



Zero Emissions: Where We Are and the Road Ahead

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ICT Targets & Current Funding



LEGEND

1. Transit Building
2. Seating under Breezeway
3. Solar Panels on South and West Facing Sides of the Transit Building
4. North Bus Shelter
5. Bike Lockers
6. Bike Lanes
7. East Bus Shelter
8. Electric Bus Charging Stations (3 Stations)
9. Parking Area (19 Spaces)
10. Electric Vehicle Charging Station
11. Greenspace Area with Park Benches and Low Maintenance, Drought Tolerant Plant Materials
12. Fence
13. Crosswalk
14. Concrete Sidewalk
15. Existing Tree

NOTES:

- Landscaping to be low maintenance, drought tolerant, and allow easy visibility for security (see standards for Crime Prevention Through Environmental Design)
- Benches to be designed to not encourage overnight uses.
- Solar lighting to be used throughout the site.



- ▶ Hybrid fleet – maybe?
- ▶ \$12.9M of TIRCP Cycle 2 funds
 - ▶ Transit Center
 - ▶ H2 infrastructure
 - ▶ FCEB x4
- ▶ LCTOP
- ▶ SB 125

Challenges

- ▶ Allocation of current funds
- ▶ Small Footprint
 - ▶ BEB vs FCEB
 - ▶ H2 infrastructure
- ▶ No Cutaway FCEBs
- ▶ Long-term funding



RIDE THE BUS

HTA

HUMBOLDT TRANSIT AUTHORITY

Humboldt Transit Authority

Zero Emission Successes and Challenges

Session: Sharing is Caring (and Efficient)

Jerome Qiriazhi, Transit Planner
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707-433-0826 x112

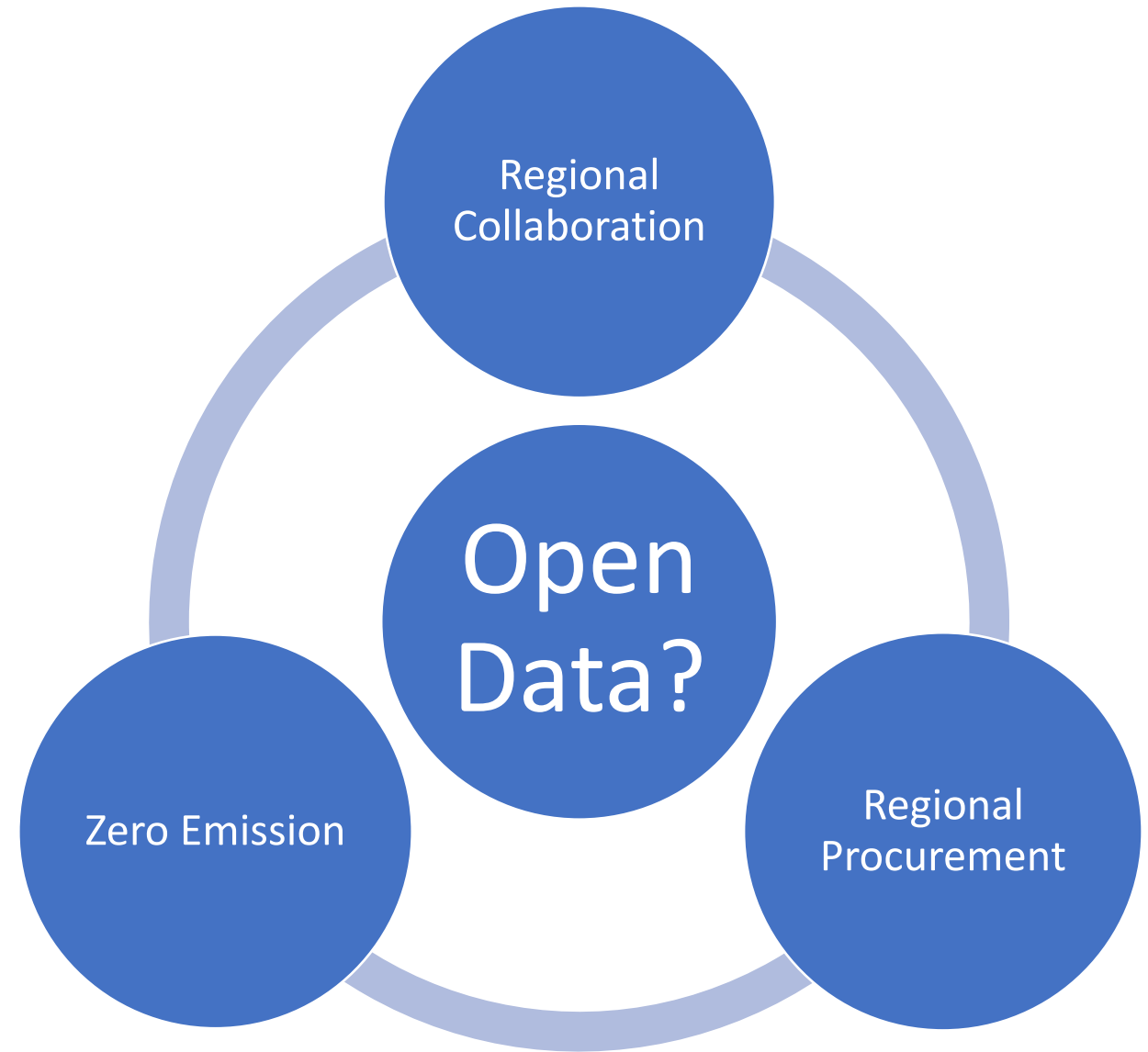
SUCCESSSES

- Regional Collaboration:
 - North State Transit Working Group
 - North State Transit Symposium
- Regional Procurement:
 - Cal-ITP
 - Proposed hydrogen fuel procurement
- Open Data:
 - GTFS and GTFS-RT
 - API access from some services (not really open data but can achieve the same goals)
- Zero Emission:
 - Secured bus and fueling infrastructure funding to kick start transition

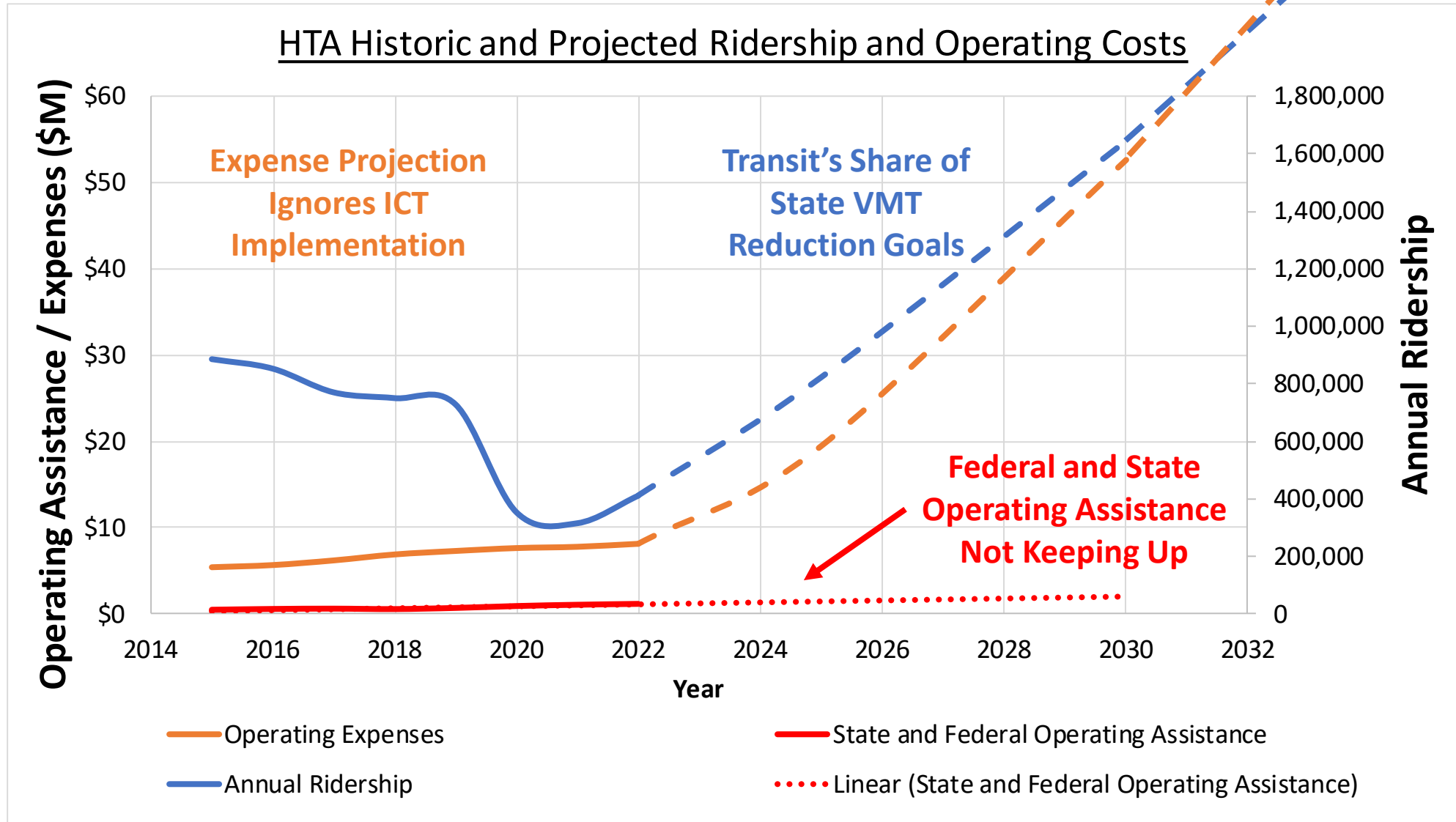


QUESTIONS

- Can open data help accomplish and/or improve these successes?
- What challenges can open data help address?



CHALLENGE: OPERATIONAL FUNDING



RIDE THE BUS

HTA

HUMBOLDT TRANSIT AUTHORITY

Humboldt Transit Authority

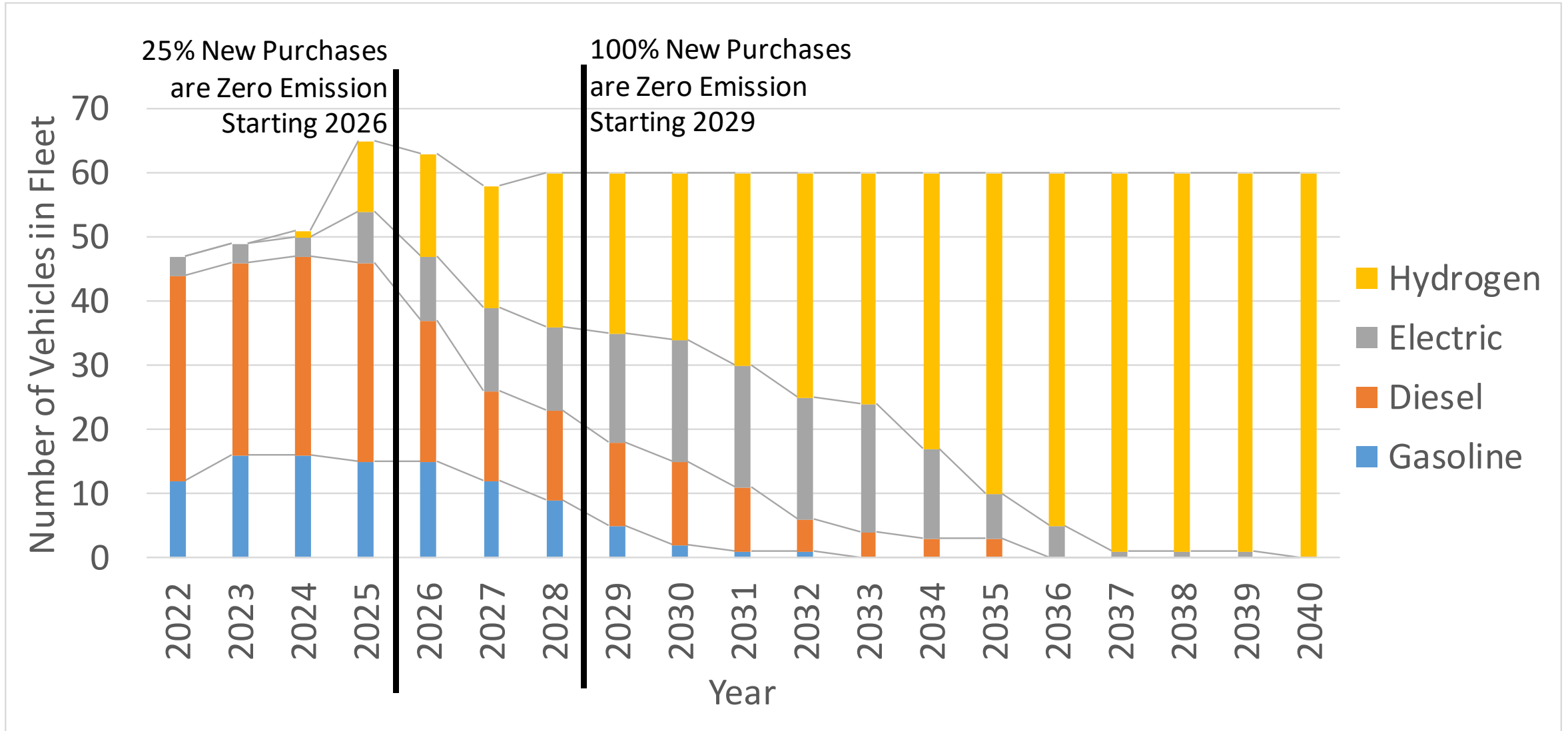
Thank You

Jerome Qiriazhi: Transit Planner

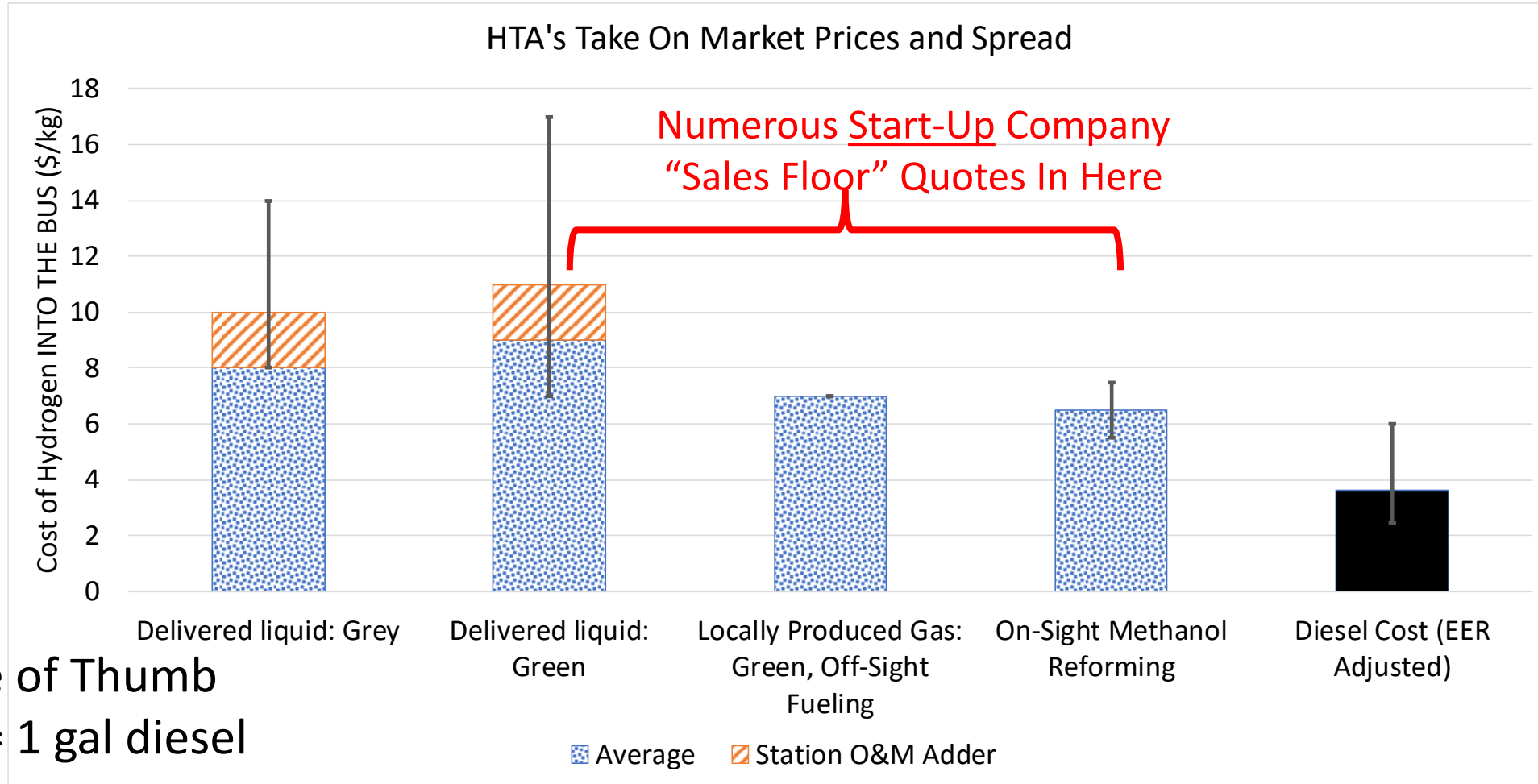
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ZERO EMISSION TRANSITION



CHALLENGE: OPERATIONAL FUNDING



CHALLENGE: OPERATIONAL FUNDING



Humboldt County Association of Governments
HCAOG ✨ Regional Transportation Plan

VROOM ✨ **2022-2042**
Variety in Rural Options of Mobility

This plan is available online at hcaog.net

- Increase the percentage of all trips, combined, made by walking, biking, micro-mobility/matched rides, and transit to at least 30% by 2030 and 40% by 2050. **≈10x Increase**
- Double transit trips (including mobility on demand trips) by 2025, and again by 2030, and again by 2040. **= 8x Increase**
- Reduce VMT per capita by at least 25% by 2030, and 40% by 2050 (VMT includes zero-emission trips)
- By 2024 hydrogen fuel is available for public transit and long-haul commercial fleet vehicles, with green hydrogen fuel available as much and as soon as possible
- By 2030, there is sufficient hydrogen fueling infrastructure and green hydrogen fueling available to enable inter-county travel of medium and heavy-duty fuel-cell EVs.
- 100% of public fleet work vehicles are zero emission by 2036

Introduction to Cal-ITP and Rebel



- ▶ Statewide initiative designed to unify transit in California with fare payment systems, real-time data standards, and seamless verification of eligibility for transit discounts

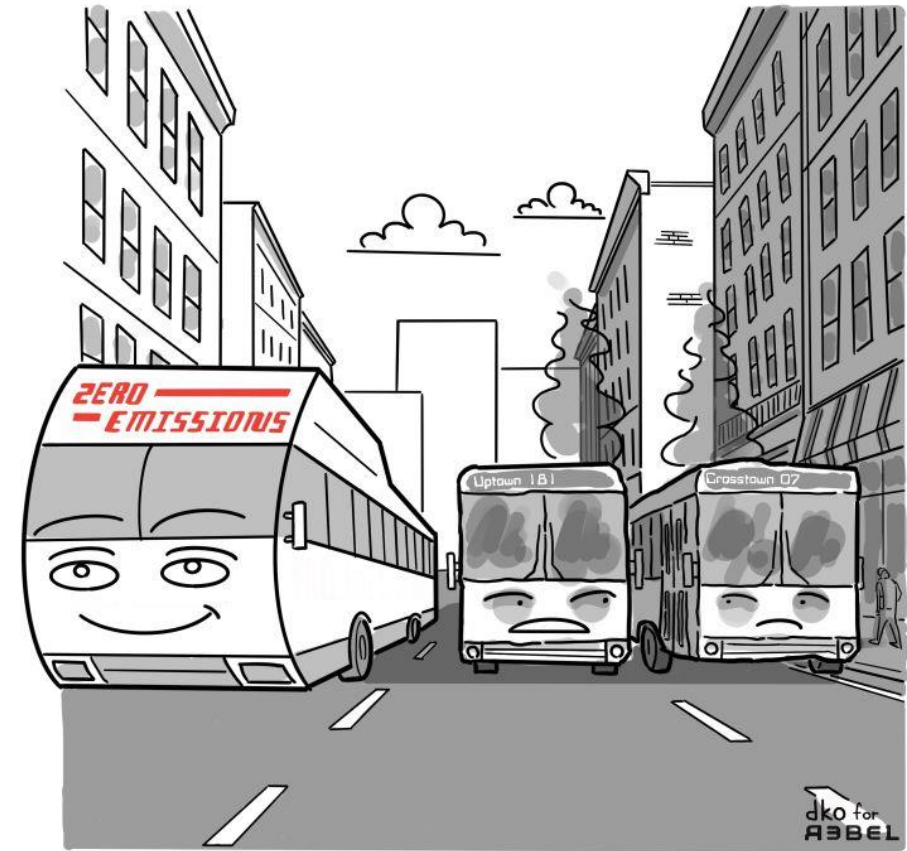


- ▶ Specialized infrastructure finance and policy consulting firm, focused on innovative funding and financing, alternative delivery models (including P3s), technology procurement and contracting, and business case analysis



Focus on Zero Emission Transition

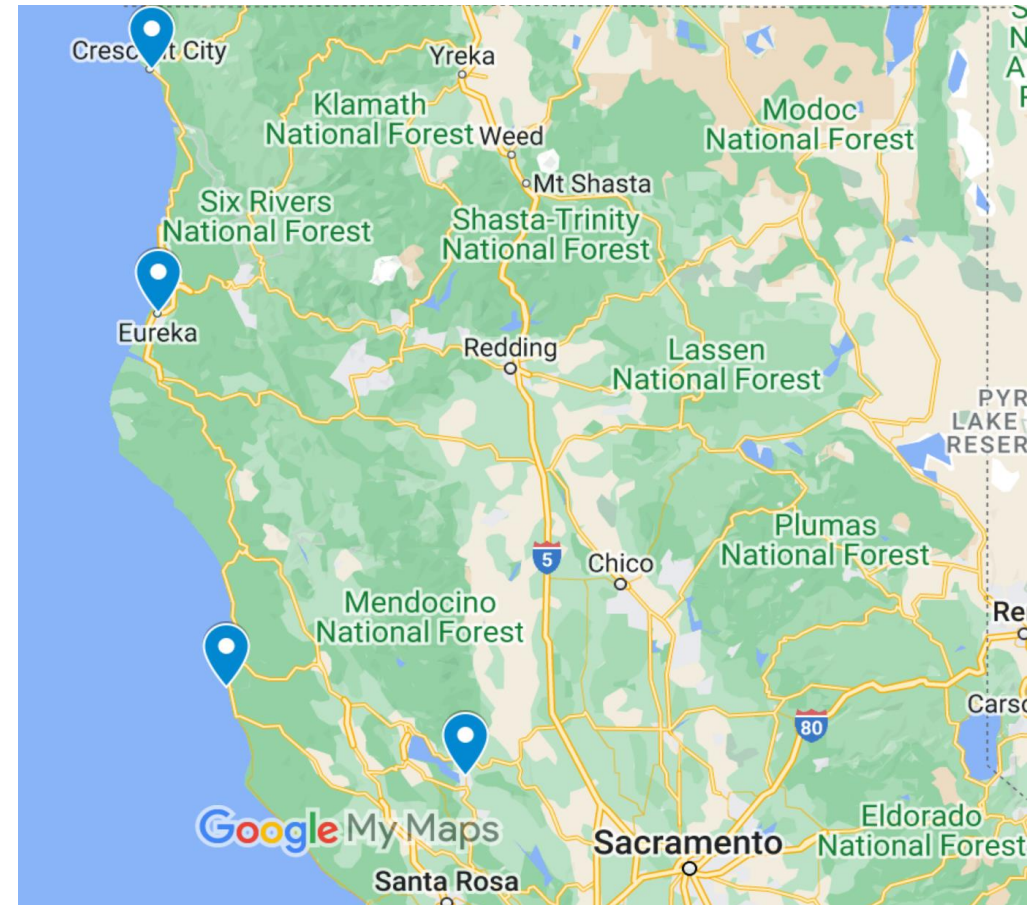
- ▶ Working with Cal-ITP / DGS on MSAs for transit technology (payments, GTFS)
- ▶ Working with FHWA on performance-based contracting for DCFC infrastructure under NEVI
- ▶ Working with Mineta Transportation Institute on studying ZEB barriers and opportunities
- ▶ Working with Caltrans on a ZEB Market Sounding and demonstration projects
- ▶ Working with Caltrans on a ZEB maintenance and asset management strategic plan
- ▶ Working with GO-Biz, our transit partners in the North State Super Region, and other stakeholders on a FCEB Business Case Analysis



“That’s it. Starting Monday, I’m eating clean too.”

Zooming into the FCEB Business Case Analysis Project

- ▶ NSSR is a consortium of small operators across 16 counties, spanning a large, geographically diverse and rugged area
- ▶ Operators face significant challenges including long-term funding uncertainty, insufficient staff resources, coordination needs, and navigating a nascent and rapidly evolving industry
- ▶ FCEB Business Case project will convene an interagency working group to investigate, define, and validate potential state-led concepts to be assessed via business case analysis



4 agencies participating in Cal-ITP contactless payments project: Humboldt, Mendocino, Lake and Redwood Coast

Key Questions for the Study

- ▶ How can small and rural transit agencies manage the substantial incremental operating costs of FCEBs without impacting service or reliability?
- ▶ How should transit agencies optimize the scope and scale of their fueling and maintenance infrastructure investments?
- ▶ How should transit agencies deliver fueling and maintenance infrastructure investments that are substantially different from the facilities and infrastructure that they have previously built, owned, and operated?



Test of New Flyer FCEB in Humboldt County (loaned by AC Transit)



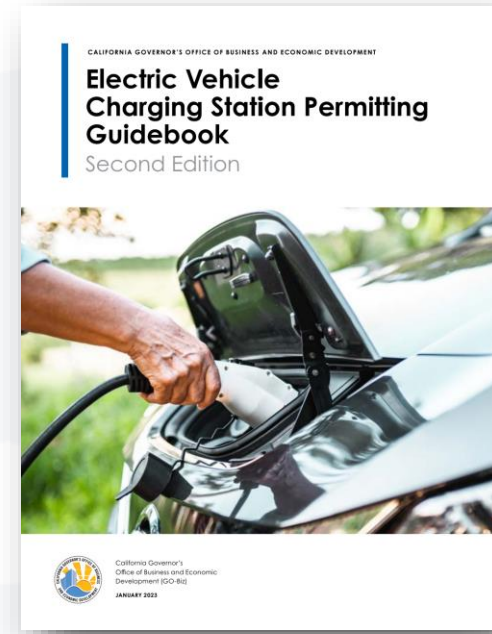
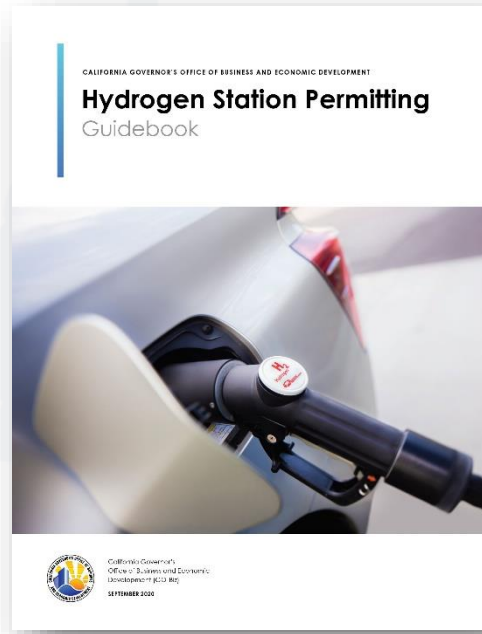
Sharing is Caring

CALACT Fall 2023 Conference

November 2, 2023



Zero Emission Vehicle Market Development



- State agency alignment and coordination
- Industry collaboration and collective problem-solving
- ZEV-related business support
- Fueling infrastructure permitting assistance
- Existing and proposed regulatory navigation assistance
- Coordinate with Caltrans, CARB, and CEC to support ZEB deployment



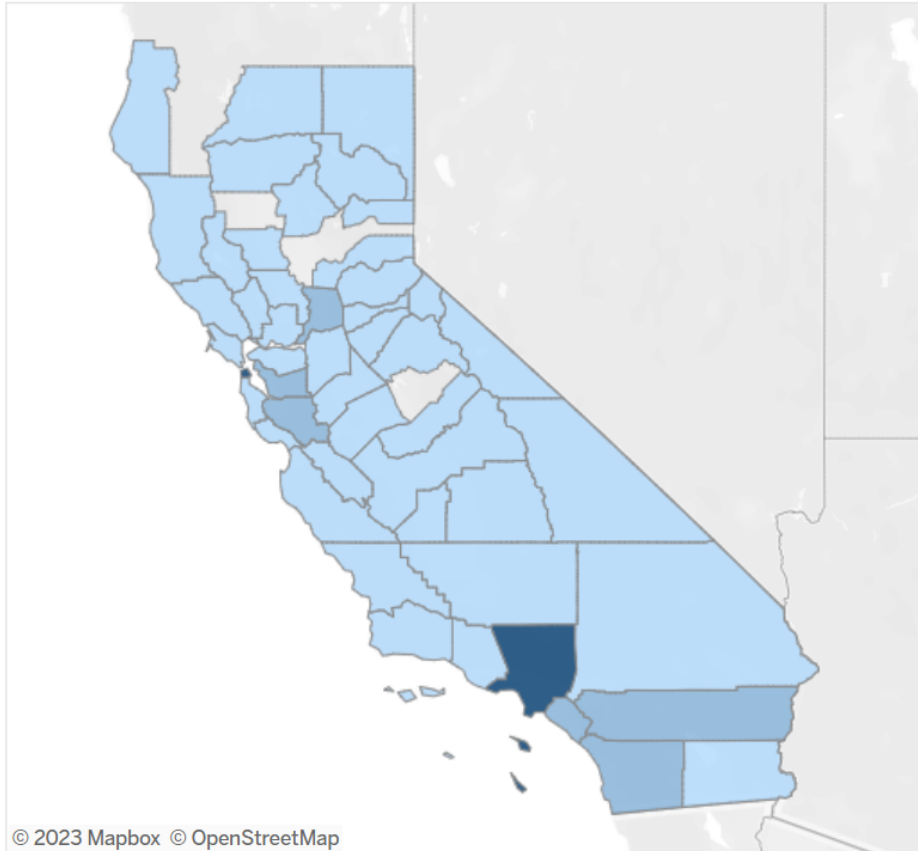
2022 MEDIUM- & HEAVY-DUTY ZEV POPULATION

Total Medium- & Heavy-Duty ZEVs end of 2022

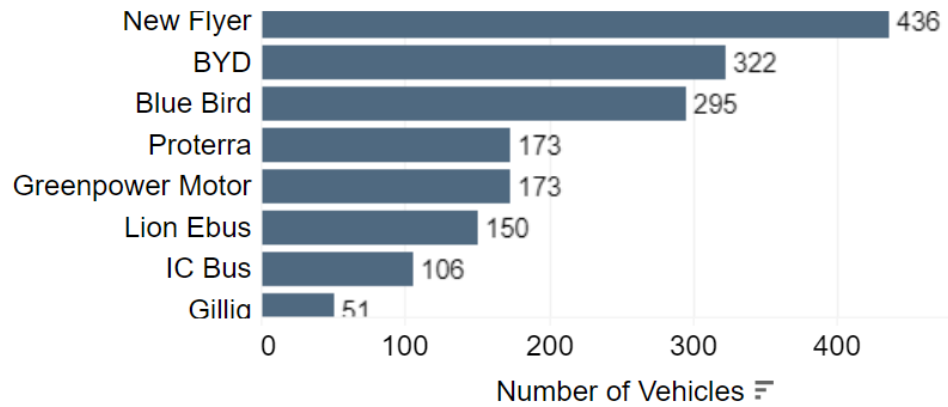
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Bus

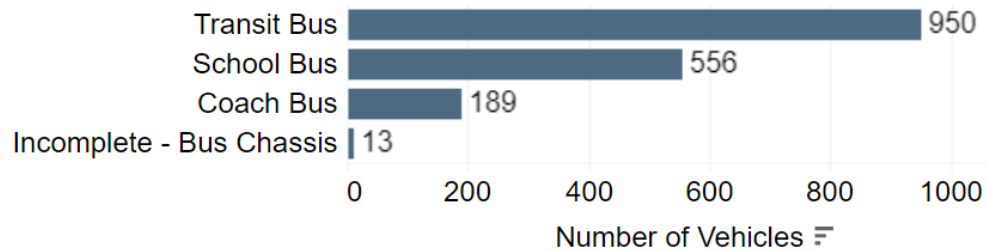
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Manufacturer



Body Style



SELECT FILTERS

County
(All) ▾

Manufacturer
(All) ▾

Fuel
(All) ▾

Weight Class
(All) ▾

Vehicle Type
Bus ▾

Legend
■ Bus



Number of Vehicles



For additional information about the data and how to cite this visualization, see the [Dashboard](#).

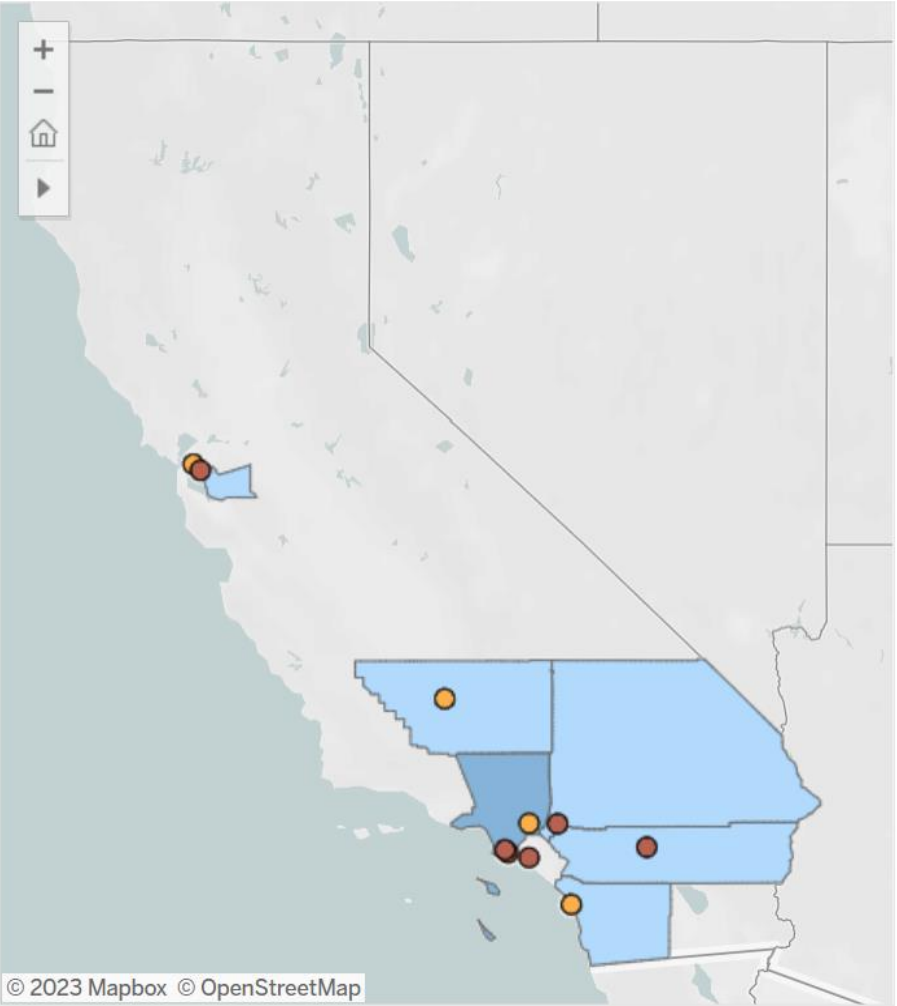
HYDROGEN REFUELING STATIONS

Heavy- Duty Operating

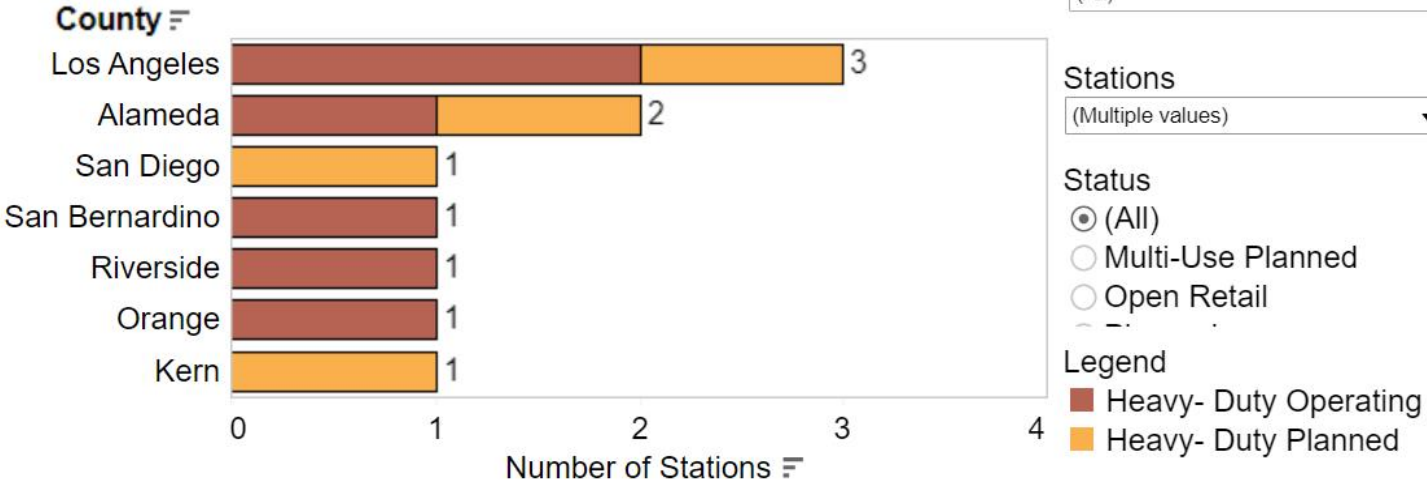
6

Heavy- Duty Planned

4



Hydrogen Refueling Stations by County



	Numbers as of October 25, 2023	Total
FCEVs—Fuel cell cars sold and leased in US*		17,594
FCEBs—Fuel cell buses in operation in California		66
Fuel cell buses in development in California		>103
Hydrogen stations available in California**		55

Number of Stations



Statewide Initiatives Supporting ZEB Deployment

- **Objectives**

- Create a business-friendly environment for ZEB deployment
- Collaborate to remove roadblocks

- **Examples**

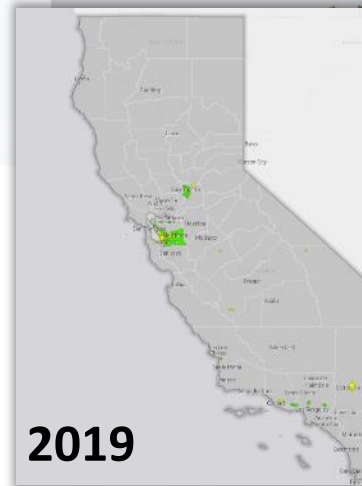
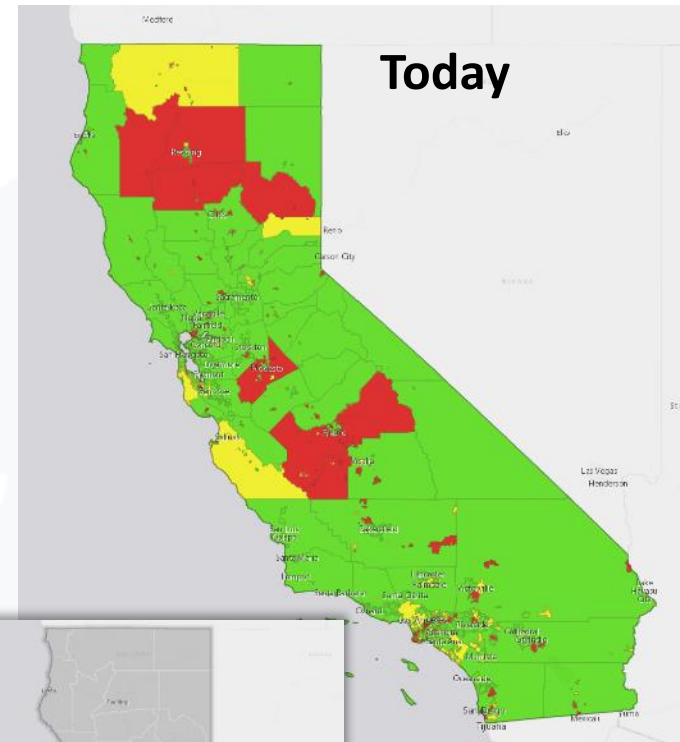
- Direct funding support (TIRCP, LCTOP, HVIP, ENERGIIZE, Carl Moyer, etc.)
- Infrastructure permit and development streamlining
- Statewide procurement contracts (ZEBs, hydrogen, etc.)
- Market understanding and approach (Business case study, H2 Market Development Strategy)
- Coordination for federal funding applications (ARCHES, CFI, etc.)
- Flexibility allowing state funding as matching fund (HVIP)
- Legislative support (SB 350, AB 2622, etc.)



Charging & Fueling Station Permit Streamlining

AB 1236 Compliance

- Streamlining legislation
 - AB 1236 & AB 970 – administrative approval for EV charging stations and timeline for issuing a permit
 - SB 1291 – extends process to H2 stations
- Support for local jurisdictions and project developers
 - Resources: Permit Streamlining Guidebooks, fact sheets, model ordinances, etc.
 - Direct assistance



Scoring Criteria:	Complete if:
<input type="checkbox"/> 1. Streamlining Ordinance Ordinance creating an expedited, streamlined permitting process for electric vehicle charging stations (EVCS) including level 2 and direct current fast chargers (DCFC) has been adopted.	– Streamlining ordinance has been adopted
<input type="checkbox"/> 2. Permitting checklists covering L2 and DCFC Checklist of all requirements needed for expedited review posted on city or county website.	– Permitting checklist is available and easily found on city or county website
<input type="checkbox"/> 3. Administrative approval of EVCS EVCS projects that meet expedited checklist are administratively approved through building or similar non-discretionary permit.	– The streamlining ordinance states that permit applications that meet checklist requirements will be approved through non-discretionary permit (or similar)
<input type="checkbox"/> 4. Approval limited to health and safety review EVCS project review limited to health and safety requirements found under local, state, and federal law.	– The streamlining ordinance states that no discretionary use permit is required and permit approval will be limited to health and safety review
<input type="checkbox"/> 5. Electronic signatures accepted AHJ accepts electronic signatures on permit applications.*	– Electronic signatures accepted on City or County website (usually specified in the ordinance)
<input type="checkbox"/> 6. EVCS not subject to association approval EVCS permit approval not subject to approval of an association (as defined in Section 4080 of the Civil Code).	– The streamlining ordinance states that EVCS permits do not require association approval
<input type="checkbox"/> 7. One complete deficiency notice AHJ commits to issuing one complete written correction notice detailing all deficiencies in an incomplete application and any additional information needed to be eligible for expedited permit issuance.	– The streamlining ordinance dictates that a written correction notices must detail all deficiencies



<https://business.ca.gov/industries/zero-emission-vehicles/>



Statewide Hydrogen Procurement Contract

- Enable easier access to (more) affordable clean hydrogen
- Performed transit agency and H2 provider interviews + collaboration with agencies to develop formal DGS request
- Actively under development at DGS
- Process and timeline (subject to change):
 - RFI: Nov-Dec 2023
 - Solicitation release: Jan 2024
 - Award: Mar 2024
 - Expected availability ~Spring 2024



Hydrogen Market Development Strategy



The screenshot shows the top navigation bar of the Office of Governor Gavin Newsom website. The main headline is "Governor Newsom Announces New Strategy to Develop a Hydrogen Economy of the Future". The article is dated August 08, 2023. The text states that Governor Gavin Newsom has directed the Governor's Office of Business and Economic Development (GO-Biz) to develop California's Hydrogen Market Development Strategy. The strategy aims to build up California's clean, renewable hydrogen market using an all-of-government approach. It will closely resemble the Zero-Emission Vehicle Market Development Strategy. The article includes a quote from Governor Newsom: "California is all in on clean, renewable hydrogen – an essential aspect of how we'll power our future and cut pollution," said Governor Newsom. "This strategy will lay out the pathway for building a robust hydrogen market to help us fully embrace this source of clean energy." The article also includes a section titled "WHY IT'S NEEDED:" with two bullet points: "Expanding the market for clean, renewable hydrogen is key to achieving California's climate goals – especially for a clean electric grid, net-zero carbon emissions, and drastically cutting air pollution." and "California is currently competing to become a federally funded Hydrogen Hub, a program that will leverage \$8 billion from the Bipartisan Infrastructure Law to establish at least four Hydrogen Hubs across the United States." On the right side of the article, there is a "Recent News" section with several links: "GETTING LOCAL: Protecting People from Wildfires & Disasters", "WHAT THEY ARE SAYING: Kids Groups, Counties & More Respond Positively to Progress on Governor Newsom's Proposed Mental Health Reform", "Governor Newsom Triples CHP Support to Assist Los Angeles in Organized Retail Theft Crack Down", "More Trees, Less Asphalt at School", and "Governor Newsom".

Office of Governor
GAVIN NEWSOM

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Governor Newsom Announces New Strategy to Develop a Hydrogen Economy of the Future

Published: Aug 08, 2023

SACRAMENTO – Governor Gavin Newsom has [directed](#) the Governor's Office of Business and Economic Development (GO-Biz) to develop California's Hydrogen Market Development Strategy, employing an all-of-government approach to building up California's clean, renewable hydrogen market. It will closely resemble the [Zero-Emission Vehicle Market Development Strategy](#) to help California collectively move forward and deliver zero-emission benefits to all Californians.

"California is all in on clean, renewable hydrogen – an essential aspect of how we'll power our future and cut pollution," **said Governor Newsom**. "This strategy will lay out the pathway for building a robust hydrogen market to help us fully embrace this source of clean energy."

WHY IT'S NEEDED:

- Expanding the market for clean, renewable hydrogen is key to achieving California's climate goals – especially for a clean electric grid, net-zero carbon emissions, and drastically cutting air pollution.
- California is currently competing to become a federally funded [Hydrogen Hub](#), a program that will leverage \$8 billion from the Bipartisan Infrastructure Law to establish at least four Hydrogen Hubs across the United States.

Recent News

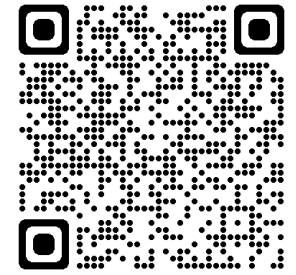
[GETTING LOCAL: Protecting People from Wildfires & Disasters](#)

[WHAT THEY ARE SAYING: Kids Groups, Counties & More Respond Positively to Progress on Governor Newsom's Proposed Mental Health Reform](#)

[Governor Newsom Triples CHP Support to Assist Los Angeles in Organized Retail Theft Crack Down](#)

[More Trees, Less Asphalt at School](#)

[Governor Newsom](#)



Share your ideas
for the H2 Strategy

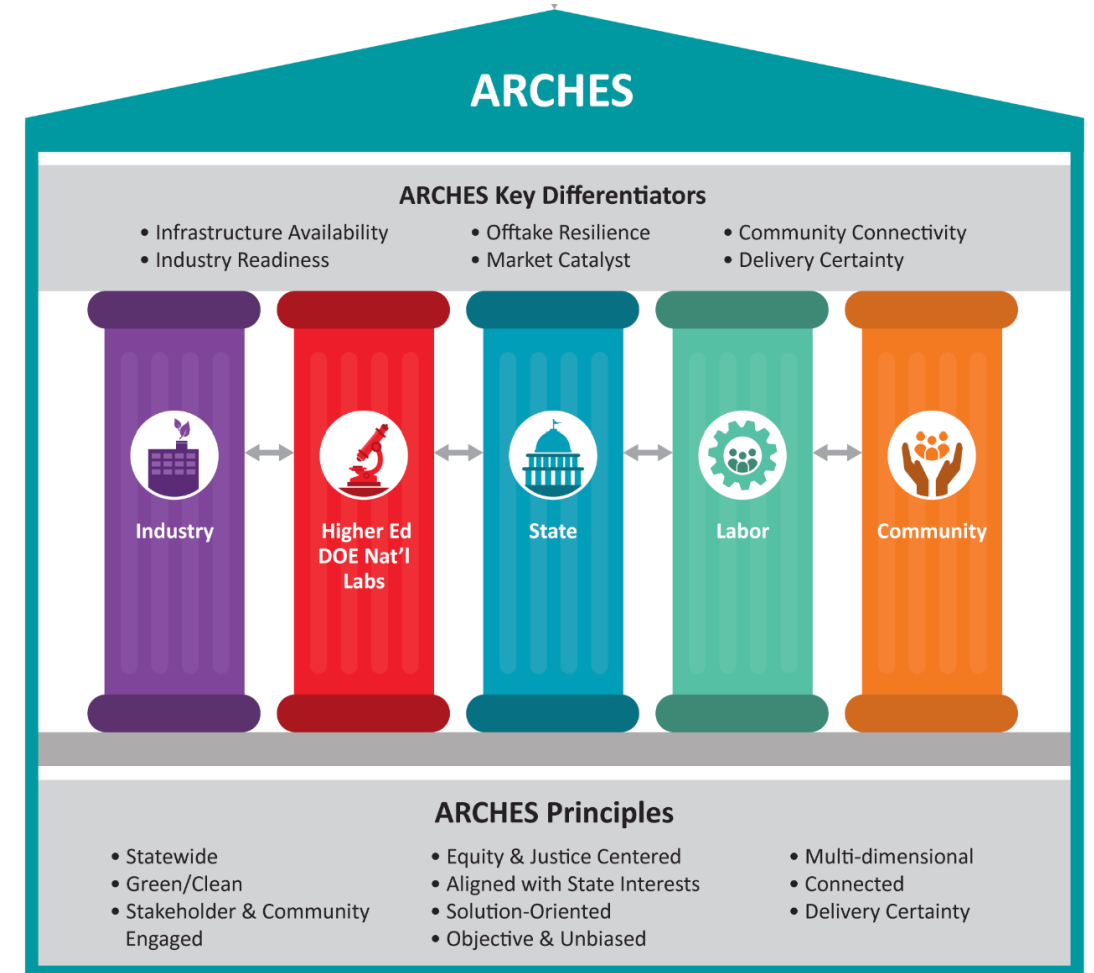




ARCHES

Public-private partnership to create a sustainable statewide renewable, clean hydrogen market and ecosystem in California and beyond.

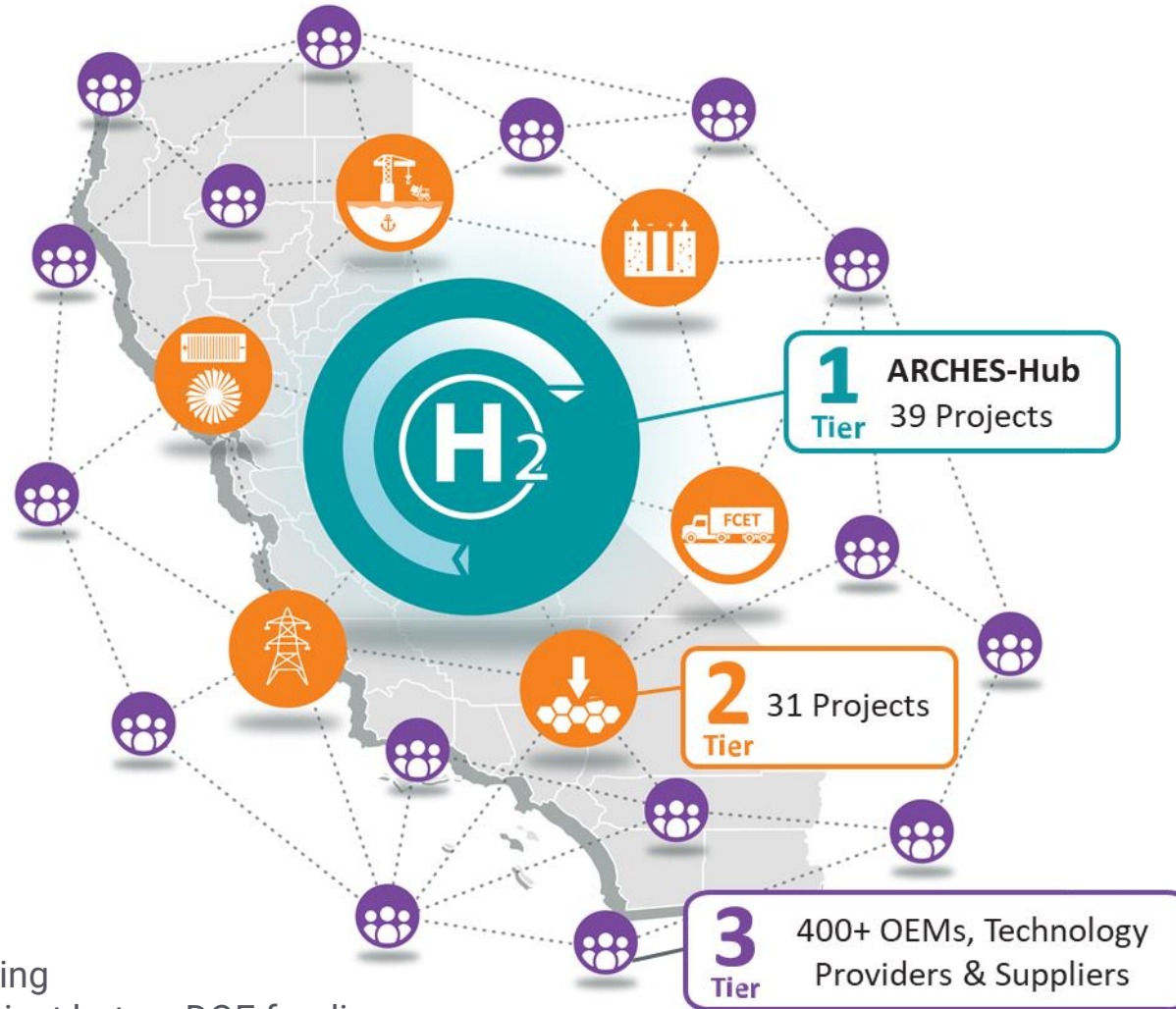
- Establish an exemplary renewable, clean H₂ Hub in California by 2030
- Kickstart commercial viability of H₂
- Initial end use focus: HD Transportation, Ports, Power
- Expand to: Heavy Industry, Aviation, Maritime, Agriculture, and others



Meet CA and National carbon neutrality goals



The Resilient H₂ Ecosystem for California

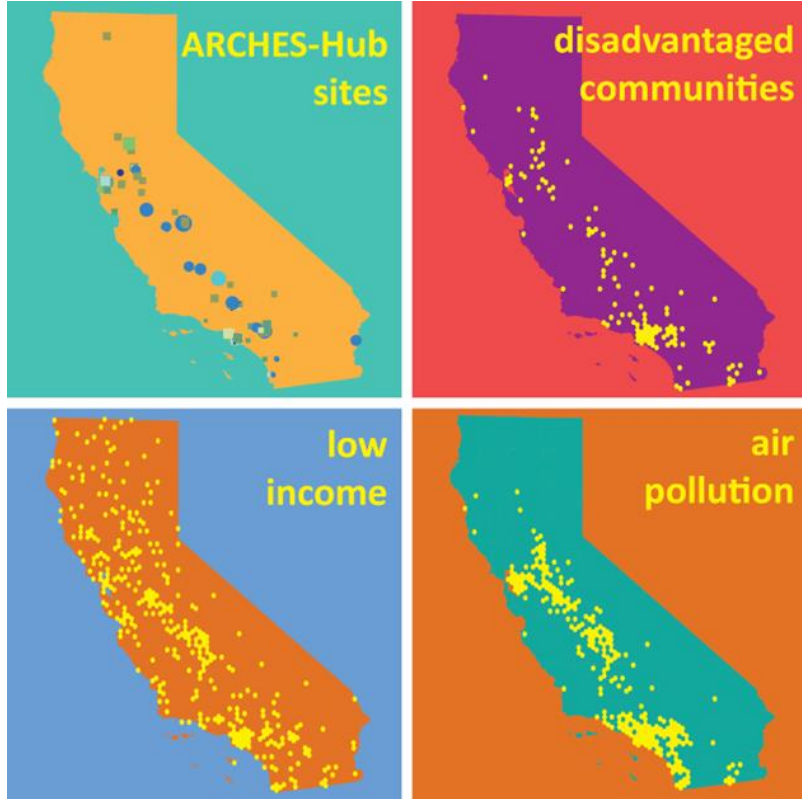


Tier 1 = DOE funding

Tier 2 = viable project but no DOE funding



Communities Will Benefit



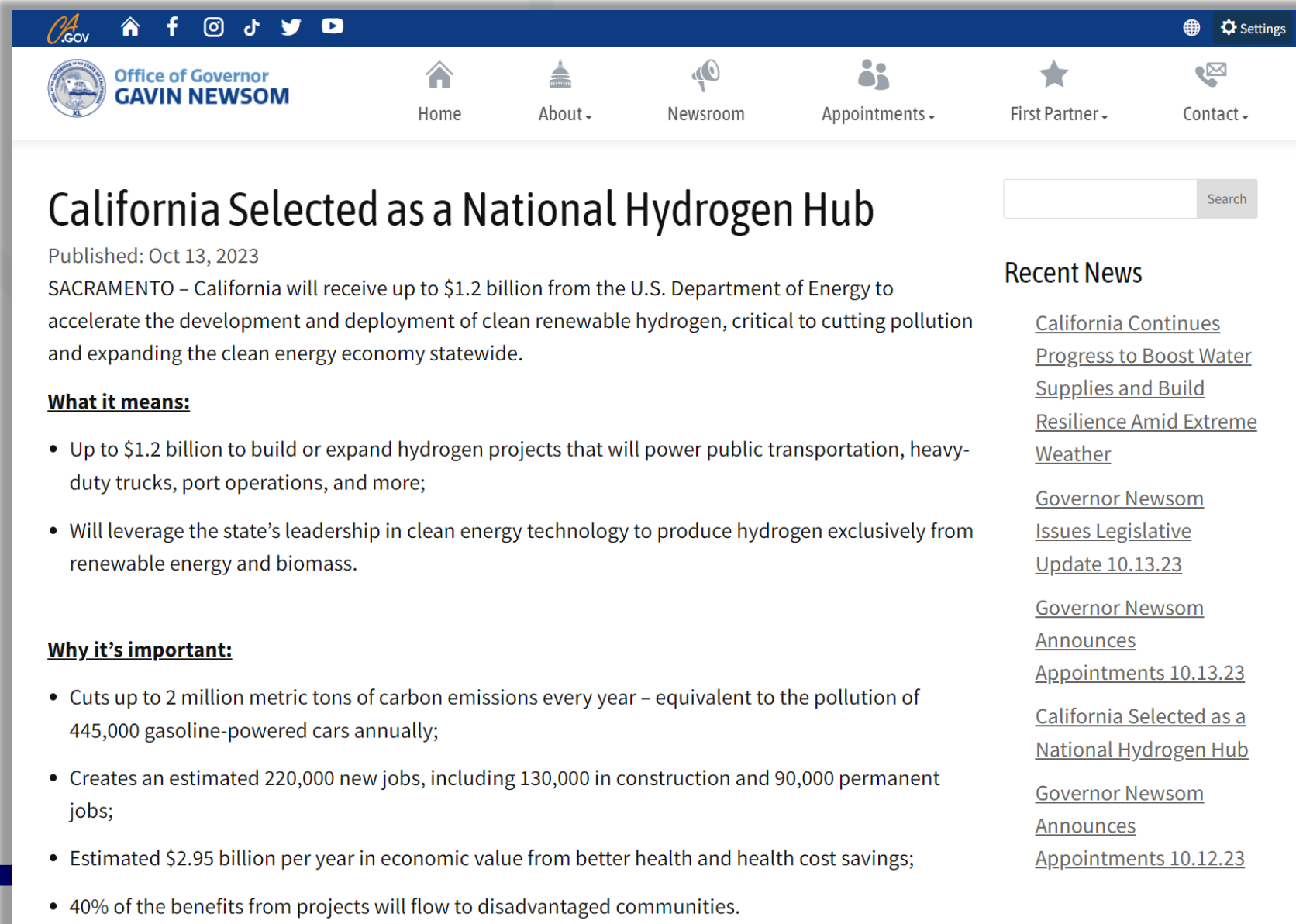
*EJ40 database and CalEnviroScreen

COMMUNITY

- ▲ **\$2.95 billion** Economic value of increased health* and associated health costs savings per year
- ▲ **222,400** Number of jobs created per year
- ▼ **2,097** Fewer hospitalizations for respiratory & cardiac illness per year
- ▼ **13,292** Fewer work loss days per year
- ▼ **6,900** Nitrogen oxide net emissions avoided MTPY
- ▼ **239** Sulfur dioxide net emissions avoided MTPY
- ▼ **326** Particulate matter net emissions avoided MTPY
- ▼ **48** Fewer premature deaths per year
- ▲ **\$380 million** Invested in community benefits & workforce development

*Reduced premature death, asthma, cancer risk, missed work days

ARCHES Awarded Up to \$1.2 Billion



The screenshot shows the website for the Office of Governor Gavin Newsom. The header includes the state logo, social media icons, and navigation links for Home, About, Newsroom, Appointments, First Partner, and Contact. The main content area features a news article titled "California Selected as a National Hydrogen Hub" published on October 13, 2023. The article text states that California will receive up to \$1.2 billion from the U.S. Department of Energy to accelerate clean renewable hydrogen development. It includes sections for "What it means" and "Why it's important" with bulleted details. A "Recent News" sidebar on the right lists several other news items, including one about water supplies and another about appointments.

California Selected as a National Hydrogen Hub
Published: Oct 13, 2023

SACRAMENTO – California will receive up to \$1.2 billion from the U.S. Department of Energy to accelerate the development and deployment of clean renewable hydrogen, critical to cutting pollution and expanding the clean energy economy statewide.

What it means:

- Up to \$1.2 billion to build or expand hydrogen projects that will power public transportation, heavy-duty trucks, port operations, and more;
- Will leverage the state’s leadership in clean energy technology to produce hydrogen exclusively from renewable energy and biomass.

Why it’s important:

- Cuts up to 2 million metric tons of carbon emissions every year – equivalent to the pollution of 445,000 gasoline-powered cars annually;
- Creates an estimated 220,000 new jobs, including 130,000 in construction and 90,000 permanent jobs;
- Estimated \$2.95 billion per year in economic value from better health and health cost savings;
- 40% of the benefits from projects will flow to disadvantaged communities.

Recent News

- [California Continues Progress to Boost Water Supplies and Build Resilience Amid Extreme Weather](#)
- [Governor Newsom Issues Legislative Update 10.13.23](#)
- [Governor Newsom Announces Appointments 10.13.23](#)
- [California Selected as a National Hydrogen Hub](#)
- [Governor Newsom Announces Appointments 10.12.23](#)



We need partnership to succeed...



Thank You!

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