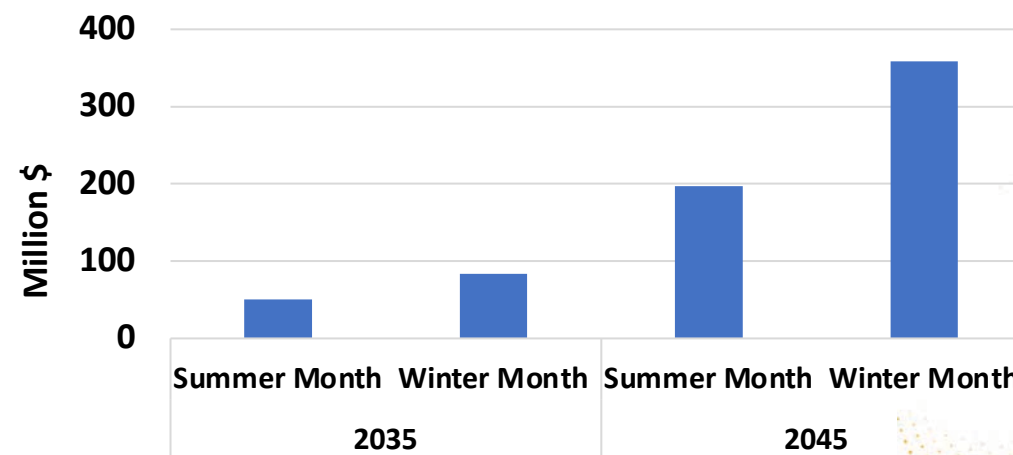
*Measured a summer and a winter month in 2035 and 2045

What does this mean for the LA Basin community?

In total, the improvements in air quality modeled (ozone & PM2.5) for 4 modeled months* would result in:

- 27 fewer premature deaths
- 1,183 fewer hospitalizations for respiratory and cardiovascular illness
- 7,500 fewer work loss days

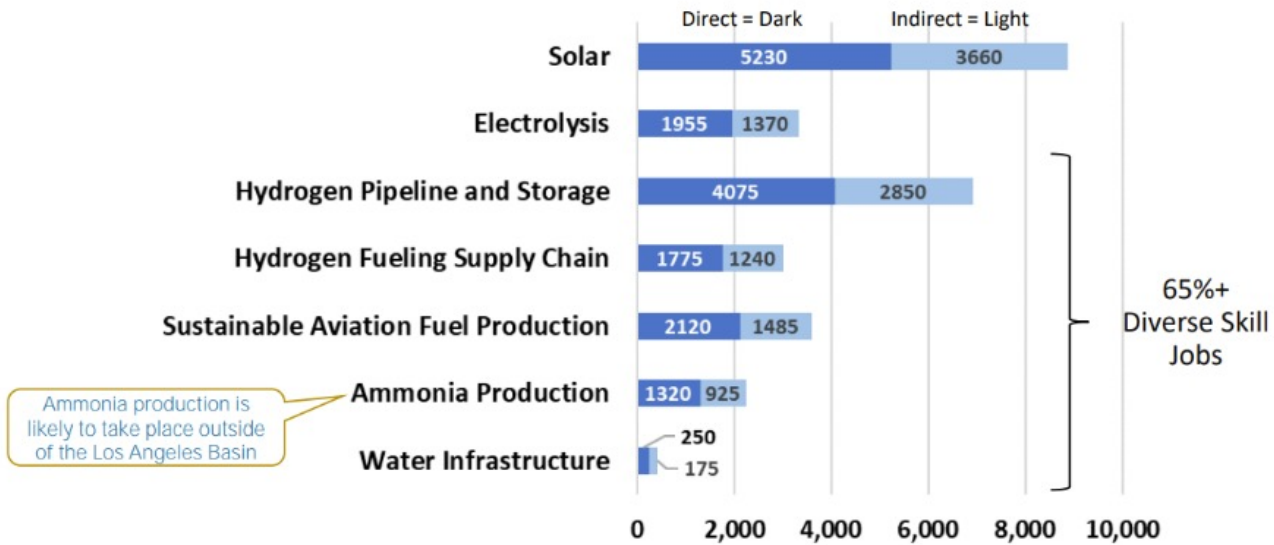
These quality-of-life improvements attain important monetary savings:



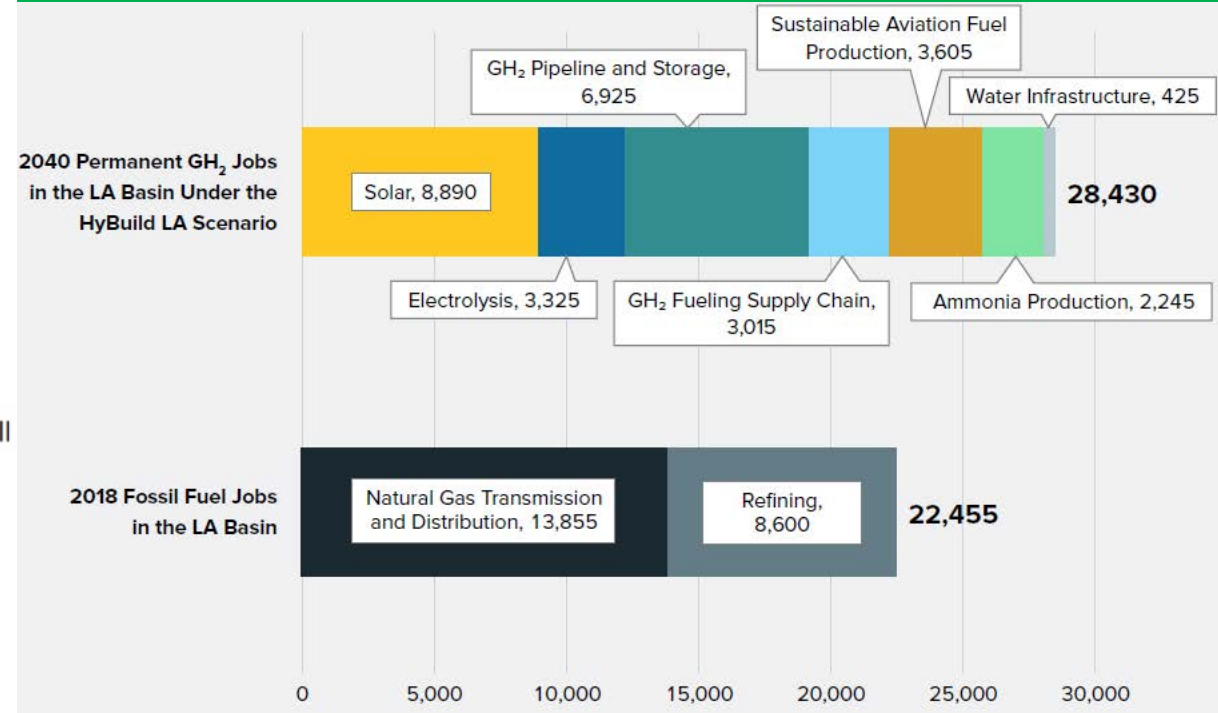
Building The Green Hydrogen Economy **Will More Than Offset Job Loss In Oil And Gas Sectors** And Is An Engine For Creating Many New Jobs

Job Creation

2040 Green Hydrogen Permanent Jobs in SoCal



Job Loss Offset



Source: University of California, Irvine Advanced Power and Energy Program for HyBuild LA, 2022

Green Hydrogen Is Synergistic with Electrification

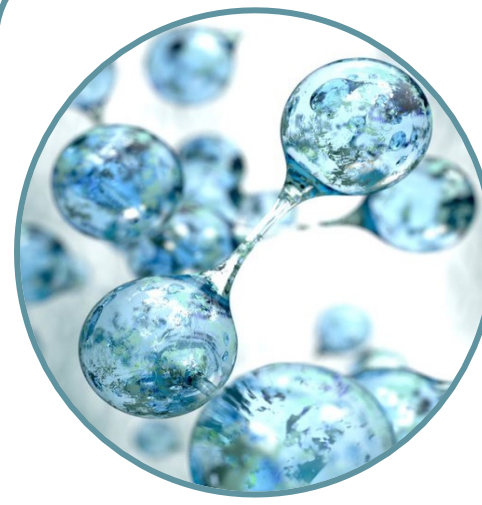


Electrification

Low Utilization Vehicles

Heat Pumps

Residential Appliances



Green Hydrogen

High Utilization Vehicles

Maritime Shipping

Aviation

Long-Duration Energy Storage

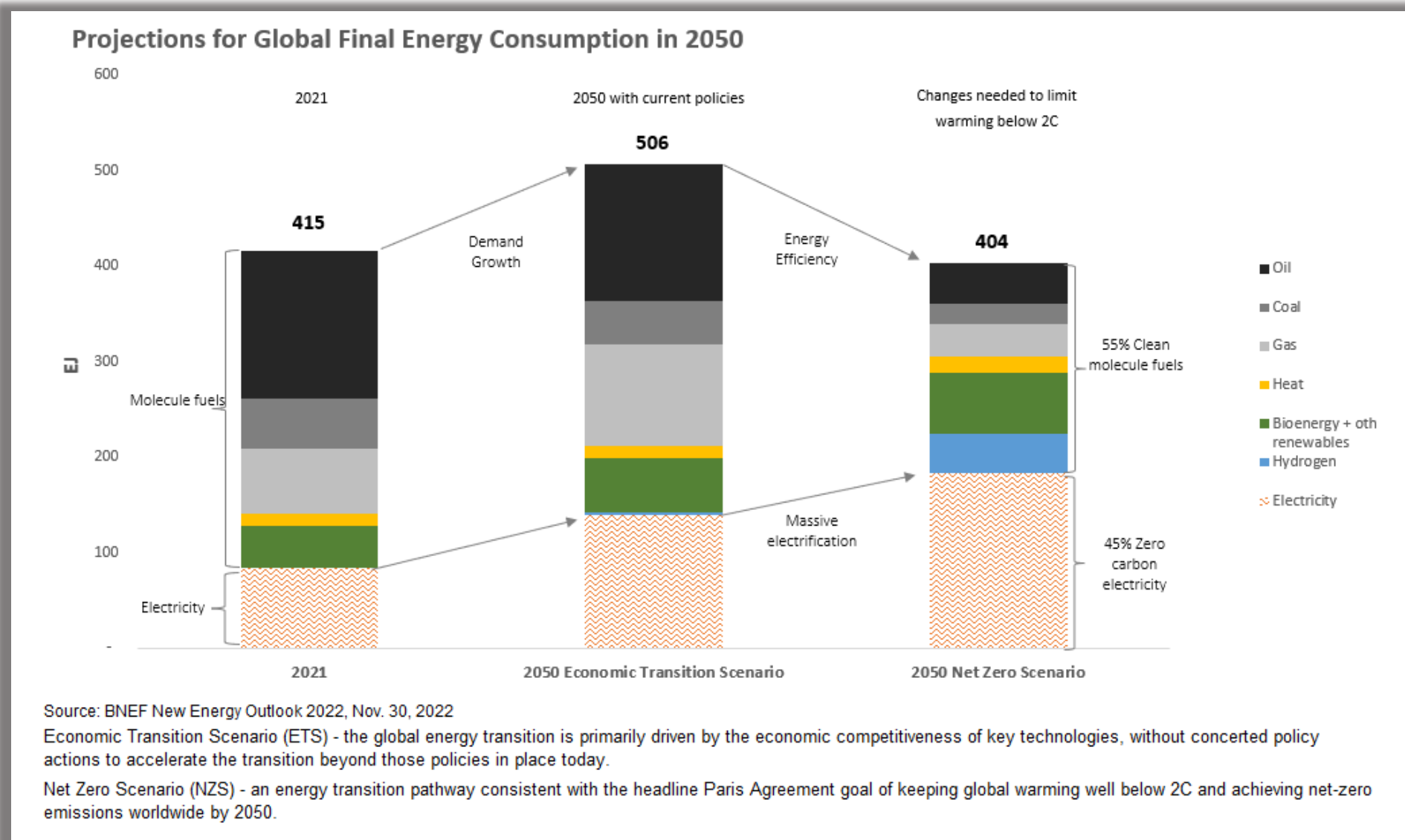
Industrial



Faster Reduction In Fossil Fuel Use

All sectors – the easy- and hard-to-electrify alike – will have renewable and sustainable alternatives to fossil fuels.

We Have To Start Planning Now For The 55% Of The Energy Demand That Cannot Be Electrified



Breaking Out Of GH2's "Chicken-and-Egg" Problem

Achieving Mass-scale, Low-delivered Cost GH2 Requires Infrastructure

Infrastructure and Economies of Scale



Cost of Green Hydrogen



Getting Started Requires a Large, Scalable Offtaker

In the GHC's HyBuild LA initiative, we evaluated 4 potential scaled green hydrogen market uses that could drive scale as the first off takers, enabling adoption from other sectors:



Oil Refineries
(largest gray H2
users in CA today)



Ammonia
Production
(none in CA)



Steel Manufacturing
(none in CA)



Clean, Dispatchable
Power Generation

Power sector applications are not the end-game for green hydrogen. However, the short-term need for a clean, dispatchable fuel will accelerate scale, rapidly reducing costs and catalyzing adoption for mobility off takers

Key Principles to Achieving a Just Clean Energy Transition



Environmental
Integrity



Innovation



Technological
Competition



Collaboration



Just Transition

3 Key Recommendations to Enable GH2 to Accelerate the Just Energy Transition

Establish a technologically neutral definition for renewable hydrogen

Recognize statutory precedent for defining renewable feedstocks based on RPS

Encourage innovation and competition

Leverage scalable and cost effective organic waste H2 production pathways

Ensure all projects are responsibly deployed in partnership with communities

Prioritize community co-creation

Require projects to meet all relevant air quality and water standards

Reinvest benefits into the communities

Develop shared infrastructure and prioritize near-term applications that can scale and deliver community benefits

Prioritize locations with the worst air pollution, which affect communities of concern

Prioritize infrastructure development for applications that can scale to achieve low-delivered cost

Ensure a sustainable value proposition to accelerate fuel-switching

A landscape photograph of a hillside with several wind turbines. The sky is a mix of orange, red, and blue, suggesting a sunset or sunrise. The overall tone is warm and serene.

Thank You!

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