**Assessing the Impact of Banning Internal Combustible Engines (ICE) on California Emissions**

DATA 621: Fall 2020 Final Project

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# Abstract

# Key Words

Carbon-Dioxide, ICE, Emissions, Vehicle, California

# Introduction

Climate change—the impact of manmade activities on greenhouse gases and their role in changing the climate—has emerged as a top priority for a majority of Americans in 2020 (Nadia, 2020). While the global scientific community has had consensus since the 1990s, the economic impacts of climate change have been thrust to the forefront with the NRDC reporting nearly $1.9 trillion dollars in losses by 2100 if no action is taken (Hope & Alberth, 2008). Such economic and devastating loss is most apparent in California, the most populous state in the United States, where the record heat has pushed extreme summer temperatures to 2.5 degrees warmer than that of 1970, and combined with drought, has made the state a seasonal match-box for wildfires. In fact during the 2020 year, California has suffered from six of it’s largest and most devastating wildfires (Rust & Barboza, 2020).

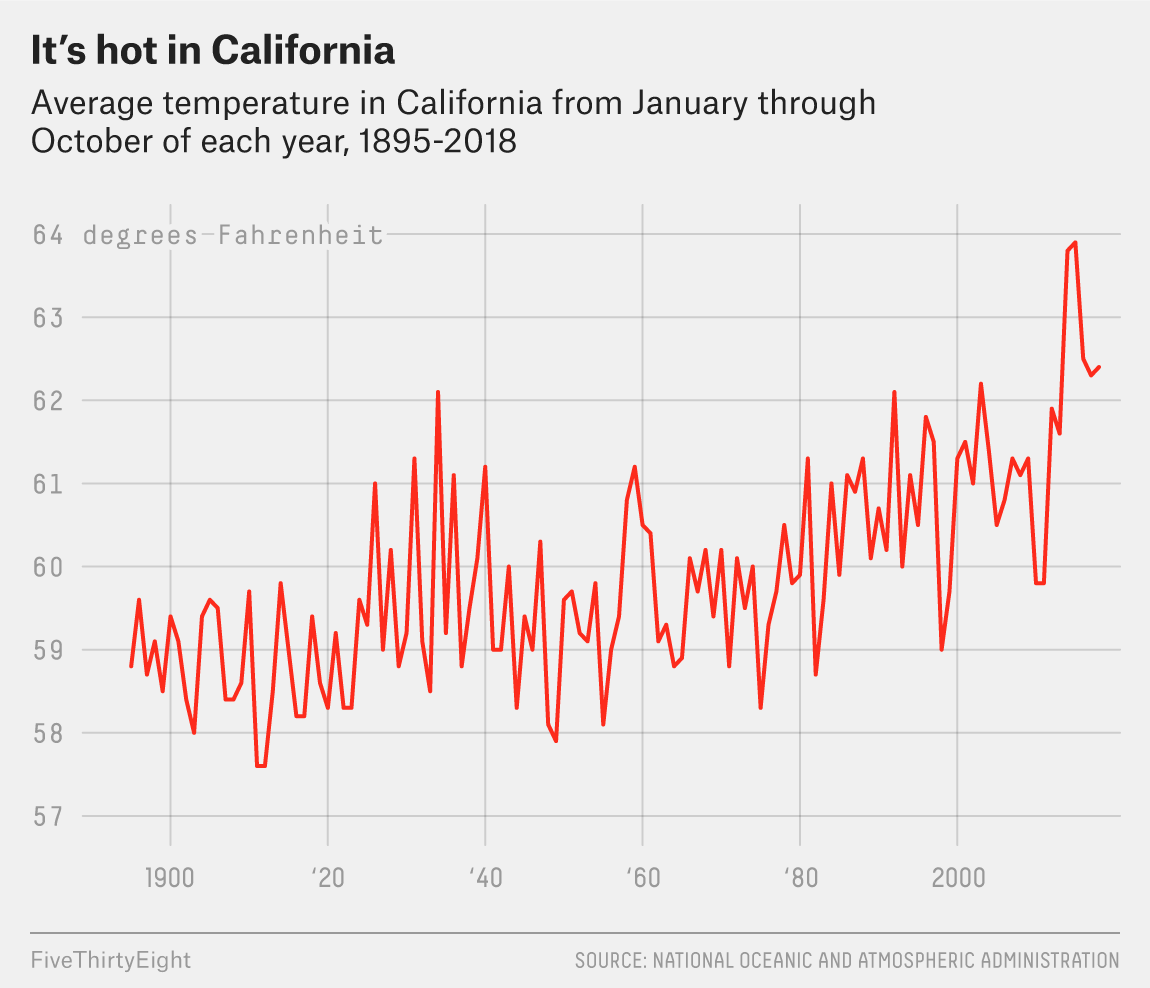


Figure California Temperatures (Christie Aschwanden, 2018)

With such dire consequences on the horizon, California Governor Gavin Newsom signed an executive order in September 2020 to ban all new internal-combustible engine vehicles (ICE) by 2035, and an outright ban on sales by 2045 (Newsom, 2020). California has long been on the forefront of clean energy, having maintain its own stricter gasoline standard CARBOB, a zero-emission vehicle (ZEV) standard, a separate low-carbon fuel standard incentive on all power generation (LCFS) and even tighter vehicle emission standards (CAA Section 909, with the aforementioned setting nation wide vehicle standards and also earning the ire of the 2020 EPA administration (Tabuci, 2018). While the transition to zero emission or electric vehicles is more pronounced in Europe and not the United States, Newsom’s outright ban serves as the strongest salvo for any United States state on combatting climate change.

Given the recentness (at the time of this report’s writing) of Newsom’s ban, the question of what impact would the ban of ICE engines have on meaningful reduce carbon dioxide emissions in California. Our team seeks to help shed light on different scenarios, and more importantly quantify said carbon dioxide emissions, using generalized linear models on vehicle data set. Such a model would not only be powerful for assessing California’s progress towards a lower carbon future but also serve as a tool for policy makers in other states, to evaluate the efficacy of similar program.

# Literature Review

# Methodology

# Experimentation and Results

# Discussions and Conclusions

# References

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