

Abstract

The two greatest threats to humankind during this time are the COVID-19 pandemic and climate change. During the COVID-19 lockdown, the only bright spot is that air pollution and CO2 emission have been reduced significantly. To slow down climate change, my project will reduce total emissions by allowing consumers to participate in the current California Cap and Trade system.

The improved Cap and Trade system will replace the current auction-based system with a blockchain exchange which includes individual consumers. The money from industrial participants, which currently goes to the state, will instead be used to pay for consumer emissions reduction incentives. My project focuses on the feasibility study of this proposed exchange system. Using the existing system as the baseline, I evaluate the additional carbon reductions with three consumer programs: incentivising working from home, rooftop solar, and adoption of electric vehicles.

First, I project emissions and the Cap and Trade system's allocations through 2026. Then, I estimate the emission reductions for the three programs by combining public data sources. Finally, I determine the payouts to consumers based on these emission reductions.

The calculated total emission reductions from my proposal range from 1.9% in 2022 to 2.7% in 2026. Working-from-home will reduce emissions 10 times more than solar or EVs, due to higher projected participation. These programs are self funded by the new exchange system.