



Hydrogen

Overview

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Hydrogen Shot Summit



Hydrogen

Hydrogen Energy Earthshot

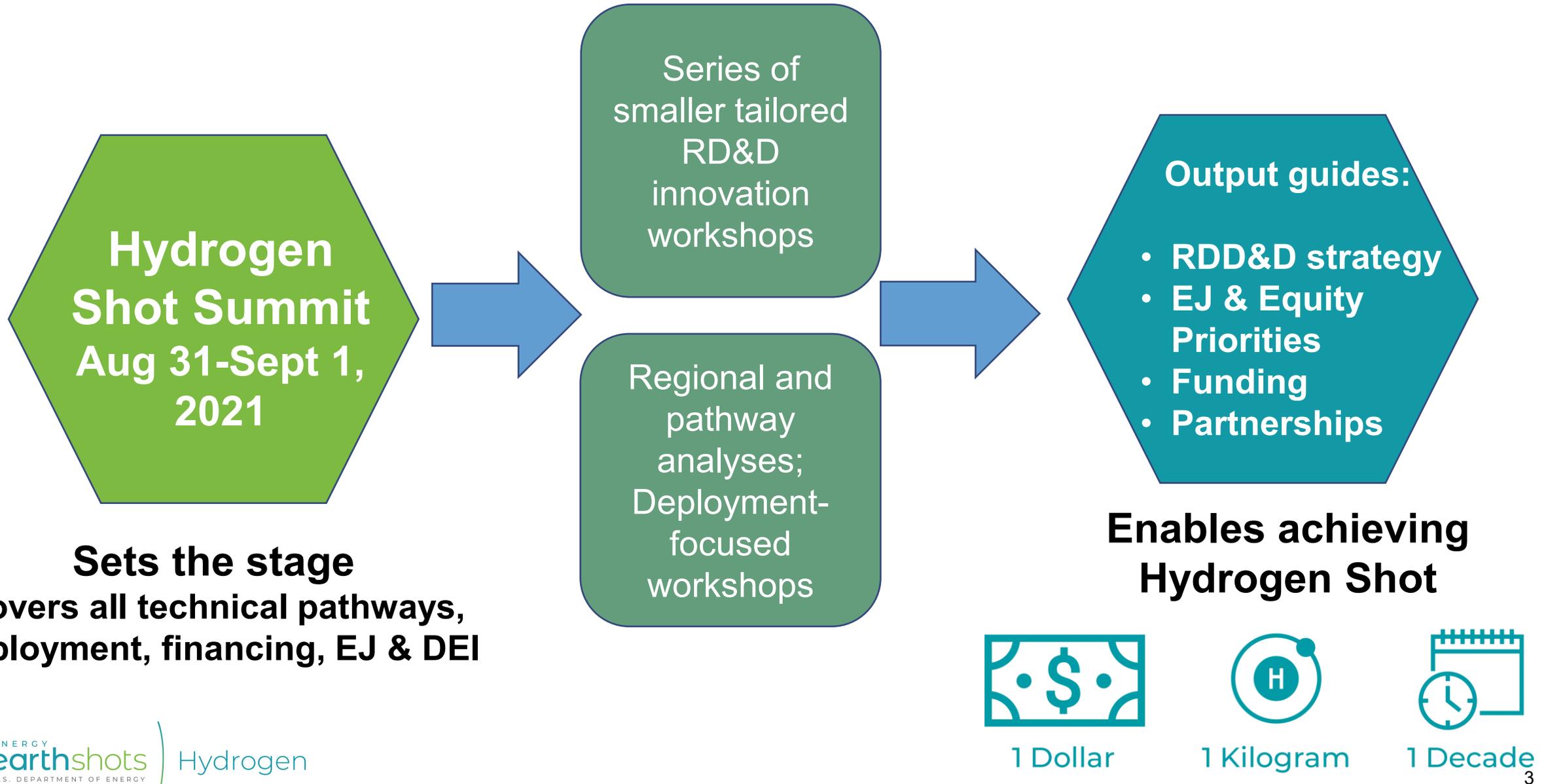
“Hydrogen Shot”

“1 1 1”

\$1 for 1 kg clean hydrogen
in 1 decade

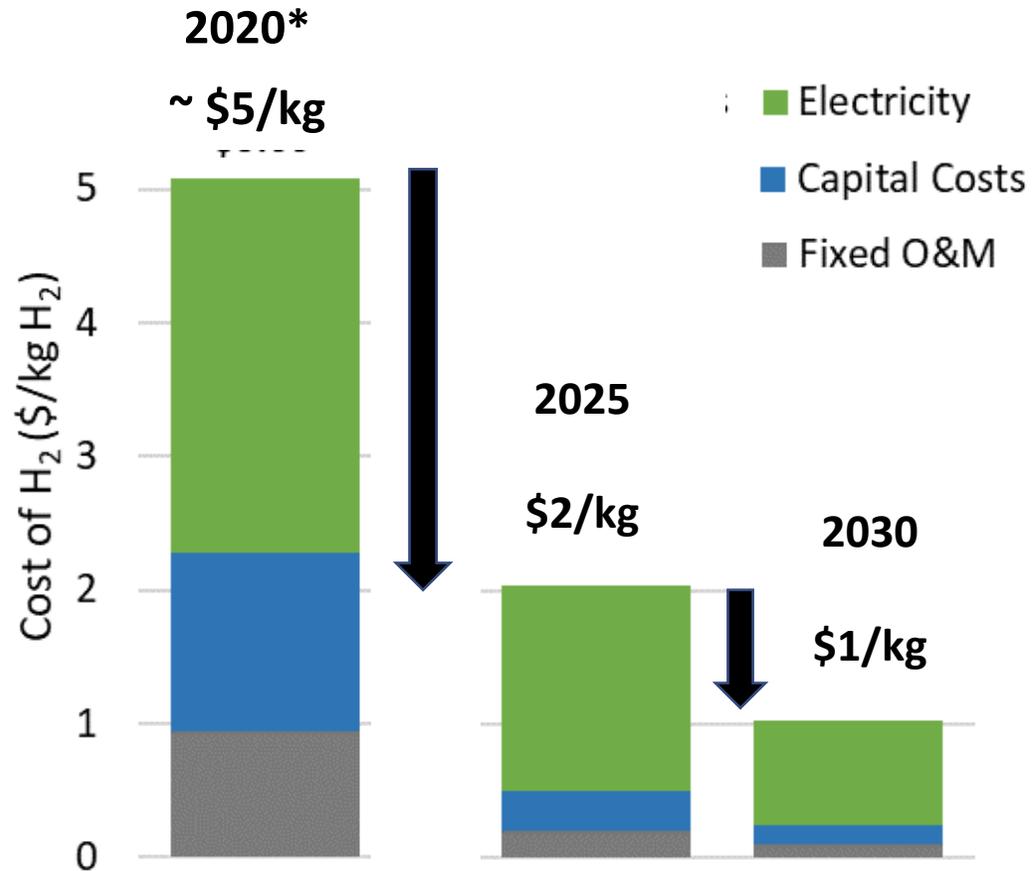


Context



Breakout Session 1: Electrolysis

Example: H₂ Cost from PEM Electrolysis



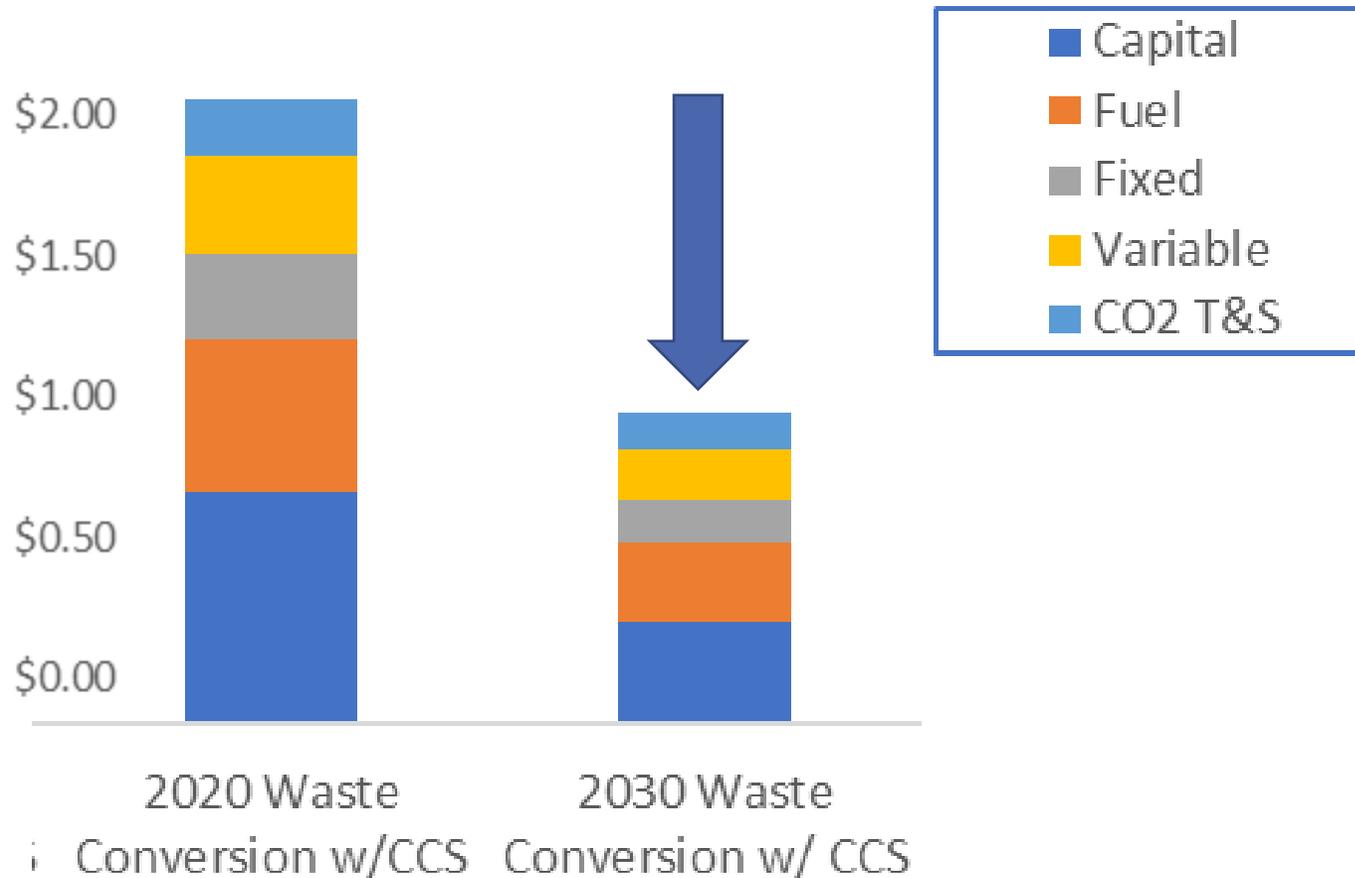
*2020 Baseline: PEM (Polymer Electrolyte Membrane) low volume capital cost ~\$1,500/kW, electricity at \$50/MWh. Pathways to targets include capital cost < \$300/kW by 2025, < \$150/kW by 2030 (at scale). Assumes \$50/MWh in 2020, \$30/MWh in 2025, \$20/MWh in 2030

Pathways to meet Goal

- Reduce electricity cost and improve efficiency and utilization
- Reduce capital cost >80%
- Reduce operating & maintenance cost >90%

Breakout Session 2: Thermal conversion

Example: H₂ Cost from Waste Conversion + CCS



* Waste coal, plastics, biomass residuals, municipal solid waste (MSW), and biogas

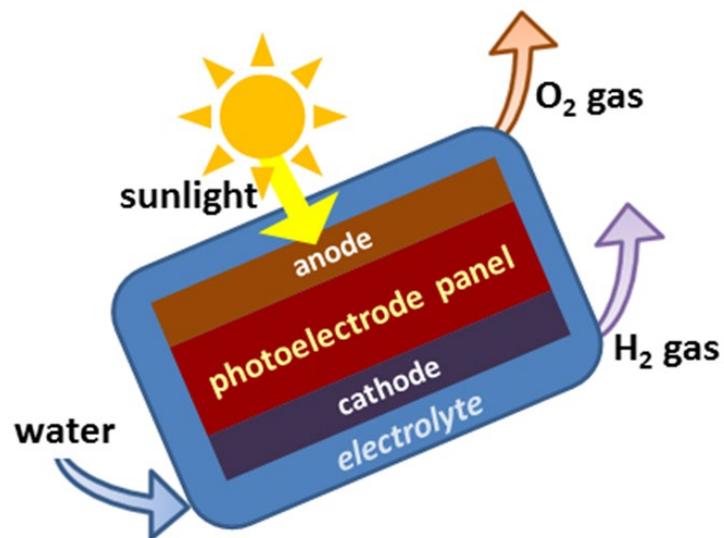
Examples of RD&D

- Includes reforming, pyrolysis, and other pathways with focus on low life cycle emissions
- Process intensification and optimization
- Improvements in air separation, catalysts, carbon capture, and upstream emissions

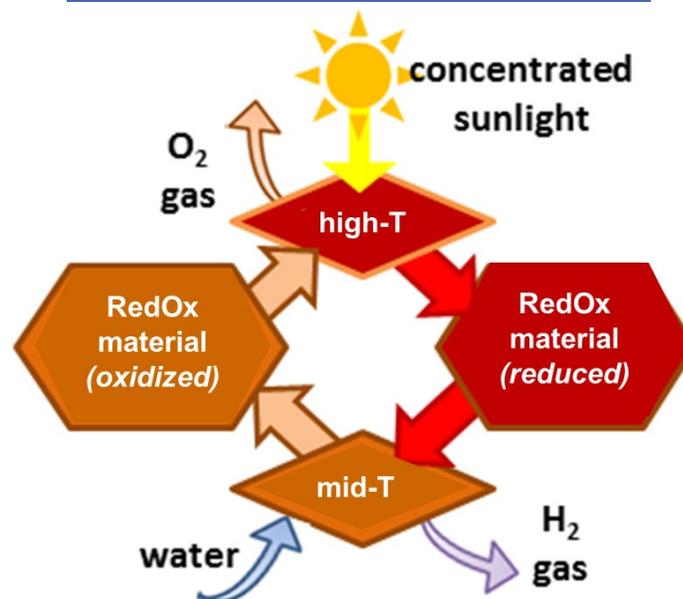
Breakout Session 3: Advanced Pathways

Includes higher-risk/high-reward approaches. R&D needed on efficiency, durability, and cost.

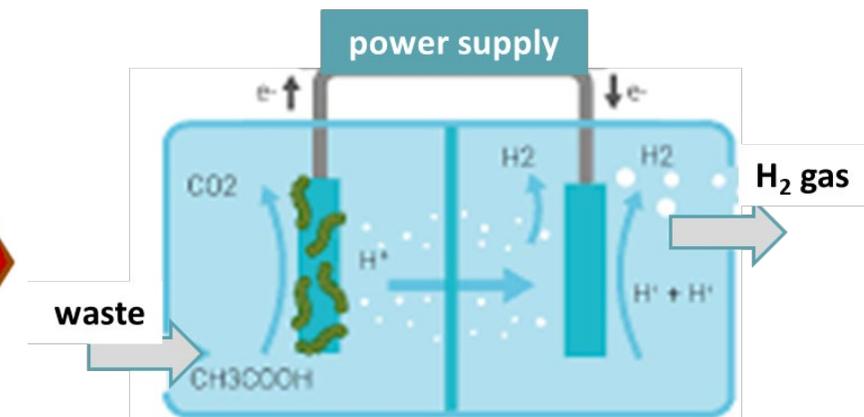
Photoelectrochemical solar water splitting (PEC)



Thermochemical solar water splitting



Microbial electrolysis of waste streams

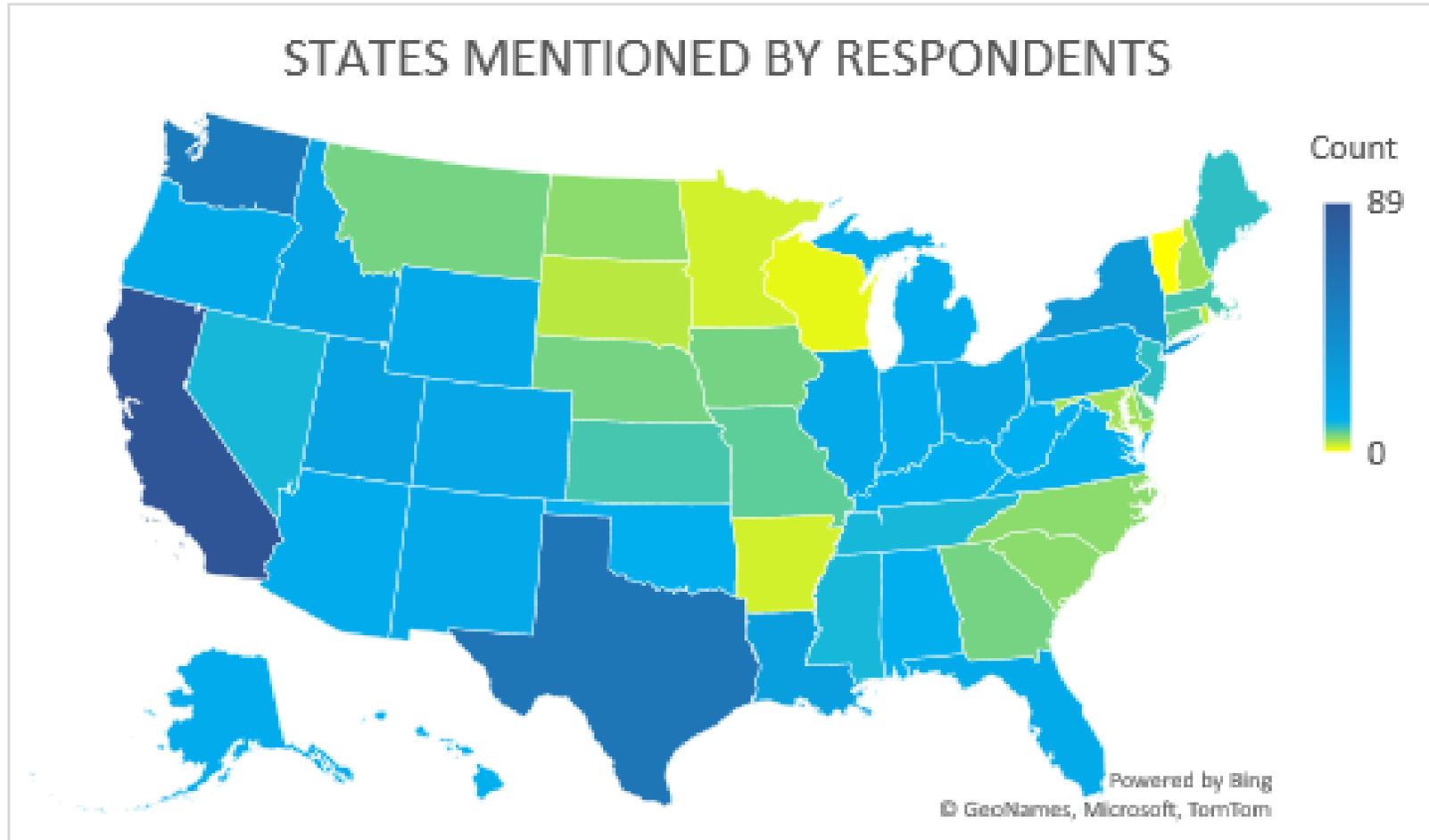


Basic and foundational science and innovation applies to all pathways

Results of Office of Science Round Table coming soon

Breakout Session 4: Deployment and Financing

Includes regional, EJ, tribal, investor, and industry perspectives



Over 200 RFI responses described diverse resources, end-uses and impact potential in various regions



**Collaboration
Diversity, Equity, Inclusion
and
Environmental Justice**

**“No one can whistle a symphony. It takes
a whole orchestra to play it.”
- *H. Luccock***

Thank you!

www.energy.gov/eere/fuelcells/hydrogen-shot

Active on social media?

#HydrogenShot