California High Speed Rail Rail Electrification

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CONNECTING CALIFORNIA CALIFORNIA HIGH-SPEED RAIL



Increase Mobility



Needed Alternative



Better Air Quality





STRONG BOARD AND EXECUTIVE LEADERSHIP HAS INSPIRED GROUNDBREAKING COMMITMENTS FOR OVER A DECADE

- 2008 Board Adopts 100-percent renewable energy for operations
- 2011 Incorporated in California Air Resources Board (ARB) Scoping Plan for AB32
- 2012
 - » Net-Zero direct greenhouse gas emissions (GHG) for construction
 - » Net-Zero air quality emissions for construction
 - » Proactive construction requirements, including requiring Tier 4 vehicles and 100-percent recycling requirements
- 2013 CEO Signs Sustainability Policy
- 2014
 - » First infrastructure project to require disclosure on major materials, informed AB 262 Buy Clean California Act
 - » EMMA developed to track and monitor program and contractor progress
- 2016 Board Adopts Sustainability Policy
- 2017 Incorporated in ARB Scoping Plan Update
- 2019
 - » Required performance targets for embodied energy (concrete and steel)
 - » Zero emissions fleet vehicles (25 percent of on road fleet) for contractors
 - » Direct GHG emissions target set for construction tied to a bonus/penalty



AUTHORITY SUSTAINABILITY PRIORITIES

Five key areas organize our sustainability approach





ENERGY AND EMISSIONS

High-speed rail delivers a strong greenhouse gas emissions return on investment





ENERGY AND EMISSIONS

Delivering journeys in half the time and using renewable energy

Technology of the future

- Electricity enables speed and HSR travel times deliver reduced vehicle miles and plane trips
- Renewable energy generated on-site and linked with battery storage is a means of reducing electricity cost and increasing system resilience.
- Energy Net-Positive facilities

Running 100 percent on renewable electricity means truly zero emissions transportation.



PROTECTING COMMUNITIES IN CONSTRUCTION

Reducing and offsetting criteria air pollutants





ZERO EMISSION VEHICLES THROUGHOUT OPERATIONS

ZEV Requirements for HSR Construction and Operations



- New ARB Requirements: "Advanced Clean Truck"
- Increase of ZEV requirement for light-duty vehicles in contractors' fleet
- Market Availability of ZEV
- Energy Net-Positive facilities

Model Year	Class 2b-3 Group*	Class 4-8 Group	Class 7-8 Tractors Group
2024	-3% <u>5%</u>	7% <u>9%</u>	-3% <u>5%</u>
2025	<u>5% 7%</u>	9%<u>11%</u>	5% <u>7%</u>
2026	7% <u>10%</u>	11% 13%	7% <u>10%</u>
2027	9% 15%	13%<u>20%</u>	9% <u>15%</u>
2028	11% 20%	24% 30%	11% 20%
2029	13% <u>25%</u>	37% <u>40%</u>	13% 25%
2030	15% <u>30%</u>	50%	<u> 15% 30%</u>

