To: House Environment and Natural Resources Committee Members
From: Jennifer Martenson, Chair, Quiet Clean RI
Re: In support of HB 5343

I write in support of H 3543, State Purchases – Lead by Example Act. These are all important steps our public agencies should be doing to "lead by example" in reducing waste and pollution and transitioning away from fossil fuels. I will focus on the section regarding gas leaf blowers, (sec 37-2-87, p. 3-4)

I thank Representative Boylan for recognizing that landscape equipment should be included in sustainability programs. Lawn and garden equipment is a significant source of air pollution: in Rhode Island, landscape maintenance equipment releases an estimated 72,640 thousand tons of carbon dioxide, 58 tons of fine particulates, and 182 tons of nitrogen oxides in one year. The amount of fine particulates generated by landscaping equipment is equivalent to having 623,588 cars on the road. (See Public Interest Research Group, "Lawn Care Goes Electric," 2023.)

Gas leaf blowers are among the worst offenders in this category of equipment producing as much smog-forming pollution in one hour of use as driving a car for 1100 miles. — that's like driving from here to St Louis, with all the emissions concentrated in one small area. These emissions increase risk of respiratory disease, strokes, heart attacks, and dementia.

It would be wise for our state agencies to stop purchasing gas leaf blowers not only for the benefits to air quality, but also for cost effectiveness. Electric blowers may be more expensive upfront, but they actually save money over time. The quick ROI of battery blowers is widely documented, and the difference in price would be quickly recouped in savings from gas and maintenance. One study that looks at total costs of ownership shows that replacing one gas leaf blower with an electric one saves 1400 over the life of the tool. (For cost analysis, see the attached excerpt from "Addressing the Health, Environmental, and Quality of LIfe Impacts of Gas Leaf Blowers in Greenwich" prepared for the Greenwich Town Council in 2022.)

This section should be expanded to include other gas-powered handheld lawn equipment, such as string trimmers and hedge clippers, which also use 2-stroke engines. Walk-behind mowers are also competitive on price and performance and could be included in this bill. Since many manufacturers design their tools to share batteries, purchasing multiple tools in combination would be a cost effective way of cutting down on fossil fuel use from many devices and helping us move toward zero-emission landscaping.

This bill allows three years lead-time for departments and subcontractors for the state to stop using gas leaf blowers. Many existing leaf blowers will reach the end of their useful life in that time, to be replaced with battery versions. Switching to electric blowers will be fairly easy for most of the year, as it is widely acknowledged that gas leaf blowers are not

needed outside of the fall months. There is disagreement about whether current technology is up to the work during the fall months, but the three year phase-out will allow crews to adjust their workflows and develop strategies for managing the heavy leaves with electric equipment, as many landscape professionals have done.

Thank you for your work on this important bill,

Jennifer Martenson
Chair, Quiet Clean RI
Providence

- standing in one place, as if lost in thought, with blower running
- using the blowers to move leaves across large distances rather than moving leaves with a tarp
- using gas leaf blowers for jobs that can just as easily be done with a broom or rake, such as blowing dust and debris off hard surfaces
- using leaf blowers on grass clippings
- blowing leaves into the street where they clog storm drains
- blowing leaves onto neighbors' properties, then requiring a different team to blow those same leaves off

Aside from the wet leaves of late fall, landscapers who use electric equipment find that they do not need the 200 mph wind speeds provided by gas leaf blowers for most of the year.[53] Owner of Organic Ways and Means Landscaping reported, "I think it works as well as a gas blower. There are higher speeds in some of the gas ones, but once you move the leaf, do you need to push it 10 feet or 12? I'd say [the electric blower] is 95% or 99% as good. I don't see the gas helping. If you use one blower and a tarp and a rake, you can get it done, as opposed to blowing all the way across the property. It's not efficient."[54]

4A.3: Price Comparison:

There are two costs to consider when comparing the costs of gas and electric blowers: upfront costs and operating costs.

Upfront costs:

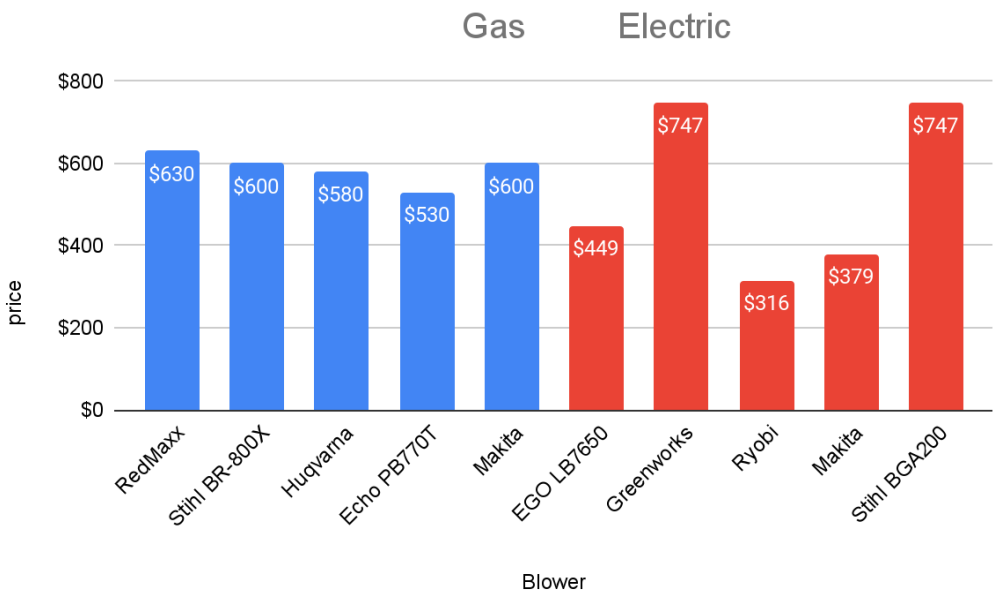
The chart below compares the upfront costs of our 10 models of blowers. Prices for electric blowers include the blower, one battery, and a charger. On average, the electric blowers in this comparison are $85 more expensive than the gas blowers. To be able to use them throughout the day, an extra battery will be needed. Prices for batteries for these models range from $145 for off label brands to $299 for name brand batteries.

starter rope, returning choke to run position, cranking the engine, and squeezing the throttle engine to release the trigger lock

[53] Interview with Jeff Cordulack, Organic Ways and Means, and Dan Delventhal, MowGreen.

[54] Quiet Yards Greenwich interview with Jeff Cordulack.

Cost comparison gas vs. electric blowers



Source: As reported on distributor or manufacturer websites. The reason some electric models are much less expensive than others is because these can work with off label batteries. The higher priced electric models only work with the same brand batteries.

Operating costs:

While electric blowers may cost more than gas blowers up front, they provide significant savings over their lifetime.

Best practices for landscapers using battery powered equipment is to charge at residents' properties. Eversource's on-peak cost per Kilowatt hour is $0.14.[55] Electric landscapers we interviewed reported that the cost for each battery charge is less than $0.20. On average, gas leaf blowers need to be refilled after every hour of use.

The American Green Zone Alliance, which tests and reviews electric lawn equipment conducted a three year cost comparison. Operating costs for the electric blower for 950 hours of annual use cost $171/year. Operating costs for the gas blower came to $807/year. Over the 4-year lifespan, the electric blower provided $1,444 savings (see Table below)

55 https://www.eversource.com/content/ct-c/residential/account-billing/manage-bill/about-your-bill/rates-tariffs/electric-supply-rates

AGZA lifetime cost comparison, electric vs. gas leaf blower

Electric BGA 100 blower+AR3000L Battery+ AL300 Charger			
Based on 950 hours of annual use	Upfront cost	Operating Cost	Lifetime Cost
Year 1	$1700	$171	$1,871
Year 2	0	$171	$2,042
Year 3	0	$171	$2,213
Year 4	0	$171	**$2,384**
Gas Echo PB770T			
Year 1	$600	$807	$1,407
Year 2	0	$807	$2,214
Year 3	0	$807	$3,021
Year 4	0	$807	**$3,828**

Source: Presentation by American Green Zone Alliance, Low-Impact Landscaping practices, Larchmont, March 1, 2022

MowGreen, a CT based landscaper operating with electric equipment, also reports savings with a 52% ROI in the first year of operation.

Operating Cost and ROI of electric vs gas blowers

MowGreen® *Clean & Serene, No Gasoline!™*

650 CFM						
3 hrs/Day 8 mos.	Cost/hour	Hours/Season	Cost/Season	Savings	Cost Unit	Added Cost
Eblower	$0.25	516	$129	$387	$1,250	-$750
Gblower	$1.00	516	$516		$500	
ROI						
Investment:	-$750					
Savings/Year	$387					
Year 1 ROI	**52%**				5 Foot riding Mower:	

Source: Presentation by MowGreen, Conservation Commission webinar, March 1, 2022

Similar results have been found in other studies. In 2017, the University of Arkansas conducted a side by side comparison of its ground crews' use of gas vs battery lawn equipment to determine the capital, environmental, and societal benefits to their campus.[56] For leaf blowers, they found that with a ROI of 3.26 years the electric blowers were significantly cheaper than the fuel powered versions. They concluded, "After reviewing the current equipment that our grounds crew utilize, we've determined that they're not only more expensive and have higher emissions but they are bad for the health of students, faculty, and staff on campus."

The above studies were done before gas costs exceeded $5/gallon, so savings with electric would be even greater in current conditions.

In addition to the cost of fuel, gas leaf blowers require significant maintenance and repair. Maintenance tips by professional organizations include:[57]

- Cleaning spark plugs and replacing when they get worn
- Draining used oil and adding fresh oil
- Disposing of used oil properly
- Cleaning and replacing air filter
- Replacing the fuel filter
- Cleaning the outside of the carburetor and fan blades
- Examining the fuel line, fuel filter, cables and connections
- For long term storage, draining the fuel system or adding a fuel stabilizer

[56] https://sustainability.uark.edu/outdated/get-involved/ofs_ua_battery_grounds_tools_report_20170927.pdf

[57] https://www.lowes.com/n/how-to/leaf-blower-maintenance#:~:text=dirt%20and%20debris.-,Monthly%20Maintenance%20for%20Gasoline%20Leaf%20Blowers,and%20replace%20it%20if%20needed.

In addition to the costs of the above maintenance, we must also consider the labor costs for time spent filling up at gas stations, mixing the fuel/oil mixture, and refilling gas blowers. The repairs required to keep gas-powered lawn equipment running are so extensive, that repairs alone have become the bread and butter that dealers rely on. In an interview with Pro Landscape Supply Co, the owner expressed concern that once electric tools become more mainstream, his business would suffer because such a large part of his supply business comes from the repair end.[58]

Because they do not have an engine and have fewer parts, electric leaf blowers are easier to maintain. Recommended maintenance includes:[59]

- Checking the air intake for dirt, debris and anything that might block air flow
- Removing the battery from the charger once it's at full capacity and storing the battery at a specific level of charge or periodically charging it during the off season. Some batteries have cooling vents that need to be kept clear of dirt and debris.

4A:4: Battery life and best practices:

There are many kinds of battery combinations available for electric leaf blowers. Generally speaking, the longer the battery lasts, the heavier it is, the more expensive, and the longer it takes to get a full charge. Landscapers we interviewed who use electric leaf blowers daily prefer smaller batteries ranging from 2.5 amps to 7.5 amps. The 5.0 amp, such as the one pictured below, lasts about 20 minutes, takes about 30 minutes to charge, costs $100-$150 and weighs just over a pound. Jeff Cordulack of Organic Ways and Means suggested having two such batteries per blower as a good rule of thumb. Cordulack charges one battery while working with the second one, and he keeps switching between the two. Cordulack charges at clients' outlets, and at current electricity prices the cost to the client is about $0.20 per service visit.

Landscapers who purchase the Ford F150 electric or hybrid pickup trucks or the Rivian truck will have the additional advantage of being able to charge from the back of the truck.[60]

Landscapers who prefer to have a battery that will last the entire day without requiring a recharge could look into the Makita ConnectX system releasing in 2022.[61]

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[58] March 6 interview, Pete Masi, Pro Landscape Supply Co, LLC

[59] https://www.lowes.com/n/how-to/leaf-blower-maintenance#:~:text=dirt%20and%20debris.-,Monthly%20Maintenance%20for%20Gasoline%20Leaf%20Blowers,and%20replace%20it%20if%20needed.

[60] https://www.businessinsider.com/electric-f150-lightning-hybrid-charge-other-electric-cars-bidirectional-2021-12

[61] https://www.youtube.com/watch?v=5u1tZWUEpQ0