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New Figures Show that California High-Speed Rail Won't Do Much About Climate Change

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The California High-Speed Rail Authority's new draft business plan shows a further reduction in projected ridership, reinforcing questions about the project's value as a climate change solution.

When thinking about the climate change claims our political leaders make, it is important to recognize that California is currently responsible for about 0.75 percent of global greenhouse gas emissions. As a result, no California-specific policy can "solve" climate change. Any savings the state achieves from its many initiatives will likely be offset by growth in China's world-leading greenhouse gas emissions.

Given California's minor contribution to greenhouse gas emissions, state government's focus on climate policy seems excessive. One could argue that California climate policy should serve as a template for other state, provincial and national governments. To the extent that others follow California's lead, the impact of our policies could be multiplied. But that is very unlikely to be the case with high-speed rail, since few other political units could or would spend $128 billion on a single megaproject.

Assuming High-Speed Rail Phase I from San Francisco to Anaheim is completed by 2040, the Authority expects that it will carry 28.4 million passengers that year. This estimate is down from 38.6 million in 2022 and 31.3 million in 2023, reflecting sharply lower expectations for California's population growth in the wake of the COVID-19 outmigration.

Fewer high-speed rail passengers means the project will replace fewer automobile and airplane trips than previously expected. The latest draft business plan estimates that annual greenhouse gas emissions savings from these avoided trips will total 0.6 million metric tons of CO_2 equivalents ($MMTCO_2E$) in 2040 and a similar amount in 2050.

These annual emission savings are dwarfed by the 338 $MMTCO_2E$ of greenhouse gas emissions generated statewide in 2021. If the full high-speed rail phase I could somehow be implemented today, it would reduce greenhouse gas emissions statewide by less than 0.2%.

Further, the 0.6 million metric ton emission savings estimate may be aggressive. First, it is likely that the Authority's ridership figures are vastly overstated. When the Reason Foundation analyzed California High-Speed rail in 2013, its independent experts estimated that ridership would be in the range of 4.8-6.9 million, or about one-fifth of the Authority's current estimate.

Second, construction may be subject to further delays, pushing the inception of full Phase I service beyond 2040. Currently, the Authority forecasts that service along the 171-mile Merced-to-Bakersfield initial operating segment will begin at the end of 2030 but suggests the possibility that it could start as late as 2033. Problems, yet unforeseen by planners, could push this date back further. Connecting Los Angeles and San Francisco will necessitate finding another $93 billion of funding and overcoming engineering challenges imposed by the Pacheco Pass in the north and the Tehachapi Mountains in the South.

As the service inception date falls back, the potential emissions savings become increasingly limited, assuming other aspects of California's Climate Plan are achieved. For example, sales of new vehicles powered by internal combustion engines are supposed to be phased out by 2035. If this occurs, cars generating greenhouse gas emissions will represent a small and declining share of California's passenger vehicle fleet in the 2040s.

Even if the project is completed in the 2030s, it will not aver the near-term climate emergency that some authorities and activists expect. For example, the Intergovernmental Panel on Climate Change asserts that "limiting warming to around 1.5°C (2.7°F) requires global greenhouse gas emissions to … be reduced by 43% by 2030." California High-Speed Rail is not positioned to help achieve such a goal. Indeed, between now and the inception of service, the project will add greenhouse gas emissions through the pouring of steel and concrete, and the movement of contractor vehicles at construction sites.

But regardless of whether climate change is an emergency or a longer-term concern, the high-speed rail project is not a cost-effective way to address it.

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