

Small 2 Cycle Engines Have Large Climate Impact

Together We Build, May 31, 2023

By Thomas Beck, AIA, NCARB

It's the season for mowing our lawns, tilling our gardens and breaking out the chainsaws for landscape clean-up and wildfire mitigation projects. On January 31, 2022, the Environmental Sustainability Task Force submitted its final report to the Estes Park Town Board, with 51 recommendations for "options for Town involvement in environmental sustainability initiatives." Among these recommendations are numbers 17, 18 and 19, which concern converting from 2-cycle internal combustion engine (ICE) power tools to battery powered electric tools. The report includes a link to a YouTube video discussion about California's updated law requiring new lawn maintenance equipment to be electric. This is an excellent overview of why it should be a no-brainer to replace gas powered leaf blowers and lawnmowers with electric/battery operated ones. In every category, discussing the leaf blower, the battery operated equipment was more powerful, weighed much less, was quieter, was less expensive, and had nearly zero maintenance cost. (the 38 minute YouTube program, A Breath of Fresh Air/In Depth by Now You Know, is well worth the time spent viewing: <https://youtu.be/vB78qCS1jww>) In comparing the commercial lawn mowers, the program concludes that the Mean Green Machine compared to the ICE John Deer has a return on investment (ROI) of 400 hours of operating time.

Some other insights learned from the program are that California has 16.7 million small engines versus 13 million cars. One hour of leaf blowing equals 1100 miles driven in the average car. Every day in California small engines emit 16.8 tons of NOx (nitrous oxide) and 125 tons of ROG (reactive organic gases.) There are 55,000 landscape companies in California, an estimated one million pieces of equipment, equivalent to one trillion miles of cars driven per year just in California alone. Californians drove 340 billion miles in 2021, and by adding small off-road engines (SORE) to the calculation it is the equivalent of California having three times more cars emitting pollution. One gas lawn mower emits 88 pounds of CO2 and 34 pounds of other pollutants into the atmosphere every year. 54 million Americans mowing the lawn every weekend in America consumes 800 million gallons of gas per year. While that amount of gas is less than one percent of gas burned in cars, it represents 5 percent of US air pollution because the small engines are so dirty.

In December 2021 the California Air Resources Board (CARB) approved the updated regulations for SORE. The updates included \$30 million in incentive funds to help small businesses transition, and realistic steps, like not banning existing ICE equipment like leaf blowers and lawn mowers. According to the CARB press release dated December 9, 2021, "there will be no "ban" on using older models or used equipment purchased in the future. Older models on store shelves can also be purchased even if they are gasoline-powered."

According to the Egopowerplus.com website, the company is the first outdoor power equipment manufacturer to earn the AGZA (American Green Zone Alliance) Field Test Certified rating for both commercial and residential platforms. The residential products include electric riding mowers, push mowers, string trimmers, blowers, solar chargers, and portable power. Benefits of battery operated equipment include the ability to have the same battery operate multiple products, much quieter operation, and very little maintenance cost,

Another manufacturer of commercial mowers, Mean Green Electric Mowers, has a page dedicated to the business case for battery electric power. The list of their 5 commercial models shows operational savings by model, ranging from annual savings of \$4,160 to \$15,600. The site also includes some links to the financial incentives available for electric fleet investment.

This is truly an example of how individual choices, like using fossil fuels to mow, has a huge impact not only on the environment, but on our individual bottom line. Our town can be a sustainable example by replacing outdoor power equipment with zero emission alternatives. We can stop the endless repair and maintenance of our personal outdoor ICE power tools, not to mention the ongoing cost of gas to operate, by replacing them with the growing variety of choices in battery operated equipment.

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Beck, Thomas W. "Small 2 Cycle Engines Have Large Climate Impact" *Estes Park Trail Gazette*, Friday May 31, 2023, <https://www.eptail.com/2023/05/31/together-we-build-small-2-cycle-engines-have-large-climate-impact/>