

✖ Life cycle costs can be a buzz kill. Just when you think you've got a great environmental solution, such as going paperless and doing everything digitally, or installing double-paned windows to make a home more energy efficient, you find out that manufacturing these supposedly environmentally-friendly technologies can create waste that offsets some of their "green" value. The same may be true for high-speed rail. A [new study](#) by Mikhail Chester and Arpad Horvath of the Department of Civil and Environmental Engineering at UC Berkeley attempts to calculate the life cycle environmental costs of California's proposed high-speed rail system. Compared to other modes of transit, the researchers [found that](#):

High-speed rail has the potential to be the lowest energy consumer and greenhouse gas emitter only if it consistently travels at high occupancy or uses a low-emission electricity source such as wind, both of which will require appropriate planning and continued investment.

To ensure high ridership, high-speed rail will need to be affordable (low fares will encourage more riders), and towns and cities around the rail stations will need to plan for and legalize high-density, mixed-use development around the station areas. Both of these conditions will require strong leadership to meet.

As for the renewable energy, California has been working its way to more renewables through its renewable portfolio standards, which require investor-owned utilities to provide 20% of their electricity from renewable sources by this year (we're not going to make it) and 33% by 2020. The 33% target, however, comes from the [governor's executive order](#) under AB 32, the state's global warming law which could be suspended this year by [a ballot initiative](#). So the jury is out on the state's ability to maximize its renewable production for uses like high-speed rail.

But leaving aside the life cycle costs, the Berkeley researchers note other benefits from high-speed rail. [Says Chester](#):

Even if high-speed rail is 'dirtier' in some environmental aspects than other modes, you may still choose to build it for several reasons. These include transportation capacity constraints with the current infrastructure and the need to connect a growing number of cities, preferably avoiding developmental issues that have been identified with uncontrolled automobile growth.

While these other goals are important, high-speed rail leaders should ensure that the public is getting the maximum environmental benefit from the project, and that means ensuring high ridership and more renewable energy.