

May 2024

High-Speed Rail Authority (HSR)

ZEV Role: High-Speed Rail will have the state's fastest and highest capacity zero-emission vehicles and fleets. The fleet will be comprised of high-speed trainsets, intercity coaches, light, medium, and heavy-duty on-road vehicles, off-road equipment, and on-rail maintenance equipment. In addition, high-speed rail stations will serve as Zero Emissions Vehicle (ZEV) mobility hubs and provide infrastructure for ZEV charging.

Equity Focus: Prioritize ZEV deployment and implementation in procurement contracts, develop station area plans with an economic development focus, create job training programs in a manner that benefits priority communities and creates more high-road jobs, and provide aid to zero emission vehicle partners.

ZEV Market Development Objectives

1. ZEV Mobility Hubs: Integrate multi-modal ZEV transitions at stations.

Key Collaborators:

all stakeholders

Key Results & Actions:

1.A. Station Area Plans. Complete station area plans that enable multimodal access and include electrical charging hubs.

In Progress & On Track. Continued development of the multimodal access and electrical charging requirements for site planning & amended station related design criteria. Charging infrastructure, type, and provisioning at Central Valley Stations is ongoing as design advances.

Target Due Date Change: Target due date updated to December 2024 from December 2023 as station area plans progress.

1.B. Station Site Design. Design the station sites to be easily adaptable in accommodating anticipated merging technologies.

In Progress & On Track. Included specific values and success metrics for station sites related to topics of smart growth and future preparedness.

Target Due Date Change: Target due date updated to December 2024 from December 2023 as station designs progress.

1.C. Ongoing Stakeholder Engagement. Maintain stakeholder engagement with respect to reaching priority community representatives.

In Progress & On Track. Historical engagement occurred as part of the project's Environmental approval process. Current stakeholder engagement work includes community engagement regarding station area planning efforts. For instance, community and stakeholder outreach is occurring to inform the Fresno Station's Early Station Activation Plan.

Additionally, an Equity and Environmental Justice Gap Assessment is being completed to identify opportunities to improve the Authority's Environmental Justice and community outreach practices.

2. System Resilience. Establish world-class resilience for California's rail system.

Key Collaborators:

CEC, Local & regional government, Electricity Providers, Caltrans

Key Results & Actions:

2.A. Climate Adaptation Plan. Complete a climate adaptation plan to establish and integrate climate hazards as another risk to the program in the mandatory risk assessment process for all system components. Additionally, the climate adaptation plan will include the results of statewide climate change exposure assessments and identify mitigation measures to be included in the design, as well as operations and maintenance to boost overall project resilience.

Completed. A Climate Adaptation Plan was completed in May 2021 which:

- Documents the Authority's work to date to analyze, understand, and prepare for climate change when delivering the CHSR; and
- Outlines the path forward for incorporating climate adaptation into Authority decisions.

Lessons Learned: Meetings and workshops were successful tools for communicating the Climate Adaptation Plan but were not as effective for soliciting feedback. Instead, one on one meetings generated significantly more feedback.

Upcoming: A Climate Adaptation Plan update will be released in Q2 2025, based on updated Climate Data.

2.B. Climate Policy. Complete a climate policy that established and recognizes the Authority's commitment and leadership to reducing greenhouse gas emissions and adapting to an uncertain future.

Completed. The Climate Policy has been finalized, approved and signed into effect as of February 3, 2023.

Lessons Learned: The original scope of the Climate Policy needed to be expanded to allow for a more meaningful and detailed policy that more adequately reflected the depth of the Authority's commitments.

2.C. Renewable Energy Strategy. Complete technical and financial feasibility studies on potential behind the meter solar and battery storage systems. In efforts to create an onsite, decentralized energy hub which will reduce risks and reliance on the grid and supply the statewide system with renewable energy.

Completed. The BESS Conceptual design study was completed in February 2024.

Lesson Learned: The BESS conceptual design study concluded that the solar and battery storage system will be cost saving for the project.

3. ZEV Fleet Contract Requirements. Reinforce ZEV state regulations and policies by requiring ZEV across multiple classes for construction and operation

Key Collaborators:

Vehicle Manufacturers and Supply Chain; Infrastructure Providers

Key Results & Actions:

3.A. Procurement Mandates. Require the procurement of low and no emissions non-heavy duty on-road, heavy duty on-road, and maintenance vehicles through contract mandates.

Completed. The Track and Systems procurement package mandated the use of at least 25% of non-heavy duty on road vehicles, at least 1 heavy duty on-road vehicle be a ZEV, and that the maintenance fleet meet lower emissions standards. All future packages will at a minimum include the above procurement mandates.

Additionally, the Authority completed a ZEV Memo to evaluate the feasibility of requiring the procurement of ZEVs and equipment during the construction of the HSR. The results of this memo inspired a new policy adopted in April 2021 to mandate the following procurement requirements:

- 100% ZEV for on road light and medium duty vehicles in all future procurement packages;
- 100% ZEV for short haul and drayage by 2035, and 100% ZEV for all on road heavy-duty vehicles by 2045; and
- 10% ZEV for off-road equipment by 2035, and 100% ZEV for off-road equipment by 2045.

3.B. Ongoing Knowledge Sharing. Collect and share lessons learned from each construction package and provide progressively more stringent no and no emission vehicle mandates over time.

In Progress & On Track. Collect data on current state of construction equipment across construction packages, including examples of makes and models currently in use. Produce findings and lessons learned report including a study of market readiness and guide to implementation.

3.C. Pilot Implementation of Procurement Mandates. Pilot the implementation of procurement mandates in upcoming construction packages.

Upcoming: Two construction packages coming up for Fresno during 2024 will present an opportunity to implement procurement mandates for zero-emission on-road and off-road vehicles.

4. Market Growth. Support uptake of ZEV equipment in construction and workforce development.

Key Collaborators:

Vehicle Manufacturers and Supply Chain; Infrastructure Providers; Organized Labor; Investors; Academia; International; NGOs; CARB, CEC; CWDB

Key Results & Actions:

4.A. Just Transition. Identify opportunities where new jobs can be created with a special focus on job development for priority communities, during the implementation of the HSR's ZEV Strategy and the state of California's Just Transition Roadmap.

Job Analysis

In Progress & On Track. Since the start of construction, the project has generated over 13,000 jobs across all construction sites, with more than 70 percent going to individuals in disadvantaged communities. Additionally, As of November 2023, the Authority has entered a memorandum of understanding (MOU) with 13 rail labor unions, which will cover an estimated 3,000 workers who will operate and maintain the high-speed trains, facilities, and stations from the Bay Area through the Central Valley and into Southern California.

Target Due Date Change: The target due date updated to December 2024 from December 2023.

4.B. Market Research. Proactively work with state agencies to understand incentives, with vehicle manufacturers to understand market availability, and with academic and international partners for technological advances in the industry. Lessons learned will be collected and used to create a whitepaper by December 2022, and new procurement requirements by December 2023.

Research Report

Completed. The Authority completed a ZEV Memo that reviewed the current market availability and cost of ZEV on-road light-, medium- and heavy-duty vehicles, and off-road equipment for use during the construction of HSR. The intention of the study was to assess the feasibility of replacing vehicles and equipment with ZEV alternatives.

Updated Procurement Requirements

Completed. The project's Design Criteria Manual (Version 5.1) was updated to include emissions criteria regarding on-road and off-road fleet emission requirements, which will be applicable to all future construction packages. (ZEV procurement requirements are summarized in Action 3.A).

Lesson Learned: Continuous attention to market availability and government ZEV targets is vital to set interim goals for heavy duty vehicles and off-road equipment.

4.C. Job Access. Coordinate with the workforce development board to identify high-road job opportunities in the HSR supply chain and to create equitable job opportunities with livable wages.

Manufacturer Coordination. Coordinate among rail operators, intercity bus operators and vehicle manufacturers to discuss fleet needs and

expectations.

Upcoming. Collaboration with local manufacturers and suppliers to share expectations and identify opportunities to green supply chains is planned to occur in 2024. Discussions with manufacturers to understand current market conditions and availability of big equipment without full customization is still required.

Target Due Date Change: The target due date updated to December 2024 from December 2023.

Operations Coordination. Work with partners to develop a workforce that can operate and maintain the system and fleet.

Upcoming. Collaboration with Caltrans and local operators to share expectations, identify skills gaps, and develop training opportunities is planned to occur in 2024.

5. Vehicle Miles Traveled (VMT) Reduction. Deliver electrified system increments that provide travel times savings and incentivize automobile mode shift.

Key Collaborators:

Vehicle Manufacturers and Supply Chain; Infrastructure Providers; Organized Labor; Investors; Academia; International; Caltrans; NGOs; CARB, CEC; CWDB

Key Results & Actions:

5.A. Renewable Electric High-Speed Rail. Operate the electric high-speed rail system using 100% renewable energy.

In Progress & On Track. Concept engineering for the renewable energy system is in progress, including Solar Power systems, Traction Power Substations (TPSS) and Battery Energy Storage Systems (BESS). Procurement of a contractor is anticipated in 2024.

Target Due Date Change: The target due date updated to December 2024 from December 2023.

5.B. Create Seamless Local Transfers. Create a plan to link the electrified high-speed rail journey with multiple types of local ZEV travel options (e.g. intercity coaches) to provide users with uniform ZEV end to end journeys.

In Progress & On Track. Ongoing analysis to establish metrics for transfer times and passenger journey comfort at all Central Valley Stations. Convenient transfers between modes and ZEV travel options are being considered in the Schematic Design process

for arrival and departure from the stations.

5.C. Reduce Transfer Penalties. Reduce transfer penalties by working with the state to implement the state rail plan, as well as working with municipalities and local transit agencies to integrate the various transportation systems.

In Progress & On Track. Ongoing coordination with local transit agencies to modify services in alignment with HSR service to improve passenger experience and reduce total trip durations. The Authority is participating in discussions around transfers and fare integration spearheaded by other entities.

6. Reduce Air Miles Travelled. Deliver an electric statewide system connecting intrastate air markets with travel times that incentivize air travel mode shift.

Key Collaborators:

Vehicle Manufacturers and Supply Chain; Infrastructure Providers; Organized Labor; Investors; Academia; International; NGOs; CARB, CEC; CWDB

Key Results & Actions:

6.A. Renewable Electric High-Speed Rail. Operate the electric high-speed rail system using 100% renewable energy.

In Progress & On Track. Renewable energy system concept engineering is ongoing, and implementation is upcoming.

Target Due Date Change: The target due date updated to December 2024 from December 2023.

6.B. Environmental Clearance. Complete all environmental clearance documents necessary for Phase I of the HSR.

In Progress & On Track. Environmental clearance for the whole Phase I system segments have been approved with only two segments remaining. EIS/EIR approval for Palmdale to Burbank is anticipated for 2023, and 2024 for Los Angeles to Anaheim.

Target Due Date Change: The EIS/EIR approval is anticipated for the Palmdale to Burbank segment by early summer 2024, and for the Los Angeles to Anaheim segment by December 2025.

6.C. Create Seamless Transfers. Create a plan increase regional transportation

connectivity between critical airports, regional rail lines, and the high-speed rail.

In progress & On track. The Authority has reached agreement with local airports to increase regional transportation connectivity.

Target Due Date Change: The target due date updated to December 2024 from December 2023.